

PACEAA

Poverty Alleviation through Cleaner Energy from Agro-industries in Africa

**Mission Report for visits to Kenya and Malawi
July and August 2009**



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Contents

PREFACE	4
1. INTRODUCTION	6
2. MEETING ON 20TH JULY 2009	6
3. VISITS AND MEETINGS - 21ST TO 27TH JULY 2009	8
4. TRAINING ACTIVITIES – 28TH TO 31ST JULY 2009.....	10
5. TRAINING ACTIVITIES – 3RD TO 5TH AUGUST 2009.....	11
6. CONTACTS AND MEETINGS – 6TH TO 14TH AUGUST 2009.....	11
7. CONCLUSION	14
APPENDIX A.....	
APPENDIX B.....	

Preface

Cleaner energy has great potential to contribute to sustainable agricultural growth, poverty reduction, and rural development. However, in practice, effective integration of energy and agricultural sectors to reduce poverty through cleaner energy systems is constrained by several barriers. PACEAA seeks to contribute to poverty reduction in Africa through improved agro-based cleaner energy planning and implementation. Specific objectives are: (a) to identify policy, commercial and regulatory barriers that are currently restricting the uptake of cogeneration and renewable energy systems from agro- industries in selected countries, and to propose ways of overcoming these barriers; (b) to develop detailed policy and regulatory guidelines and incentives for adoption of cleaner energy from agro-industries into rural electrification programmes as well as incorporate the packages into local rural electrification plans; and (c) to enhance local and regional capacity of public institutions, private sector (financial institutions, agro-industries, rural stakeholders) for the effective utilisation of cogeneration and other cleaner energy systems from agro-industries in the rural electrification process (d) to promote rural electrification packages for financing by rural electrification funds/ agencies and dedicated donors. PACEAA will accelerate the pace of integration of energy and agriculture sectors leading to poverty alleviation in Africa.

The actual potential for generating energy from renewable energy technologies (hydro, biomass) by agro-industries could potentially generate more than the industries' actual energy requirements and the excess energy could be used for Rural Electrification: the demand for power is high in rural areas of the 11 countries (Burundi, Ethiopia, Kenya, Malawi, Mozambique, Rwanda, Sudan, Swaziland, Tanzania, Uganda, Zambia) covered by PACEAA, as the average rural electrification rate does not exceed 5% of the total rural population.

The overall goal of the PACEAA project is to encourage and facilitate the involvement of rural African agro-industries in the process of rural electrification, in order to alleviate poverty and contribute to sustainable development. This requires understanding the energy needs and priorities of agro-based industries, the identification of best practice solutions to address these needs and the formulation of packages covering institutional, financial and technical issues ready for implementation and replication. It requires strengthening the capacity of agro-processing industries, local communities, planners and service suppliers to adopt such best practices, so that rural Africa will gain access to an improved choice of affordable, efficient and acceptable agro-industry-led and -induced energy services. The immediate objectives of the Project are threefold:

- i. To identify policy, commercial and regulatory barriers that are currently restricting the uptake of cogeneration and renewable energy systems from agro- industries in selected countries, and to propose ways of overcoming these barriers;
- ii. To develop detailed policy and regulatory guidelines and incentives for adoption of cleaner energy from agro-industries into rural electrification programmes as well as incorporate the packages into local rural electrification plans.
- iii. To enhance local and regional capacity of public institutions, private sector (financial institutions, agro-industries, rural stakeholders) for the effective utilisation of clean energy systems and cogeneration from agro-industries in the rural electrification process.

Four projects will be selected to develop full regulatory, organisational and financial packages that would facilitate the effective implementation of a rural electrification project in and around interested tea factories in parallel to their respective development of their small hydro projects. For these 4 projects, local rural electrification plans will be developed in association with local stakeholders in the vicinity of selected tea factories and used as case studies to validate the effectiveness of the regulatory, organisational and financial packages.

The output of these activities will be widely disseminated in Africa in order to set the foundation for an effective contribution of agro-industries to rural electrification. Training and capacity building activities will take place throughout the project duration.

PACEAA cooperates with two large initiatives from the agro-industries in East and South Africa, co-implemented by the United Nations Environment Programme (UNEP) and the African Development Bank (AfDB) through the Global Environmental Facility (GEF): “Greening the Tea Industry in East Africa (GTIEA)” executed by the East Africa Tea Trade Association (EATTA) and “Cogen for Africa” executed by AFREPREN/FWD. Both EATTA and AFREPREN/FWD are key subcontractors to the PACEAA project, with DTU (Denmark, Coordinator), IED (France) and UNEP (France) being the European partners. The project duration is 36 months.

1. Introduction

The mission was conducted by two members of the IED consultancy firm (Adrien Jacob and Lara Bertarelli) and the author. It had three main objectives, namely: conduct of training on planning for rural electrification and business models, presentation and discussion of plans for proposed PACEAA pilot projects, and discussions with potential funding agencies that could support the pilot projects. The countries covered were Kenya and Malawi

The training took place in Kenya between 29th and 31st July, and in Malawi between 3rd and 5th August; with participation drawn from ministries of energy, other ministries involved in GIS-based planning, rural electrification authorities, energy regulatory bodies, power utilities, energy NGOs and consulting firms, power supply contractors, and academic institutions. It is expected that the training will enable the participants to gain and apply knowledge on innovative rural electrification planning, and facilitate removal of barriers to power generation and electrification based on clean energy from agro-industries

The plans that were presented for discussion entailed budgetary estimates and proposed business models that have been worked out in respect of pilot projects for Kipchoria (Kenya), and Lujeri (Malawi). Meetings held in this regard were attended by stakeholders who are expected to be closely involved in the implementation of the projects. The outcomes of the meetings will be used in appropriate adjustments to the budgetary estimates and models, and charting the course of pilot project implementation.

