KCB BUILDING MOI AVENUE *P.O BOX 323 -50200 BUNGOMA*
1ST FLOOR *TEL: +254-727 621841/ +254-723 313210 /+254 55 30059*
BUNGOMA. *E-mail: salimshaban2005@yahoo.com*
"Networking for spiritual nourishment, economic empowerment and sustainable development of appropriate initiatives and concepts."

Project Title: Western Gasifier Stove Project

APPLICANT

Name of Organization: African Christians Organization Net work
Mailing Address: P.O.BOX 323, BUNGOMA 50200 Kenya
Physical Address: 1 st fl. KCB Building
Telephone: + 254 727 621841
Email: salimshaban2005@yahoo.com
Principal Officer: Salim Mayeki Shaban
Project Contact Person: Salim Mayeki Shaban Programme Coordinator and Everlyne Otunga Program Manager

PROJECT

Focal Area: Reducing indoor air Pollution and forest Conservation
Activity Category: Learning by Doing Project.

Proposed project Duration: Two Years.

FINANCES

Total Mount grants Request: (KSHS) 4,245,429.20 (USD) 62,241.3
Other Contributions (KSHS) 1,520,000.00
Grand Total (KSHS) 5,765,429.20
Exchange Rate kshs 70.00 = I Us$

1.0 EXECUTIVE SUMMARY

1.1 GOAL OF THE PROJECT

To promote energy conservation and reduce deforestation in the sugar cane growing in Western Kenya.

.1.2.1 Specific Objectives

To Promote TLUD gasifier cookstoves and five biogas planter in Western Kenya
To provide and service 20,000 TLUD gasifier cookstoves and 5,000 fireless stoves..
To train 150 women and youth groups in production, repair and sale of energy saving equipment
To train schools and communities on energy conservation and use of renewable energy technologies.
To develop an energy equipment workshop for production, service and sale of improved cook stoves and energy saving equipment.

1.3 ACTIVITIES

The activities in the project will be

Community mobilization on energy conservation, forest resource management and effect of indoor air
Training in design, manufacturers and sale of renewable energy equipment and technologies i.e. biogas, TLUD gasifier cookstoves.
Networking on renewable energy conservation i.e. knowledge sharing and information dissemination.
Manufacture TLUD gasifier cookstoves, and five Biogas planters

2.0 STATEMENT OF COMPLIANCE WITH PARTNERS

This project will be carried out within the Nile Basin in Western Kenya. The same area is sources of Nile and other small tributaries. The project will promote energy saving culture and lead to sustainable use of forest resources while contributing towards the Kyoto protocol implementation. While noting that firewood is the major source of energy within the Nile basin and Methane, is 20 times more potent CO2 and hence its use in biogas energy is encouraged in managing green house effect.

3.0 PROJECT AREA

Western Kenya has a population of over 5 million people of which 80% depend on agriculture for livelihood and over 70% use firewood as fuel source. A survey has shown that all boarding schools use firewood and charcoal as fuel for cooking hence pressure on forest cover. Sugar cane growing in Mumias, Malava and Bungoma is a heavy user of trees as firewood. This combined has led to heavy exploitation of forests and trees for firewood hence a danger to the water catchments area.

4.0 PROBLEMS/CHALLENGE

Sugar cane cultivation in western Kenya, which started in mid 1970's, has accelerated the rate of destruction of trees due to high population density has further compounded the problem of destruction of forests and trees hence threatening the very source of water within the Nile Basin. Schools continue to put pressure on forest due to their high demand for firewood to use in cooking with highly inefficient open fire stoves. These project will develop biogas as an alternative source of energy, promote economical use of energy in institutions and homesteads through use of energy saving stoves create employment for people trained in production and service of the same and of the same and efficiently generate and use the highly potent methane from farmlands through biogas plants.

5.0 RATIONALE

This project meets the requirements of MDG's and Partnership for clean indoor air broad objective. The project will support community driven effort and will address environmental threats on local scale within the Nile basin region in the area of development and use of alternative energy and construction materials. In the process of carrying out participatory planning and appraisals for Musamba, Matungu, Kholera and Khalaba, the villagers expressed the desire to get cheap alternative to fuel firewood energy and alternative to open fire 3-stone cooking method. In all this areas, villagers expressed their fears that trees are disappearing and as a result they use farm wastes like maize stalks for firewood. The same should be used to replenish soil fertility after the crop season and should not used in the kitchen as firewood. Others were resorting to cane trash and remnants.

