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Report presented by Energy for Sustainable Development Limited
97286

Accelerating rural electrification through East African SME Co-operation
Project 7109

Final Summary Report

October 1999

ENERGY FOR SUSTAINABLE DEVELOPMENT

Department for International Development KAR Project R7109

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Contents

Glossary

AfDB	African Development Bank
Cerudeb	Centenary Rural Development Bank
DTI	Department of Trade and Industry
EA	East African
EAA	Energy Alternatives Africa
ECGD	Export Credits Guarantee Department
FCO	Foreign and Commonwealth Office
FMO	Dutch overseas development finance fund
HTF	Hivos-Triodos Fonds
IFC	International Finance Corporation
IOs	International Organisations
NGOs	Non Government Organisation
SMEs	Small and medium sized enterprises
TD	Triodos-Doen Foundation

Executive Summary

Rural electrification is a key element for Africa's socio-economic development. More than 85% of East Africa's population resides in rural areas, but fewer than 5% of these households are connected to electricity grids. Recent history has shown that it is not possible in the foreseeable future (the next 10 years or more) for national governments in East Africa to offer significant extension of the grid to rural areas. In the absence of grid power it is off-grid electricity which will provide the primary impetus for local and regional development in rural Africa. Most current off-grid systems are petroleum driven (e.g. generators/gensets) very rarely serving more than one business, institution or household. These are expensive and are generally not economically or environmentally sustainable.

Renewable energy resources for off-grid electrification are abundant and offer economically viable alternatives to many current off-grid systems. The most appropriate delivery mechanism for these energy services is through the private sector. British and East African energy SMEs can deliver these services economically. By working together, this project has shown that they can develop cost-effective, sustainable renewable energy services to meet consumer demand, accelerate rural development, generate employment and protect the environment.

This project has worked with UK and East African SMEs active in the field of renewable energy development and technology marketing. The outputs include:

- Stakeholder analysis briefing packs for SMEs. They profile companies, NGOs, and government organisations active in the renewables sector in the target countries of Ethiopia, Kenya and Uganda and provide background resource and economic information.
- Proceedings of stakeholder meetings held in Kenya and Uganda to consult the market playes and inform them of the aims of the project.
- Pre-feasibility studies prepared co-operatively by the project participants. These demonstrate mechanisms for co-operation and identify barriers and opportunities.

The findings include an analysis of suitable co-operation options between EA and UK SMEs. The relative strengths and weaknesses of these SMEs were examined, covering areas such as finance, resources, access to technical and market information. UK SMEs are stonger in the first three of these areas, with EA SMEs having the advantage in the latter.

The main barriers to SME development of off-grid electrification includes a lack of access to finance, business skills, knowledge of the market, and support for feasibility studies. High levels of risk due to poor policy environments, exchange fluctuations and a highly price sensitive market are also identified as barriers to development.

Recommendations

For Small and Medium Enterprises

Renewable energy SMEs should:

- Improve information exchange between UK SMEs and EA SMEs, particularly by making good use of e-mail and the Internet.
- Pool resources and form national associations (as they have done in Uganda).
- SMEs should plan their entry routes into new market carefully to minimise risk but maximise opportunity. This can be done by at first entering with less formal arrangements but then moving to more formal joint venture partnerships as the business venture becomes clearer and more definite.
- Lobby hard with governments and donors both in East Africa and in the UK to demonstrate the development potential of the proposed business activities and why they are deserving of constructive support to enable sustainability to be reached.

In addition:

- UK companies should push for support from the Business Partnership Unit of DFID and the Development Business Team, British Trade International (BTI).
- UK SMEs should provide support to EA SMEs (through licensing, through QA, through credit financing, etc.).

For UK Government and other donors

- Know How Fund Pre-Investment Feasibility Scheme (PIFS) type funding should be available to UK SMEs trying to invest in East Africa and other developing regions.
- Government should appreciate the development role EA and UK SMEs have in delivering rural energy services commercially in East Africa and elsewhere and use existing programmes such as those run by the Business Partnerships Unit of DFID and the Infrastructure and Energy Projects Directorate of British Trade International to support and assist them.
- Innovative schemes to support small business activities in renewable energy (e.g., as part of more general SME support programmes) should be developed.

For East African Governments

- They should improve the business environment for foreign SMEs to enter the market, particularly to encourage them to link with local firms in such fields as franchising, licensing, manufacturing under license and joint ventures.
- They should provide incentives (e.g., low or no duties or tariffs on imports of renewable energy equipment) for investors to develop renewable sources of energy rather than imported conventional electricity generation (e.g., in Uganda,

diesel and petrol gensets face no import duties or tariffs, while PV components face between 10% and 100% duties).
- Offer tax holidays, tax reductions, investment credits and other fiscal incentives to SME investors to market and/or locally assemble renewable energy equipment.

For Financiers and Banks
- International credit references are available, they should be utilised, and for a 'smart' SME they should be used.
- Financial institutions and especially rural development banks should recognise renewable energy projects as viable investments and drivers of rural economic development, and thereby make credit, particularly term credit, available to financially viable projects and investments.
- Financial institutions should make more of an effort to develop appraisal methods for renewable electricity projects. They should develop resource networks from which to pool expert advice to appraise projects in order to carry out their due diligence.

For Trade associations
- UK and European Trade Associations should first help East African renewable energy SMEs and groups form trade associations.
- UK and European Trade Associations should then link with and provide information and support to the East African associations, particularly to help them lobby for support and assistance.
- East African associations should support and assist their members in practical ways, particularly tying into international networks both for support as well as for lower priced imports, better access to technology, and links to international companies interested in investing in rural electrification in the region.
- There should be wide dissemination of the recommendations of this project to UK, European and East African trade associations and groups. This can be variously accomplished through the Internet (e.g., UK trade association Web sites), through email postings (e.g., through UK and European trade association links) and through various forums.

1. SUMMARY OF PROJECT OBJECTIVES, ACTIVITIES AND OUTPUTS

1.1 Project Description

The project was designed to explore the options for small and medium sized enterprise led off-grid electrification, focusing on the development of renewable energy resources by pairing British with East African SMEs.

1.2 Project rationale

Rural electrification is a key element for Africa's socio-economic development and rural transformation. The most appropriate delivery mechanism for these energy services is through the private sector. British and East African energy SMEs working in co-operation can develop cost-effective, sustainable renewable energy services to meet consumer demand, accelerate rural development, generate employment and protect the environment.

1.3 Project Purpose

- To increase off-grid electrification by improving the business, commercial, financial and technical skills of Ugandan, Kenyan and Ethiopian SMEs through co-operation and partnership with UK SMEs.
- To examine the future role which may be played by E African and UK SMEs in off-grid electrification, and to draw conclusions on how such commercial SME activity can be promoted and strengthened.

1.4 Overview - Overall Activities and Milestones

- UK Partner meeting, May 1998.
- Pre-Kick-off meeting country briefs
- Kick-Off meeting and Kenya stakeholders workshop, Nairobi, 22nd and 23rd June 1998
- Stakeholder identification and production of Stakeholder Analysis Partner Briefing Pack – September 1998
- UK Partner meeting 2nd November 1998 – preparation of Issues and Options Matrix
- Project mid-term meeting and Uganda Stakeholder workshop, Kampala 19th-20th November 1998
- Project strategy paper
- Pre-feasibility studies
- Final partner meeting Nairobi 10th –11th July 1999
- Project recommendations and project summary report

1.5 Outputs

1.5.1 Stakeholder Analysis

A comprehensive stakeholder analysis of the renewable energy sector was carried out in each target country. Each report contains information on:

- Type of stakeholder (e.g., private, government, NGO, etc.)
- Characteristics of each stakeholder (brief description of what they do, what their interests are, what their financial status is, etc.)
- Interests (a brief summary of what their interests are, or might be, in solar, wind, small hydropower)
- Activities (a brief description of what types of activities they are engaged in (e.g., crop production, agro-processing, banking, electronics production or assembly, etc.)
- Potential for participating in the project (a brief analysis of their potential participation in or contribution to the project, or the activities, such as investor, promoter, financier, etc.)
- Key information (name of principle contact, address, telephone and fax numbers, email address, etc.)
- Attitude of stakeholder towards project

1.5.2 Mid-Term Meetings- November 1998, UK and Uganda

The team held mid-term meetings in both the UK and Uganda at which they:

- Reviewed country briefs & stakeholder reports
- Prepared Partner reports on progress
- Developed co-operation options and issues matrix
- Defined 'pre-feasibility studies' and set out format and schedule for developing these
- Agreed pre-feasibility studies subject areas and work plan

1.5.3 Strategy Paper Components

The team prepared a series of country strategy papers. Each paper set out:

- Opportunities, constraints and barriers to SME off-grid electrification
- Financing opportunities and constraints for off-grid SMEs
- Guidelines and methodology for transfer of technology, skills, know-how, finance, etc.
- Process to final recommendations

1.5.4 Pre-feasibility studies

Project partners collaborated to produce pre-feasibility studies of proposed co-operation initiatives. The feasibility studies produced were:

- Pre-feasibility Study for Development of Wind Market in Kenya – Marlec , EAA
- Pre-feasibility Study Ethiopia June 1999 Rural Energy Needs – Megen, Selam
- Micro-hydro project development in Ethiopia and Uganda – Dulas, Selam, Megen
- Micro hydro in Uganda , SDC
- PV market development in Kenya, EETS

1.5.5 Final project workshop, Nairobi

The project final workshop was held in Nairobi in early-July 1999. Participants from all the UK and EA SMEs:

- Presented the results of the pre-feasibility studies
- Drew out the critical factors identified for success of these projects.
- Carried out SWOT (strengths, weaknesses, opportunities and threats) analysis on technology specific EA/UK SME co-operation for accelerated rural electrification
- Identified the barriers and areas where further enabling measures, capacity building, finance availability etc. are needed to further facilitate co-operation.
- Began development of the team's final strategy, recommendations and action plan for taking forward successful co-operation.

1.5.6 Final summary report

The current document summarises the primary work, results and recommendations of the project. It is based, in large part, upon the format and conclusions of work presented or developed at all the project meetings and workshops and in particular the final project meeting in Nairobi in July 1999. It offers extensive, specific recommendations on how to promote and accelerate rural electrification in EA through pairing UK and EA SMEs.

1.5.7 List of project documents produced

1. Stakeholder Analysis Briefing Pack, September1998, including Minutes of Kick-Off Meeting Nairobi, June 1998
2. Proceedings of Uganda Project Meeting and Stakeholder Workshop, Kampala, November 1998
3. Discussion and Strategy Paper, June 1999
4. Proceedings of Kenya Final partner Meeting, Nairobi, July 1999
5. Final summary report, October 1999

2. SUMMARY OF FINDINGS

2.1 Knowledge required

The need for a good knowledge base, particularly on the side of the UK partners, was identified early on in the project. This led to the production of the Stakeholder Analysis Briefing Pack by the EA SME partners. These briefing packs summaries the present status of electricity from small-scale PV, wind and hydro in each target country. They also identify key opportunities for SMEs in this sector. They assessed the present market position for foreign investment. The annexes to these briefing packs include very detailed background information and data for the UK SME user. As well as the analysis of primary and secondary stakeholders, there are resource and a situational analyses of the present rural energy sector for each country (see Stakeholder Analysis Briefing Packs).

2.2 Market co-operation options

During the course of the project, it became clear that there are a number of relationships and business structures that can link East African and UK SMEs and facilitate the market for commercial rural electrification. Meetings in the UK and Uganda generated the following issues and options matrix (Table 1).

Table 1 Market Co-operation Options and Issues Matrix

Option	Cost	Risk	Timescale	Will it achieve critical mass?
Manufacture under licence	Medium	Medium	Long-term	Yes
Joint tendering for hardware supply	Low	Low	Short-term	No
Distribution arrangements	Low / medium	Low / medium	Medium-term	Maybe
Sales agency	Low /medium	Excl. - Medium Non-excl. - Low	Short-term	Maybe
Joint venture Buy-into co.	High Medium /high	High High	Long-term Medium-term	Yes Yes
Establish subsidiary	High	High	Long-term	Yes
Strategic partnerships	Low	Low	Short-term	Maybe
Franchise	Medium	High	Medium-term	Maybe
Joint consultancy	Low	Low	Short-term	No

From the above matrix the categories by which the options have been judged can be discussed. The team notes that this table tends to look at the situation from the UK SME point of view.

2.2.1 Cost

Cost will always be a major factor for determining whether a company can or should invest or not. Costs include a range of factors including the cost of obtaining investment information, transaction costs associated with setting up businesses, financial fees and foreign exchange costs, among many others. One of the most important costs for a UK SME is that of obtaining sufficient market information to make the right contacts and to determine whether there is a market for its products or services.

These factors are particularly important for small companies in both the UK and EA. UK and EA SMEs are very vulnerable, because a single business failure can lead to the failure of the whole company. Therefore, it is more crucial to the small company to have access, at the least cost possible, to as much market information, to as good local sources as possible, and to the best entry into the market at the least cost possible if they are to succeed.

Costs are linked to the level of commitment the partner has to make to the project. Where commitment is low or short term, such as joint tendering or strategic partnerships in general, costs are generally low (as are returns). Once business relationships become more long term this extends the costs (and the possibilities for higher returns). A joint venture or setting up a subsidiary are seen as high cost options as business start up capital is required.

Low/medium cost options are worth considering, particularly as means of entering the market and learning one's way. They tend to involve tie ups with already existing companies in EA who already have structures in place. These can save costs for the UK partner and will share risk more equally between the partners, always a positive aspect in a new partnership. These medium cost options are the licensing, franchising and distribution arrangement ones.

2.2.2 Risk

As commented on above, risk is equated with cost: the higher the cost, the greater the risk. Cost is not the only factor. For example, it may be inexpensive and simple to tie in with one distributor to do business. However, if they do not deliver, then the risk is high. The same applies to the EA partner who could rely on an exclusive deal with one UK manufacturer. If their product is more expensive or more unreliable

than a competitor, then they could lose the market. However, the advantage of these distributor, franchise arrangements is that relationships can be made and tested (thereby setting the stage for longer-term relations). Contracts can be made short term, thereby giving both parties the opportunity to get out if things are not going well thus they are low risk. It is again the joint venture/ subsidiary high commitment options that are seen as highest risk.

2.2.3 Time scale

This factor again reflects the level of commitment between the partners. Longer term options are seen as higher cost and risk principally because both parties are tied into fixed costs and expenditures for longer periods before profits accrue.