6.0 PROJECT OBJECTIVES AND EXPECTED RESULTS

6.1 PROJECT GOAL

To promote energy conservation and reduce deforestation in the Sugar cane growing areas in Western Kenya.

6.2 SPECIFIC OBJECTIVES

. To produce TLUD gasifier cookstoves and five biogas planter in Western Kenya
To provide and service 20,000 improved cook stoves and 5,000 fireless stoves..
To train 150 women and youth groups in production, repair and sale of energy saving equipment
To train schools and communities on energy conservation and use of renewable energy technologies.
To develop an energy equipment workshop for production, service and sale of improved cook stoves and energy saving equipment
Develop an energy equipment workshop for training, manufacture and service.

6.3 SPECIFIC RESULTS

The results of this project include
Increasing awareness of global warming and greenhouse gas emission management by schools and community.
Increased demand for improved cook stoves by schools and other public institutions as well as households for energy saving stoves and biogas plants.

Increased capacity to produce, service and sale energy saving equipment and biogas plant through training of 150 women and youth groups.
Increased participation in energy activities through knowledge sharing by network members.
Formation of a well-equipped energy equipment workshop for use in design, training service and marketing of renewable energy technology equipment and services.

7.0 DESCRIPTION OF PROJECT ACTIVITIES

This project will be implemented at community level. The project will involve installation of 5 biogas plants in institutions, TLUD gasifier cookstoves, and training in energy efficiency for schools, CBOs, women and youth groups. 150 women and youth groups will be trained at the project workshop in Matungu and will be involved in hands on production, repair and design of energy saving equipment promotion of the concept of total energy houses and homesteads will be promoted. An energy equipment workshop will be developed and equipped. To facilitate monitoring, evaluation reporting and information exchange energy network within the Nile Basin will be formed.

7.1 PROJECT ACTIVITIES

The project activities are:
a.) Community Mobilization and management skills development.
This will include leader orientation training. A 3-day non-residential training for local leaders will be carried out between 30-50 participants drawn from the project areas including Dos, Chiefs, Sub-chiefs, DCs, Church leaders, and youth representatives among others.

) Institution/CBOs Identified

This will be done after leaders' orientation. Discussion and suggestion will be done and names of potential beneficiaries floated for data collection and mobilization of the beneficiaries identified. This will be schools, CBOs, Artisans and stakeholders. This will be done in a two days non-residential workshop of leaders from the project area within a month of the leader orientation training.

) **Beneficiary Mobilization**

Extension workers will conduct mobilization activities utilizing PRA. Methodology, in each participating institutions and artisans. Initially, a two-day orientation meeting will be conducted for beneficiaries or their representatives. Extension workers will then initiate home/site visits to introduce the programmes. This will be followed by acquisition of energy baseline data through community mapping of villages and institutions. After preliminary mapping, the term will then conduct village transects walks where they will walk around the village area conserving and talking to community members to verify and update the accuracy of the map's baseline data. During mapping of baseline data, resources identification will be conducted to help the team identify their capacity to participate and contribute to this programmes.

) Energy Conservation Management Committee

Field Officer and Extension workers will train two representatives per project site during a 4-day worker shop on basic principles of energy conservation and management.

) Community Monitoring Review Meeting

Beneficiaries/community will be facilitated to hold open village monitoring review meetings. During this meeting, energy conservation representatives will report back to community on their progress and plans.

) Energy Conservation Training in Schools

From a list of identified school beneficiaries 30 school will be selected where extension officers will present energy conservation training/lecturers.

) Formation of energy networks

From the leader orientation and training workshop energy network members are identified both local and international within the Nile basin. This will be followed by formation of network steering committee of elected and appointed representatives.

) Energy Equipment Workshop

To facilitate in-house training of artisans, of energy saving equipment, a well-equipped workshop will be established as part of project implementation at Kharambe Market.

i) Construction of biogas and TLUD gasifier cookstoves

African Christians Organization Network (ACON) will help 5 institutions to built biogas plant. The digester will use animal waste and limited agricultural wastes with pH controlled between 7 and 8, introduction of anaerobic bacteria and control of temperature. This will be done in school with farmhouse rearing pigs or cattle. TLUD gasifier cookstoves to reduced consumption of firewood and hence CO_2 emission, such beneficiary institutions will repay on a termly basis for the two years to enable the project supply other schools in the future.

7.2 ACTIVITY TIME SCHEDULE

	ACTIVITY	WHEN	INDICATORS AND OBJECTIVES	RISKS AND ASSUMPTIONS	RESPONSIBILITY
1	Staff training and orientation	1st month upon funding	Project staff recruited and trained	Funding received	Project coordinator and Project Manager
2	Stakeholder mobilization and meeting	2nd month	Stakeholders identified and mobilized	Identified stakeholders are willing	Project coordinator Project manager
3	Leaders orientation on the project activities and objectives	2nd month of upon funding	Leaders identified And sensitized	Resources sufficient	Project Coordinator and project manager
4	PRA in	3rd month	5 Institutions	Schools/institutio	Project manager

	selected schools/institutions		identified for Biogas plant .	ns identified	Project coordinator
5	Identification of schools based on capacity and willingness	4th month	30 institution identified for energy project development (TLUD gasifier cookstoves)	Schools/Institutions willing to start and use Biogas plant and Institution	Project manager
6	Monitoring and evaluation	Quarterly	Monitoring and evaluation conducted	Implementation in progress	Project Coordinator and Project manager
7	PRA among CBOs in western Kenya	4th month	20 NO. Of CBOs identified for the project	CBOs identified	Project manager and Coordinator
8	CBOs and Youth Groups mobilization	4th month	150 women and youth groups identified for training in energy saving equipment	CBOs and Youth Groups willing to be trained and pay part of cost.	Project manager and project coordinator
9	Design of 5 biogas plants, TLUD gasifier cookstoves and material acquisitions and energy saving stoves	4th month	- 5 biogas plants designed for 5 institutions - TLUD gasifier cookstoves Drawings/sketches for energy saving stoves produced.	Schools/institutions identified and are willing to contribute	Project manager and coordinator
10	Equipment of workshop for productions/manufacture of equipment	5th month	- Measures and equipment acquired	Product specification and descriptions done	Project manager
11	Energy training and workshops for schools, CBOs	4th, 5th and 6th months	- No. Of schools and CBOs trained - NO. of participants	Schools/Institutions and CBOs already identified	Project manager
12	Construction of Biogas and TLUD gasifier cookstoves and energy saving stoves (several types)	6th month to 15th month	- NO. of items completed and installed	Beneficiaries contributed their part of the project	Project manager
1	Production,	Continuous	- No. Of equipment	Installation and	Project manager

3	operation and maintenance of equipment	(throughout the project duration from 6th month	installed operating	operation successfully done	

8.0 SUSTAINABILITY PLAN

This project will ensure the benefits will be maintained after the donor funding are completed. The project has in place economic, financial and technical viability through various strategies as highlighted below.

8.1 Utilization of Community Participatory Methodologies

To ensure full community participation and strong sense of local ownership, the project will adapt three key elements; the use of the PRA (Participatory Rural Appraisal); Community implementation of activities and cost sharing use of PRA is a noted methodology for facilitating communities' full participation in controlling their own development. To further ensure that PRA activities are fully accessible to all community members, the methodology emphasizes the use of locally available materials.

8.2 Technical Feasibility

Technical feasibility will be guaranteed by technical training in design, fabrication and maintenance of biogas plant, energy saving stoves. Personnel from the institutions will be trained in operation and maintenance of biogas plant and Rocket stoves so that they can maintain the project even after the project's duration. Trained artisans and technicians will be used to maintain the project even after funding. Use of standard parts in design and manufacture e.g. horses pipes and metal bars will make maintenance easy and sustainable.

8.3 Financial feasibility

To guarantee financial feasibility the project will provide the institutional biogas and stoves on soft loan facility where by they can pay per term, also production of the same products will be done on commercial basis for sale to generate income. Beneficiaries will also be trained in business management. Also continuous fundraising for the project will be done so as to attract other external funding.