2.2.4 Critical mass

This factor was assessing whether successful collaboration would lead to a business venture which would generate its own business in the longer term and generate a stream of future work and incomes. The low cost, low risk activities generally do not generate this critical mass. The medium term, medium risk options might lead to critical mass, and thereby longer-term returns. However, the best chance for long-term returns is to achieve critical mass through high cost, high risk activities –if they are successful.

The risk-return ratio is crucial. Starting relatively small, developing relationships, with an eye to growing the market is a sound strategy for both EA and UK SMEs. This can be accomplished in a number of ways (e.g., joint tendering), but can only be successful in the long-term when both parties are committed to developing long-term markets.

The franchise, distribution options were seen as possibly achieving critical mass but the dangers to this being achieved are that there is more likelihood for either party to pull out and change supplier or distributor should they wish to than in the joint venture, subsidiary type options.

Achieving critical mass is extremely difficult from a business point of view, as the investment required by small businesses is too high to justify risk. Until a critical mass is developed for the technology it is very difficult for local and British businesses to address a market even though it may clearly exist.

2.3 Pre-feasibility studies

- Pre-feasibility Study for Development of Wind Market in Kenya – Marlec , EAA
- Pre-feasibility Study Ethiopia June 1999 Rural Energy Needs – Megen, Selam

- Micro-hydro project development in Ethiopia and Uganda – Dulas, Selam, Megen
- Micro hydro in Uganda , SDC
- PV market development in Kenya, EETS

Full details of the pre-feasibilities are documented in the Proceedings of the Kenya Final Partner Meeting, 10th –11th July 1999, Nairobi Kenya.

An example of the material prepared by the project, and included below, is the case study produced by Marlec Engineering, the manufacturers of small wind turbine in the UK and Energy Alternatives Africa (EAA), a Nairobi based consultancy who have previously focussed on the marketing of solar home systems.

2.3.1.1 Pre-feasibility Case study

Development of Wind Market in Kenya

Prepared by Teresa Auciello, Marlec, UK and Mark Hankins, EAA, Kenya

1. Is there a Market for British Wind Generators in East Africa?

- *Studies show a potential market for battery chargers BUT*
- *British companies need access to market information*
- *Local agents need to be made aware of wind generator technology*
- *Appropriate linkages need to be developed*
- *Kenya has highest likelihood of yielding a receptive market in the region*

2. Outputs of the study

- *To address the interests of stakeholders*
- *To screen appropriate opportunities for British investments in wind*

3. Pre-feasibility Assessment

- *Historical Information on the Wind Market*
- *Wind Resource Data & Geographical Data*
- *Customer Base, Demand*
- *Defining the Ideal Viable Products*
- *Opening Up the Market*
- *Impediments to Market*

- *Importation/Distribution Issues*

4. History in Kenya

- *Almost exclusively windpumps*
- *3-400 locally produced & sold in last 15 years*
- *Industry supported by churches and donors*
- *Declining business (not necessarily indicative of declining market)*
- *Little experience with wind generators*
- *Private sales with little feedback*
- *No sustained marketing efforts to major potential clients*

5. Regional Potential Markets Based on Wind Resource

- *Turkana Jet Area (Northern Kenya)*
- *Coast*
- *Rift Valley & Escarpments (Local geographic effects)*
- *Lake Victoria*

6. Potential End-Users by Type

- *Rural Off-Grid Households (already >100,000 using PV for TV, lights, radio)*
- *Off-Grid Tourism Market*
- *Game Lodges, Tented Camps, Game Ranches*
- *Off-Grid Towns (generators already sold)*
- *Off-Grid Institutions & Businesses*
- *Schools, clinics, missions, NGO offices*

7. "Horses for Courses"

- *Recognise that different market sectors call for different priorities in product selection*
- *Price identified as major issue for rural homes, low income but also low power*
- *Power output and long term performance are more significant to institutions and donor funded projects*
- *A range of products is needed*

8. Product Criteria *(after price & power identified)*

- *Established products*
- *Not a market to test new products*
- *Important to establish consumer confidence*
- *Relative spend will be high for large proportion of potential market*
- *Kenya / EA is small community*
- *Established RE or "power supplier" needed*

2.3.2 9. Which existing products might fit?

a) Small Battery Charging

Low-cost, low tech, 50-200W machine for the household market to supplement existing PV power

b) Large Scale Battery Charging

Higher specification larger systems (200W-1.5 kW) for power needs of institutions, tourism, and professional uses

10. Opening Up the Market

- *Awareness Creation among Target Market*
  - *Promotion (Sell benefits to business people)*
  - *Demonstration (Donor-purchased through NGOs, missions, etc)*
  - *Training of SMEs*
- *Classify and identify types of enterprises / partners; importers, exporter, investors, installers, etc (See stakeholder analysis)*

11. Consider Two Viable Entry Methods

a) Import & distribution

- *Currently operating*
- *Associated products*
- *"One stop shop"*
- *Market position*
- *Technical know how*
- *Direct sale? Dealers?*
- *Financial status*
- *Exclusivity required?*

b) Local assembly/ jv

- *Tech. & Manf. skills, facilities*
- *Assemble CKD*
- *Cost savings achievable*
- *Finance capital investment*
- *Maintain quality*
- *Local raw materials*
- *Which products? All?*
- *Marketing orientated?*

12. Market Barriers/Opportunites

- *Kenya policy to RE*
- *Tariffs*
- *Import Duties*
- *Local VAT*
- *Investment / Licensing regulations*
- *Political apathy*
- *Rural elec. priority?*
- *Abolition of tariffs?*
- *Reduction of duties?*
- *Subsidy?*
- *Govnmt promotion, assist financial set up*
- *Political gain?*

13. Conclusions

- *Studies to date show potential for wind power but no firm figures*
- *Studies show that stakeholders are interested but need information*
- *Next stage - feasibility study and demonstration*

2.3.3 SWOT of the wind case study

The project team carried out a SWOT analysis of the Kenya wind case study.

Table 2 SWOT Analysis for the small wind turbine market in Kenya

Strengths	Weaknesses
1. Strong PV Market	1. Mass market price is a real issue
2. More reliability seasonably balanced demand	2. Too many market niches difficult to cover
	3. No good wind data
3. Technical support (e.g. SHS)	**4.** Mismatch between resource and demand
4. Large non-price sensitive market	*5.* ***Lack of familiarity of wind systems***
5. Existing market support	6. Customer awareness of machine rating

	7. Appliance matching
Opportunities	**Threats**
1. Big potential market 2. Lots of niche markets 3. Gov & promotion 4. Grid system unreliable, weak, non extensive 5. Genset bad name in O&M, running costs, breakdown ***6. Promotion of PV can run in parallel to wind market (reducing risk)***	1. Exchange risk 2. Government policy (VAT) 3. Gensets are available & convenient 4. Gensets are plug and play ***5. Credibility lots of RE industries come and go*** ***6. Boom and bust agriculture sector*** 7. ***Security***

Critical issues in bold italics

2.3.4 SWOT analysis for PV in Kenya, Uganda and Ethiopia

The project team then carried out SWOT analysis for PV in the three target countries