9.0 MONITORING AND EVALUATION PLAN

The implementation of this project will have an effective monitoring and evaluation strategy as outlined below. This will be used to assess the success and implementation of the project.

9.1 Project Conducted Monitoring

On going monitoring of project activities will be conducted by project staff under direction of project coordinator and chief Principal person. A key component will be preparation of monthly report by all level of project staff and holding of quarterly review meetings, which will be attended by all staff. Formats for monthly

report will be developed based on project activities and should be used on a project site basis. This will allow chronological history of each project site implementation be documented and followed. In the review meeting progress will be charted, problems will be discussed with a focus on resolutions and lessons learned will be documented.
A quarterly project implementation report (PIR) will summarize progress towards program targets as well as documenting and reviewing problems encountered and lessons learnt. The project implementation report will be send to donors, PCIA team and other stakeholders. The report will involve both quantitative data and qualitative analysis.

9.2 Project Conducted Internal Evaluation

Baseline figures output indicators will primarily be measured during initial community mobilization activities and will take advantage of community mapped baseline data wherever possible. Comparative progress will then be measured against the baseline data through on-going survey and compilation. Baseline figures for outcome indicators will be principally acquired from conduction of a pre-intervention survey. Because outcome indicators principally look at knowledge, attitude and practice (KAP) of individual community members, random survey, and sampling will be employed using both questionnaire and observation. Post intervention comparative data will be acquired by repetition of the KAP survey conducted at the end of each set of villages and institutions after 24 months period participation. Statistical analysis of this quantitative data presented in the village/institution post-intervention internal evaluation report.

9.3 Community Conducted Monitoring

At homestead institution level, a field officer to develop and keep in his or her possession an action plan outlining his or her targeted energy practices will facilitate each homestead and institution beneficiary. The action plan will be visually represented through non-literate pictorials on a sheet of paper indicating each homestead/institution's target. The use of monitoring tool will increase community participation in monitoring energy use practices.
During each field officer visit, the homestead/institution members can review the action plan to assess their progress in achieving selected targets. At the community/institution volunteer level, the efficient energy use promoters will conduct a monthly monitoring activity, composed of promoters from other CBOs, villages and institutions.
At community, CBOs or Institution level, each limit representative will be responsible for on-going monitoring or the community's participation in energy conservation. Each representative of the community, CBOs or representative is expected to meet monthly with his group to monitor progress in health promotion. Baseline data encased within the community map will help the field officers chart community progress. In adoption of efficient energy use practices.

9.4 Community Conducted Evaluation

At the community/beneficiary level, the energy promoters will evaluate their progress as well as impact of their activities at the end of every 6 months. Energy promoters from each institution or community will cross visit one another and observe energy practices to evaluate the effectiveness and impact of their efforts. As community management level, four community wide review meetings will be held through, in first year and two in second year. During the meetings, the energy use representatives will report on their activities/progress achieved and future plans. As reference of progress achieved, during these meetings, communities/beneficiaries will facilitate to refer to the baseline data contained in the community map they developed during their initial village/institution mobilization activities. The map's data can then be updated for future reference. Also during these meetings, communities will be facilitated to identify and address present and potential future problem areas. Important issues that require community consensus will be openly discussed and agreed upon. A key issue will of course revolve around community progress in sustaining benefits acquired from the programme participation

9.5 Impact Analysis

This will be done through case studies, community/beneficiary review meetings and final evaluation. This will be done internally by the project staff in collaboration with community energy representatives. While external impact analysis will be done in collaboration with the donor, PCIA team and all other stakeholders in this project.

9.6 Network Review

All beneficiaries and stakeholders in this project will form an energy network to be hosted by African Christians Organization Network. The network members will carry out quarterly reviews, project site visits and group discussions on the progress and impact. The report will then be published and distributed among stakeholders as a quarterly bulleting or report. Network will form the editorial board with the project coordinator, project manager and staff as members of the network secretariat membership of the network will cut access the Nile Basin and hence open to all stakeholders within the Basin.