Table 3 a) SWOT Analysis for Kenyan PV market

Kenya	
Strengths	***Weaknesses***
Existing market	Bad products in the marketplace
Good resource	Lack of intermediary finance
Companies exist	Companies have limited finance abilities
Good products	User awareness low
Good cadre of technicians to build on	Lack of promotion
Fairly good network	Long product chain
Few government distortions on market	Lots of different products & different standards
Wide TV & radio coverage	Lack of standards
Good distribution network	High taxes
Open foreign exchange regime	
Investment law very liberal	
Opportunities	***Threats***
Good market & growth prospects in Kenya	Cheap imported products
Regional opportunities	Currency fluctuations, exchange risk
Lack of grid, weak grid	Very competitive market
Big donor projects	Big donor projects
No duty on modules	Inconsistent government policy, approach
Aggressive merchants	

Table 3 b) SWOT Analysis for Ugandan PV market

Uganda	

Strengths	***Weaknesses***
Existing donor market Good resource	Lack of strong commercial market Few experienced & well-developed companies
Some companies exist	Lack of technicians
Few government distortions on market	Bad products in the marketplace
Lots of battery changing (familiarity with battery systems)	Lack of intermediary finance
Relatively large DC equipment market (TVs, radios, etc.)	Companies have limited finance abilities
Wide TV & radio coverage	User awareness low
Foreign exchange regime	Lack of promotion (market)
Liberal investment laws	Lack of consistency on government policy, taxes, etc.
	Lots of different products & different standards
	Lack of standards
	Very little distribution outside Uganda
	Very high prices
	High taxes
Opportunities	***Threat***
Good growth prospects in Uganda	Cheap imported products
Increasing rural incomes	Currency fluctuations, exchange risk
Lack of grid, weak grid	Big donor projects
AFRREI capacity building, sourcing, standards, QA, support	Historically little government policy or support
No duty on modules	
Growing government support & interest	
Growing media market	
Integrated GoU RE strategy	
Privatisation of electricity sector	
High prices	

Table 3 c) SWOT Analysis for Ethiopian PV market

Ethiopia ***Strengths***	***Weaknesses***
Small donor market	Lack of strong commercial market
Good resource	Large duties
Some battery charging experience	Few experienced & well-developed companies
Open exchange regime	Lack of technicians
Aggressive merchants	Low rural energy expenditure
	Lack of intermediary finance
	Companies have limited finance abilities User awareness low
	Lack of promotion

	Lack of government support
	Lack of standards Very little distribution
	Very high prices
	No stock of supplies in country
	Lack of donor local procurement
Opportunities	***Threats***
Good growth prospects in Uganda	Currency fluctuations, exchange risk
Increasing rural incomes	Historically little government policy or support
Lack of grid, weak grid Privatisation of electricity sector	Fluctuating economy Foreign exchange risk
TV & radio market growing	Big companies stifle SME development
Big companies grow the market	

2.4 Business characteristics matrix

The matrix below was drawn up by the group in session at the final workshop in Nairobi. The idea is to judge how EA and UK SMEs compare with each other for a number of business needs or functions. The rating of EA and UK SMEs for a range of business needs or functions is measured in terms of low, medium or high scores.

Table 4 Business characteristics matrix

Business needs/functions	**EA SMEs**	**UK SMEs**
Financial		
Access to bank finance	L	M
Access to other finance	L	M
Level of owner finance	L	L
Access to government finance	L	M
Access to donor finance	L-M	M
Inputs		
Local raw materials (availability)	L (med K)	H
Locally available equipment	L (med K)	H
Local components (availability)	L (med K)	H
Unskilled labour costs	L	H
Skilled labour (availability)	L (med K)	H
Skilled labour (cost)	M-H	H
Electricity, energy services (availability)	L-M	L-M
Energy costs	H	H
Social costs (labour)	M-H	M-H
Transport infrastructure (access)	L-M	L-M

Transport (cost)	H	H
Communications infrastructure	M	M
Other		
Information & TA		
Access to information (best quality lowest cost)	L	H
Access to TA	L	H
Access to training	L-M	H
Cultural knowledge (how to play the game…)	H	L
Other		
Markets, marketing & promotion		
Access to market information	M	L
Access to local markets	M-H	L
Access to regional markets	H	L
Access to international markets	?	H
Legal & Institutional		
Access to local legal info	H	L
Access to local legal services	H	L
Access to local business services	H	L
Company registration, etc.	H	L
Local knowledge		
Ways of doing business	H	L
Access to local donor information	H	L
Business contacts	H	L
Knowledge of government contacts, ways of business	H	L
Import-export knowledge	H	M
Key: H-high, M -medium, L -low, K-Kenya		

2.4.1 Finance

Table 4 shows the level of access to the given source of finance. Unfortunately both EA and UK SMEs are weak in this regard. Finance in East Africa is very difficult of the EA partners to access at reasonable rates (less than 20% is rare). UK SMEs have access to funds at more reasonable rates but due to their size are reluctant to take risks. Foreign exchange risk is of primary concern for UK firms. Investments (and repayments) denominated in foreign exchange carry major, often unacceptable risk for EA SMEs.

Perceived risk is often one of exchange. Efforts to remove exchange risk would help overcome reluctance on the part of UK SMEs to make investments. The UK's ECGD is in the business of helping UK firms reduce exchange risk (and other export and

investment risk). However, this programme is not widely known by UK SMEs, and is difficult for them to access. There are opportunities for both parties to access support from donors/governments to assist their business ideas to get going.

However, these support mechanisms are poorly understood by the business community. Usually only those companies with an international focus are able to make the effort to take advantage of programmes and access government support. If governments wish SMEs to play a more active role, then they need to make a stronger, more concerted effort to familiarise the SME business community of their services. There is a distinct role for UK trade associations to play in conjunction with government to provide their members, and SMEs in particular, with information and access to support.

2.4.2 Resource inputs

Table 4 shows the cost of inputs and, in indicated items, their availability.
The advantage on the EA side of lower labour costs is an obvious attraction to UK SMEs to form partnerships with EA SMEs. The fact that energy costs are perceived as similar for both indicates that a profitability benefit could be obtained here. However lack of availability of resources and components is a handicap on the EA side which can make partnership for them with UK companies attractive. Information costs are high for both UK and EA SMEs. Transport costs are high for both parties. While the telecommunications infrastructure is improving rapidly in East Africa, it is still poor, and communications are very expensive relative to other parts of the developing world.

2.4.3 Information and TA

Table 4 also shows level of information access, and access to TA and training resources. Access to information and technical expertise is perceived as a major barrier on the EA side and one where the link with UK companies can reduce. The knowledge of local culture (business culture, social culture, etc.) on the part of EA partners can, on the other hand, prove invaluable to UK SMEs.

2.4.4 Market information

There is a definite advantage on the EA side in access to market information and to local markets. However, often local market players, though closer to the market, do not have the human or financial resources to develop information about the market. The UK SMEs have better access to international markets and market information.

2.4.5 Legal and institutional aspects

This is another area where the EA SMEs score highly. It is often very difficult for the UK partners to get information and understand the complex legal and institutional

structures operating in the target country. Often the mechanism operating are informal and require good local knowledge and experience to understand how they operate. Thus, EA partners can bring much to bear in a new relationship with a UK SME, by providing them with good intelligence, and good knowledge of the best means for doing business in EA.

2.5 Financial perspective

2.5.1 Financing situation for renewable energy in East Africa

The only financing specifically targeted for renewable energy is aimed at marketing small PV solar home systems.

Finance for solar home systems and RET systems in EA is still in its infancy. A number of efforts have been attempted in Uganda and Kenya to finance PV solar home systems, most of them NGO or donor-led. NGO efforts, though well-intentioned, often do not pay enough attention to the banking aspects (cost-recovery, interest rates). Meanwhile, the relative small size of most of the projects is not of interest to EA banks, and there is a need to bring them on board over the long term as the potential business in RETs is sizeable.

Pilot projects have financed PV systems and microhydro systems in several areas of Kenya. Notably, an effort by Coop Bank, K-REP, EAA and the World Bank installed as many as 100 SHS between 1997-1999. However, due to high field costs, "lack of donor support", high interest rates and lack of follow-up on the part of the banks, the programmes have not grown in a significant way. K-REP does offer preferential loans of up to $5000 for small solar businesses, though not through any organised programme.

Awareness of the potential of SHS as a product is growing among banks, however, and there is a possibility that PVMTI, by offering one-to-one funding at extremely low interest rates (i.e. 5% or less), may bridge the gap between high demand from consumers and central financing from credible sources. It should be noted, however, that 10 months after the closing date of the first call for proposals, PVMTI has still not had any impact on the market.

2.5.2 A banker's view on the pre-feasibility case studies – Triodos Bank

Further information on the activities of Triodos Bank in East Africa, the financial experts on this project, is given in Appendix 1.

2.5.2.1 General

When a proposal for the production/distribution of renewable energy systems is presented to a bank or other financing institution, the key issues that need to be addressed are:

- Proof that the market is there, and that there is a coherent marketing plan outlining how the market will be approached and what share of the market the project is aiming to achieve.
- Proven technical quality of the products (PV-systems, small wind generators etc.).
- The distribution system. There needs to be either a proven distribution system or a clear strategy to develop a distribution system that will adequately cover the market.
- This distribution system will also need to provide for proper installation and after sales service (ongoing maintenance).
- There need to be a well defined organisational structure and a clear division of responsibilities. The management must have proven capabilities both in financial and commercial management.
- It is of great importance that the financing issues for the prospective buyers are well thought through. Are they cash buyers who do not need to borrow?
- If not, a reliable and sustainable credit system needs to be established, preferably in co-operation with a local financial intermediary.
- The credit system must fit the purchase contract. Is it a hire-purchase type contract, or rather a fixed fee-for-service agreement.
- Preferably an established intermediary organisation provides the credit system, judges the creditworthiness of applicants, channels the money and collects the debt.
- Finally it is important that a local partner shares in the risk by investing some of the capital needed. This is a clear sign in the eyes of any lender, that there is a strong commitment on the side of the enterprise closest to the project.

The funds managed by Triodos Bank only consider working through intermediary organisations, such as K-Rep and Cerudeb. They do not invest in individual small enterprises. Larger business proposals for the distribution of solar systems can approach the Solar Investment Fund directly.

Any application for finance has to be presented in the form of a well founded business plan, along with convincing accounts and projections. An application should involve a short description of the history of a company, it's structure, organisation, management and ownership.
The financial information should present historic data, up to 3 years if appropriate, and future projections, also for at least three years. The business plan should reflect the strategy through which the company intends to gain access into the market and, in the longer term, which market share it intends to reach. Therefore a proper estimation of the market potential and its different strata (in terms of income and/or geographic distribution) is required. Furthermore the plan should indicate what products it intends to sell, where they are to be sold, against what price and what

additional promotional aspects are added. This marketing plan also needs to address potential competitors' activities. A potential lender will assess the risks involved and will make an analysis of the applicant's strengths, weaknesses, opportunities and threats, based on the assessment of the business plan and impressions from a visit.

2.5.2.2 Development of wind energy market in Kenya

In the case of wind generators in Kenya one of the main concerns any potential lender to a project is likely to have is the quality of the distribution network. With wind energy being a relatively unknown quantity in Kenya, the presence of a strong distribution network which covers the intended markets and is able to provide the required sales drive and technical expertise is essential.

Proof that the market is actually there will be necessary before any bank will consider a loan. The amount of finance needed will depend greatly on the entry method chosen. If the import & distribution method is chosen there will be a much lower need for finance, than if the local assembly/joint venture method is chosen. The much higher investment associated with setting up a local production plant results in a much higher risk. Also the flexibility to pull out, should the results be disappointing, is greatly reduced if the local assembly method is chosen. Perhaps the scenario investors or lenders would like best is that of an entry in stages, where the first entry is made through import and distribution and local assembly is only started if the market potential has been proven.

2.5.2.3 Micro-hydro project development in Ethiopia and Uganda

The final project workshop report contains three examples of pre-feasibility studies for micro-hydro projects in Ethiopia and Uganda. Further feasibility studies for each of these three projects would need to show that the investments make sense from an economic and/or social point of view.

One of the schemes, at the coffee plantation at Wochi, Ethiopia, may provide a clear economic advantage over the alternative of a diesel generator, if the savings in electricity generation cost will pay for the investment within a reasonable period of time. In such a case a commercial lender should be interested, especially if the owner of the plantation can raise part of the investment himself and/or has access to further financial assistance.
Where any of these schemes is not fully viable from a purely economic point of view, but still desirable from a social point of view, as may well be the case with the Nebbi Hospital in Uganda, donations/grants/government aid is needed for the uneconomical part or all of the investment.

If any of the projects is aiming at self-generation of power for communities and/or businesses various aspects require close attention in a feasibility study. These are: the continued ability of the buyers of the electricity to pay, the technical risks involved

with the chosen technology, the government's policies towards licensing, taxation, protection of private investment in power generation, etc. A potential lender is likely to require strong guarantees by the government and/or other creditworthy entities.

2.6 UK Government support for SMEs in developing countries

2.6.1 DFID Business Partnership Unit

DFID has established the Business Partnership Unit to develop a number of funding opportunities which business can apply for. According to the Unit's promotional documentation these 'challenge funds' are targeted at initiatives such as financial services, large-small firm linkages and trade development. They also welcome innovative proposals from the private sector. From discussions with the Unit they are presently developing innovative initiatives for working in partnership with business including a business partnership programme for Kenya. However, they did not seem to feel that the type of initiatives we were talking about fitted within their programme. It would be worth circulating the report to the Business Partnership Unit to see if they think what we have been doing is relevant to their particular interest in development business, and if not why not.

2.6.2 British Trade International

This is a new body formed recently from departments formerly part of the DTI (Department of Trade and Industry) and the FCO (Foreign and Commonwealth Office) and employing staff from them. It has no legal status at present and is currently defining its role in the area of aid and trade. They have two departments of particular interest to this project.

2.6.2.1 Infrastructure and Energy Projects Directorate

Originally within the DTI, this department administers the Overseas Projects Fund. This fund has the purpose of supporting large potential projects, £50 million plus. They fund up to 50% of pre-contractual costs on projects which UK companies would not otherwise pursue without Government support. If the company supported is successful the grant is to be paid back. They have a 1 in 6 success rate.

The group has a renewable energy projects manager. Given the usually small size of renewable projects (excepting large hydro or geothermal projects) they have managed to support smaller projects (down to around £5 million) where evidence that replication may take place has been shown. Clearly the size of projects is large compared with the typical EA UK SME collaboration this project has been looking at.