9.7 Roles and Responsibilities of Various Participants/Organization.

	INSTITUTIONAL/PARTICIPANT	**CONTRIBUTION**
1	ACON	Implementing Organization
2	Donor/Partners	- Financial support - External monitoring and evaluation
3	The Center for Research in Energy and Energy Conservation, known as CREEC, at the Technology Faculty of Makerere University	Consultancy in design and installation of Biogas plants and TLUD gasifier cook stoves
4	KARI (Kenya Agricultural Research Institute)	Technical information on biogas material feedstock properties at farm level
5	Women and Youth groups	Manufacturer, repair service and sale of energy equipment

6	Schools and public Institutions	Host institution for Biogas and Rocket stoves.
7	CBOs (Community Based Organization)	- Extension services - Village level training

I PROJECT FUNDING SUMMARY

FUNDING SERVICE	**YEAR 1 ksh**	**YEAR 2 ksh**	**TOTAL ksh**
Amount Requested	2,346,119.20	1,899,310.00	4,245,429.20
Community Contribution	300,000.00	220,000.00	520,000.00
ACON Contributions	500,000.00	500,000.00	1,000,000.00
Others	-	-	-
TOTAL	**3,146,119.20**	**2,619,310.00**	**5,765,429.20**

Community Contribution

	SOURCE OF CONTRIBUTION	**TYPE OF CONTRIBUTION**	**PROJECTED KSH**
1	Volunteers	Unskilled labour	100,000
2	Beneficiaries i.e. Institutions,	Local materials i.e. bricks, clay soil,	320,000
3	Women Groups	Extension services	100,000
	Totals		**520,000.00**

b) ACON's Contribution

	SOURCE OF CONTRIBUTION	**TYPE OF CONTRIBUTION**	**COMMITTED kshs**
1	ACON Staff	Labour	Shs 600,000.00
2	Administration costs	Facilities	Shs 400,000.00
	Total		**Shs 1,000,000.00**

II PROJECTED EXPENDITURE

Code	Description	Year 1	Year 2	Total kshs
1	Personnel/labour			
1.1	Coordination allowance	480,000.00	480,000.00	960,000.00
1.2	Project implementation committee expenses	102,350.00	102,350.00	204,700.00
1.3	Transport	150,000.00	200,000.00	350,000.00
1.4	Labor/wages for desilting	50,000.00	60,000.00	110,000.00
	Sub-Total	**782,350.00**	**762,350.00**	**1,624,700.00**
2	Equipment/Materials			
2.1	Energy saving stoves material	200,000.00	200,000.00	400,000.00
2.2	Biogas Materials	300,000.00	300,000.00	600,000.00
2.3	Installation, security, Storage	100,000.00	100,000.00	200,000.00
2.3	Machines & Equipment	200,000.00		200,000.00
	Sub-Total	**800,000.00**	**600,000.00**	**1,400,000.00**
3	Training			
3.1	Community meetings & PRA	100,000.00	80,000.00	180,000.00
3.2	Community training & leaders	60,000.00	80,000.00	140,000.00
3.4	Training of women and youth groups	120,000.00	120,000.00	240,000.00
3.5	Schools Energy Education	60,000.00	50,000.00	110,000.00
	Sub-total	**340,000.00**	**330,000.00**	**670,000.00**
4	Contracts			
4.1	Consultancy biogas design	70,000.00	60,000.00	130,000.00
4.2	Baseline surveys	80,000.00		80,000.00
4.3	Envi. Impact Asses/Audit	70,000.00		70,000.00
4.4	Monitoring & Evaluation	90,000.00	80,000.00	170,000.00
	Sub-total	**310,000.00**	**140,000.00**	**450,000.00**
5	Other costs (specify)			
5.1	Documentation/Report	57,500.00	34,000.00	91,500.00

	s/Comm.			
5.2	Stationary	12,500.00	8,560.00	21,060.00
	Sub-total	**70,000.00**	**42,560.00**	**112,560.00**
6	Contingency 4%	43,869.20	24,400.00	68,269.20
	Sub- Total	**43,869.20**	**24,400.00**	**68,269.20**
	Grand Total	**2,346,119.20**	**1,899,310.00**	**4,245,429.20**

Exchange Rate USD= Kshs 70.00

II Others Support Requested from Donors / Partners

External Technical Assistance

The design of TLUD gasifier cook stoves used external assistance at design and installation. The Center for Research in Energy and Energy Conservation, known as CREEC, at the Technology Faculty of Makerere University will offer consultancy in this case.