In September this year this department organised an exhibition space for renewable energy companies at the Power Trends 2000 Trade Exhibition in the Philippines about 20 UK renewable energy companies excepted the offer of subsidised travel to attend and the event was a success. They will continue to organise further events to promote UK renewable energy companies, large and small, world wide.

2.6.2.2 Development Business Team

This group highlights opportunities for UK firms to win business through multilateral development aid funded projects. They do not give direct support themselves but can provide information on business opportunities. Quoting from their Web page information,
"We liaise with all the main international aid-funding agencies including the World Bank Group, the European Commission, the United Nations agencies and the various Regional Development Banks. Last but not least we also liaise with our own UK Department for International Development (DFID). All these agencies exist to improve the prosperity and well-being of people in developing countries. But they need commercial firms to realise their projects and they recognise that promoting joint ventures, partnerships and investment between our companies and those in the developing world will also assist in the development process. Fostering the private sector in poorer countries develops capacity, promotes employment and encourages technology transfer."

So this team is worth talking to but they can really only guide and inform at this point.

2.6.3 Export Credits Guarantee Department (ECGD)

The ECGD is a government department that offers a range of financial services aimed at promoting UK exports by insuring them against risks of non-payment by overseas buyers, by covering exchange risk, by ensuring and financing exports, and by providing a number of other export and overseas investment support. ECGD also provides protection for UK companies investing overseas. While many of the packages such as Buyer Credits and Project Financing are aimed at large investments (minimum contracts £5m and £20m respectively) other facilities such as Supplier Credit Finance and Lines of Credit have minimum sizes of £25, 000 so could offer assistance to SMEs. These services are offered at a fee.

3. ANALYSIS OF FINDINGS

3.1 Co-operation options

From Table 1 in Section 2.2 above, there are options to favour those who wish to enter the market at different levels. If you are a short term, low risk, low cost player, tendering and consultancy would seem to be the options to pursue. Strategic partnerships come in very useful here as they allow you to call on a partner you know and trust at short notice to enable you to respond quickly to tenders and other consultancy work.

Medium term, medium risk and medium cost players should look at distribution partnerships, sales agencies and franchises. Manufacture under licence and buying into a local company can also be looked at although timescale is longer and the risks are higher.

The high risk, high cost , long term options are joint ventures and setting up a subsidiary company, these are both seen as having a good critical mass i.e. long term future, if successful.

The options that seem to combine the best of both worlds are:

- Manufacturing under licence
- Distribution arrangements
- Buying into an existing company
- Franchise arrangements

It may well be that a company ultimately wanting to aim at a subsidiary or joint venture may want to start by going using one of the above vehicles first and then developing the fully fledged company venture once the market and approach has been proven.

3.2 Partnerships with large or small companies

An issue that was raised at stakeholder meetings in Kenya and Uganda and discussed by the workshop sessions was that of the relative benefits of pairing with a larger company. both for UK SMEs and EA SMEs. This can seem like an attractive option for both. EA SMEs can see a link with a big national or multinational company such as a PV module manufacturer as giving them the financial security they need to invest in the marketing and promotion activities required to grow the market. UK SMEs may want to link with a large trading and distribution company who are not specialised in renewables but do know about marketing and sales and have outlets or distributors throughout the country. However, at the meetings and

workshops there were some words of caution from the project partners and from other companies gained from experience of working with larger companies:

- If a UK company links with a larger EA company, the local firm might view this as only one tiny part of their business, and not take a lot of interest, etc,
- Doing business with a small firm can give you comfort, enthusiasm, strong interest, follow on, but the overall financial strength is less than with a bigger partner.
- How to 'bridge the gap' (business skills, financial access, administrative and government access…..) –all more difficult for SMEs
- EA SMEs have found that they can be dominated by a larger Western partner, the aims of the two partners may be different and it is likely to be the wishes of the larger party that win out.
- SMEs are likely to become quickly reliant on the larger partner especially for finances. A sudden change of company policy or a fall from favour of the smaller EA or UK partner can result in serious consequences and possibly business collapse for the SME partner.
- Unreasonable expectations from the EA SME. One example was an SME complaining that their large western partner did not want to set up local manufacture which they did. However, they had not provided a business plan or shown the western partner that they could benefit from this. They expected the partner to come and organise it for them.

3.3 Main barriers to SMEs doing business:

- Lack of finance (project funding, pre-project identification, feasibility, market analysis, etc.)
- Lack of capacity (e.g., personnel, business skills, etc.)
- Lack of control over government, donor, big business policies, business, etc.
- Lack of knowledge of market demand
- Lack of finance for pre-feasibility work
- High level of commercial risk (e.g., project preparation time to expected or reasonably well-known results)
- Price sensitive market, makes returns more risky, less well-known
- Transaction costs can be very high
- Lack of customs understanding, knowledge, know-how for RE products

3.3.1 Discussion of barriers

3.3.1.1 Finance

In many locations the World Bank, UNDP or other International Organisations (IO's) have undertaken specific programmes to address this lack of finance. In Uganda one of the countries in question, a UNDP project "Photovoltaic Pilot Project for Rural Electrification" has two activities:-

i) Link local solar industry with financial institutions to ensure sustainable design, purchase, installation, maintenance, and financing of household and community-based photovoltaic systems.
ii) Demonstrate sustainable credit mechanisms (such as a PV (photovoltaic) Credit Fund) spurring local financial institutions to lend to more vendors, installers, and purchasers of photovoltaic systems.

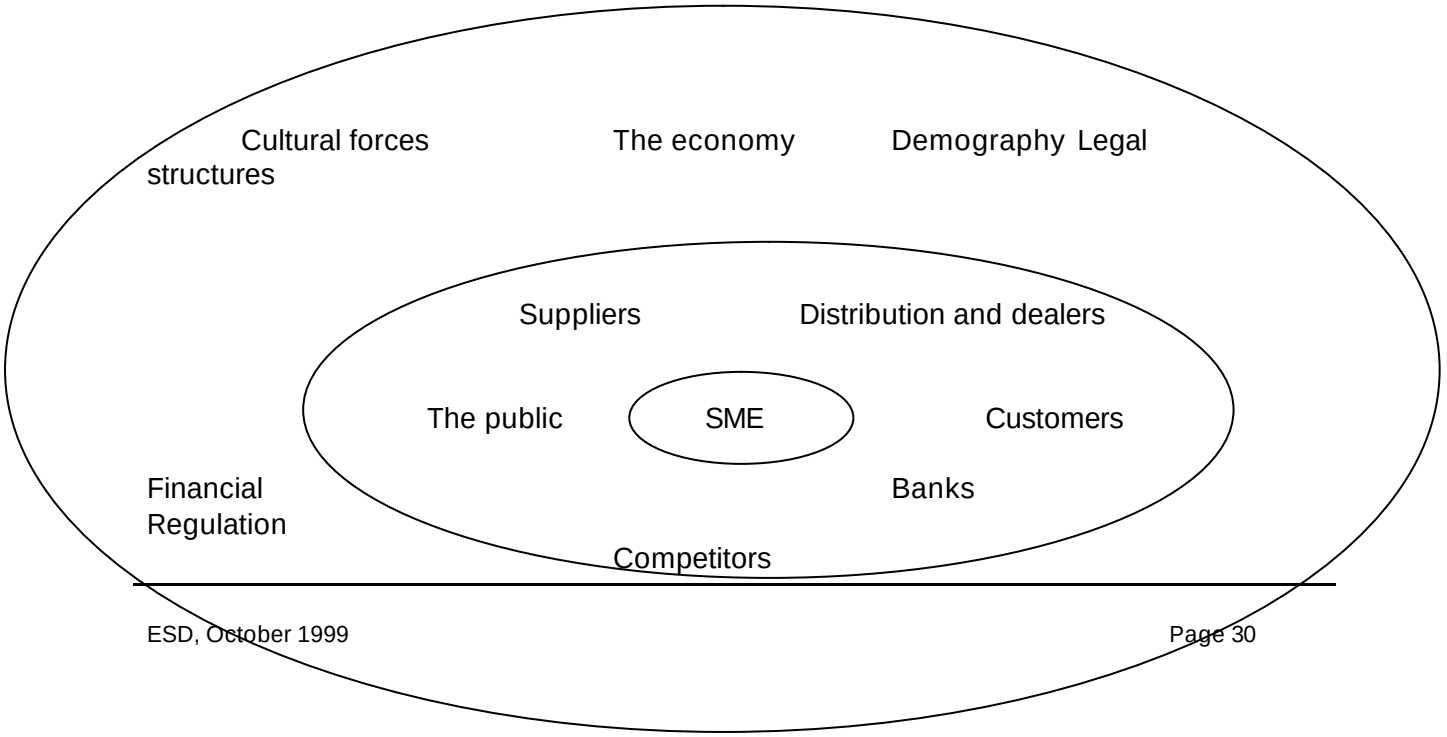
The first action specifically addresses the needs of SMEs, the latter action is more for the users of the SME products to be able to purchase. SMEs need access to IO funding. Often, an approach by a small SME in EA might be rejected due to the complexity of tendering systems or the sub-culture of the way IOs work. UK/EA SME co-operation can help on this point. For example:- funding from UNDP was accessed in Cambodia by a combination of the ministry of Mines and Energy, an UK NGO and a local SME for setting up improved stove manufacture.

A simple suggestion from the SMEs in the project team to reduce financial risk was a bonded warehouse scheme to enable stock to be held in country by suppliers before purchase by distributors. Protection from exchange risk and credit lines for local joint venture partners were other needs.

3.3.1.2 Macro and macro environment for SMEs

For an SME there is a micro and macro environment in which they operate. In the micro environment there are items which can be controlled and in the macro there are factors which impinge on their ability to deliver, but cannot be easily changed or affected. In some cases of macro environment, the UK SME has an advantage. For instance, it has access to technology for communications that the EA SME does not have. UK SMEs have an ability to form alliances with IOs that could affect government policies.

Figure 1 Micro and macro influences on SMEs



Social factors Political structures Technology

3.3.1.3 Knowledge of market demand

The ten most common marketing problems for small enterprises world-wide are:-

i) a lack of knowledge of customers behaviours and attitudes.
ii) a failure to segment markets effectively.
iii) the absence of marketing planning procedures
iv) reductions in price rather than increases in volume.
v) the absence of marketplace procedures for evaluating the products.
vi) misunderstanding company marketing strengths.
vii) short-term views of the role of promotion
viii) a perception of marketing limited just to advertising and sales activity
ix) inappropriate organisation structures
x) insufficient investment in the future chiefly in the area of human resources.

3.3.2 Capacity building requirements

- Better market knowledge & surveys
- Better knowledge of customs requirements
- Better knowledge of business & trade laws
- Technical training in specific technology areas (e.g., wind, micro-hydro)
- Business skills (e.g., market information, business practices, business plans, marketing plans, investments)
- Lack of understanding of how to obtain finance
- Business skills 'intermediation gap' (e.g., the Ugandan, Kenyan, Ethiopian version of 'Business Link')
- Financial intermediation for SMEs to help SMEs to put together packages for financing

3.3.3 Finance for feasibility studies

It is a growing trend that donors and lenders are reluctant to fund feasibility studies. History has shown that externally funded studies are often not realised in practice and may be commissioned in a place where there is no real support or interest. Supporting the costs of a feasibility study locally from the community or business which wishes to invest in the renewable energy is a powerful way of demonstrating that the interest of the party who may then apply for grant or loan support is serious.

4. RECOMMENDATIONS:

4.1 For **Small and Medium Enterprises**

- Improve information exchange between UK SMEs and EA SMEs, make good use of e-mail and the Internet.
- Renewable energy industries can pool resources in the form of an association. This can often access funding and collect and distribute information. It can provide a link point for foreign companies and supply members with services such as access to the internet. If there is already such an organisation in existence use it and make it work for your interests.
- Plan your entry route into a new market carefully to minimise risk but maximise opportunity. This can be done by at first entering with less formal arrangements but then moving to more formal joint venture partnerships as the business venture becomes clearer and more definite.
- Lobby hard with governments and donors both in east Africa and in the UK to demonstrate the development potential of the proposed business activities and why they are deserving of constructive support to enable sustainability to be reached.
- UK companies can push for support from the Business Partnership Unit of DFID and the Development Business Team, British Trade International, formerly part of the DTI. Both these bodies are concerned with the development potential of business investment in developing countries
- UK SME should provide support to the EA SME (through licensing, through QA, through credit financing, etc.), and the local SME should be supported to access the market. The linkages go both ways – the UK SME needs to understand what the local market wants, and not try to sell into a market that doesn't exist.

4.2 For UK Government and other donors

- Know How Fund Pre-Investment Feasibility Study type funding should be available to UK SMEs trying to do business in EA.
- Government should appreciate the development role EA and UK SMEs have in delivering rural energy services commercially in East Africa and elsewhere and use existing programmes such as those run by the Business Partnerships Unit of DFID and the Infrastructure and Energy Projects Directorate of British Trade International to support and assist them.
- Innovative schemes to support small business activities in renewable energy (probably as part of more general SME support programmes) should be developed.

4.3 For East African Governments

- They should improve the business environment for foreign SMEs to enter the market, particularly to encourage them to link with local firms in such fields as franchising, licensing, manufacturing under license and joint ventures.
- They should provide incentives (e.g., low or no duties or tariffs on imports of renewable energy equipment) for investors to develop renewable sources of energy rather than imported conventional electricity generation (e.g., in Uganda, diesel and petrol gensets face no import duties or tariffs, while PV components face between 10% and 100% duties).
- Offer tax holidays, tax reductions, investment credits and other fiscal incentives to SME investors to market and/or locally assemble renewable energy equipment.

4.4 For Financiers and Banks

- International credit references are available, they should be utilised, and for a 'smart' SME they should be used.
- Financial institutions and especially rural development banks should recognise renewable energy projects as viable investments and drivers of rural economic development, and thereby make credit, particularly term credit, available to financially viable projects and investments.
- Financial institutions should make more of an effort to develop appraisal methods for renewable electricity projects. They should develop resource networks from which to pool expert advice to appraise projects in order to carry out their due diligence.

4.5 For Trade associations

- UK and European Trade Associations should first help East African renewable energy SMEs and groups form trade associations.
- UK and European Trade Associations should then link with and provide information and support to the East African associations, particularly to help them lobby for support and assistance.
- East African associations should support and assist their members in practical ways, particularly tying into international networks both for support as well as for lower priced imports, better access to technology, and links to international companies interested in investing in rural electrification in the region.
- There should be wide dissemination of the recommendations of this project to UK, European and East African trade associations and groups. This can be variously accomplished through the Internet (e.g., UK trade association Web sites), through email postings (e.g., through UK and European trade association links) and through various forums.

APPENDIX 1 ADDITIONAL INFORMATION FROM TRIODOS BANK

Finance for PV Systems

Kenya

Finance for small household solar systems ("solar home systems") is available locally from micro credit institutions such as K-Rep. Typical interest rates are between 18% (for 2 year straight line repayment loan) and 35% (for 2 year reducing balance loan). Small business loans, up to approximately US$2,000, are also available through micro credit institutions. Larger loans for businesses investing in renewable energy can be obtained from the Co-operative Bank of Kenya or the commercial banks. However, the collateral needed by these banks and interest rates between 18% and 30% might make obtaining larger loans difficult.

Besides these general forms of finance, there are two special programmes in Kenya for the financing of solar activities. One is called Photovoltaic Market Transformation Initiative ("PVMTI"), an IFC-funded US$5 million programme to which projects can apply. Minimum loan size is US$500,000 over a maximum of 10 years. Interest rates can be set at a chosen level in a project proposal to PVMTI.

Uganda

Finance is available locally for solar home systems from micro credit institutions such as local NGOs or Centenary Rural Development Bank ("Cerudeb"). Larger loans for businesses can also be obtained from Cerudeb. Commercial terms apply. Interest rates for small first time borrowers being are around 48%. Interest rates for repeat borrowing can be lower (e.g. 30%). For larger loans, concessions on interest rates may be considered resulting in interest rates of as low as 18% for the strongest proposals and the best clients. This, however, is rare. Normal collateral is required for any loan.

Besides these general forms of finance, there are two special programmes in Uganda for financing solar activities. One is a UNDP-supported programme, the Uganda Photovoltaic Pilot Project for Renewable Energy ("UPPPRE"). UPPPRE has recently reached an agreement with Cerudeb. Under this agreement, Cerudeb can make loans available to local SMEs in the business of supplying solar systems. The loans are for working capital and for a maximum of US$25,000. The interest rate is capped at 12%.

Triodos activities in East Africa

Triodos can offer finance (loans, guarantees, equity) to three different categories of entrepreneurs in Africa, Asia and Latin America. These categories are organisations in micro-credit, in fair trade and in solar energy.

Micro-credit

Two international funds, the Hivos-Triodos Fonds ("HTF") and the Triodos-Doen Foundation ("TD"), offer loans (from 2-5 years duration) against an interest rate of about 9-11% in US$ to micro-credit institutions. In some cases these funds can consider offering equity. Initial finance ranges between US$100,000 and US$250,000. Triodos can combine a request and offer finance through both funds and reach initial investments of about US$500,000.

Cerudeb, Uganda

HTF is a shareholder in Centenary Rural Development Bank (Cerudeb), a micro finance bank with almost 100,000 deposits and 10,000 loan-clients. The bank has 13 outlets throughout the country and intends to open another 3 during 1999. On top of that CERUDEB is currently in the process of taking over some branches of the Co-op Bank in Uganda.

CERUDEB offers small and micro loans, it intends to have 30% of its loan portfolio under USh500,000 (US$500), 50% under USh5 million (US$5,000) and 75% under USh10 million (US$10,000). Minimum loan size is USh50,000 and maximum loan size is USh600 million.

The credit methodology in use was introduced in 1993. The emphasis is on controlling the risks and reducing the transaction costs by building a long-term relationship with the clients through repeat borrowing. Loans are for working capital, mostly for periods between four and six months. Lending for agricultural purposes is only piloted with at this stage.

K-Rep, Kenya

K-Rep is an NGO specialising in micro credit. K-Rep has engaged over a number of years in converting to an official bank under the supervision of the Central Bank of Kenya. K-Rep received its licences and will be converted into a bank during 1999. The advantage of becoming a bank is that it will also be able to attract local savings, so that it will be less dependent on foreign loans and it will also be able to offer its clients the possibility of saving. Share holders of K-Rep are Triodos-Doen Foundation, IFC and AfDB (African Development Bank), Shore bank and FMO (Dutch overseas development finance fund).

K-Rep offers two different types of group lending products.
The first is Juhudi, In this system about 4-7 groups of 3-7 individuals form a network of debtors. One such a network will borrow between US$10,000 and US$20,000, with individuals taking one or more loans of US$300 each on a staggered base. The groups will be listed as a legal entity and both the group and a prosperous individual

within the system will be liable for the loans. The periods for loans are kept short and the interest rates are around 35%.

The second system is called Chikolca-system and is a form of a Rotating Savings and Credit Association (ROSCA).

About 22,000 people in 25 regions of Kenya are reached through K-Rep and an amount of approximately US$6 million is outstanding as loans. Loans are used to finance small retail outlets or simple manufacturing.

Fair traded or organic products
The two funds mentioned also provide finance for fairly traded commodities, such as (organic) cocoa, (organic) sesame, organic cotton and coffee. Only organisations with an established track record in the sector and commodity concerned, who have existing trade contracts can apply. The organisation has to be able to hand over a copy of such a trade contract and finance will be to a maximum of 60% of the value of the contracts.

UNEX, Uganda
HTF offered a loan to UNEX, a coffee export organisation to finance some of its exports in the second part of 1999. UNEX is part of the co-operative movement in Uganda. The co-operative movement has primary members who are organised in primary producers' organisations. Farmers are direct members of these organisations.

One level higher, these organisations are organised on district level in "unions". At a national level the co-operative movement is organised in apex organisations, e.g. the Uganda Co-operative Alliance (UCA), the Co-operative Bank (closed its doors in April 1999), and UNEX. UNEX became responsible for marketing coffee after the monopoly of the Coffee Marketing Boards was abolished in 1990.

Through UNEX HTF reaches about 2,300 families or about 15,000 people.

Solar energy
Related to solar energy, the Solar Investment Fund ("SIF") can offer finance between US$100,000 and US$500,000 for a maximum period of about 3 years at this moment. Terms are comparable to the other two funds HTF and TD. SIF focuses on intermediary organisations and intends to contribute to bringing solar energy within reach of rural clients. SIF does not invest in production of panels or BOS. SIF cannot offer grant money for the development of a business plan.

Triodos Bank is now working together with two US partners to establish a new solar fund that will be able to work on a broader scope. Besides this fund, a trust for business development support will be set up. Conditions for both trust and fund are still in the phase of preparation.

URDT, Uganda

URDT is an NGO that offers training in a broad field. The Hivos-Triodos Fund offered URDT a loan in May 1995 to import and install 130 solar systems, in order to extend awareness and have hands on experience with a solar loan scheme in Uganda. Some highlights from the lessons learnt in the first phase:

- a higher down payment (was 25%) of up to 50-75% would be possible
- loan period of three years was too long
- solar business aspect and the business support aspect should not be mixed
- management and financial system cannot be developed along the way, these should be in place from the start
- demystifying of the technology was easy

Further positive aspects mentioned were:

- people use solar in a productive way (in their business)
- solar has a positive influence on education (better marks)
- solar energy in general is promoted (more cash systems sold)
- a training centre was created as a spin-off

URDT and Triodos are examining the possibility of continuing these experiences and whether other parties should be involved or not.