Due to the need for funding support for the proposed electrification, talks with development and donor agencies were held with a view to identifying potential sources of funding. Bilateral and multilateral agencies, as well as financial institutions with linkage to development, were approached.

Details and results of the mission are presented in this report along with indications of follow-up actions. As part of the report, minutes giving finer details of the meetings held are included in the appendix A.

2. Meeting on 20th July 2009

Deliberations took place at the Methodist Guest House in Nairobi, and attendees were from UNEP headquarters, GTIEA, Kipchoria community (Outgrowers Empowerment Project or OEP), Graeme Watson Consultancy, UNEP Risoe (Denmark), and IED (France). A list of the names of the attendees is included in Appendix B1.

Presentations were first made by IED consultants, where the PACEAA project was elaborated and initial rural electrification plans for Kipchoria were described. Then followed a presentation

by the UNEP Risoe consultant, on business models generally and the case of the proposed Kipchoria scheme in particular. Finally, the OEP representatives presented the organizational setup and operations of the OEP business. Discussions on the issues raised were held during and after the presentations.

Major points that came out of the presentations and discussions were:

- The most feasible rural electrification plan includes supply to trading centres within the area adjacent to the tea factories. In the centres there are productive loads like grinding mills, and households near the centres would be included in the scheme. In total about 250 customers would be served, and the total investment cost for electrification would be approximately USD 200,000.
- The electrification scheme could be implemented and operated by a community organization, the OEP, but a significant capacity building effort would have to be undertaken to enable the community achieve this goal. The OEP is already organized as a for-profit business socially oriented entity which earns from tea sales and obtains funds for development through the Fair Trade system. From the latter system the organization could contribute up to one third of the required electrification investment. The OEP business is a strong one judging from the fact that it is in the process of buying a tea factory at USD 5.5 Million; and there is strong support for the OEP from the Eastern Produce Kenya (EPK), to which the OEP farmers sell their unprocessed tea (30% of made tea is supplied from EPK OEP). The same support is expected in the provision of power for electrification by the OEP, from the hydropower plant that the EPK is proposing to put up after confirmation by the ongoing feasibility study.
- There is expectation by PACEAA Project partners that by the end of the project in August 2010 full arrangements will have been made for ascertaining implementation of the Kipchoria and other proposed pilot electrification schemes (for Rwanda, Tanzania, and Malawi). The PACEAA team was asked to take a lead in making the arrangements, which include identification and securing of funding for the execution of the schemes; facilitation of the implementation by an agency that would take over from the PACEAA team (see note below); and capacity building for the communities to take part in the schemes implementation and operation. It would be necessary to make arrangements for facilitation of the implementation by the proposed agency; and funding for the implementation would have to include the costs for the facilitation and capacity building for the communities.

Note

It was suggested that the PACEAA team should be allowed to continue to oversee the implementation, instead of having another body or agency playing this role. However, consultations made with the project coordinator after the mission indicate that the role of the PACEAA team cannot go beyond the project development stage, as UNEP Risoe's involvement is limited to project development and studies only without going into implementation. On the other hand, IED could independently move to the implementation stage as they have no restriction like UNEP Risoe. In the consultations, it was also made clear that the scope of the PACEAA Project only includes part of the proposed implementation arrangements: i.e. preparation of electrification plans and business models, and identification of potential funding sources for the electrification. Therefore, the

additional work on implementation would need to be considered in a separate project and funding.

- It was also learnt from Mr. Graeme Watson that the feasibility studies for the proposed Kipchoria hydropower project have been delayed by difficulties in obtaining hydrological data, as historical records have not been available. The consultants carrying out the studies therefore estimate that it would take another two months for the studies to be concluded and a draft report prepared. This would correspondingly delay finalization of the proposed rural electrification plans and business model.
- With regard to potential funding for the proposed pilot projects it was emphasized that high priority should be accorded to pursuit of funding sources and commitment of support from the sources. It was indicated that the sources to be targeted should be both local and international.

3. Visits and meetings - 21st to 27th July 2009

Contacts were made and meetings held with personnel of GVEP International, GPower, EPK (Eastern Produce Kenya), AfD (Agence Française de Développement), UNEP energy division of GEF (DGEF), and the Rural Electrification Authority (REA). A list of the personnel met is included in Appendices B2a, B2b, and B2c.

Important points that arose in the contacts and meetings are:

GVEP International

- This is an NGO with headquarters in the UK
- The NGO provides technical assistance mainly to rural entrepreneurs for establishing innovative businesses, and also facilitates funding assistance
- Through the NGO, enterprise development for users of power from the proposed PACEAA electrification could be arranged, and in this way the electrification business could be made viable
- The mandate of the NGO is expected to end in three years time

Gpower

- This is a Kenyan NGO specifically focused on small hydropower development for rural electrification
- It has directors from the Netherlands (managing) and from Kenya
- So far it has been developing micro-hydro power plants in the Kirinyaga area on the slopes of Mount Kenya
- As the developments are new there is hardly any experience from which the PACEAA Project could benefit
- Although there is common ground between the developments and the PACEAA Project the NGO CEO does not envision possibilities for collaboration

EPK

- This is the tea company that owns most of the tea factories in the Nandi Hills area, where an electrification project is proposed for Kenya under the PACEAA project
- Consultations have been going on between the PACEAA team and the EPK Managing Director (Mr Chris Ballard) on plans for hydropower production in the Nandi Hills area, and the proposed rural electrification. Mr Ballard, who is based at the tea factories' location, was not able to come to the stakeholders' meeting on 20th July 2009 (see above), to which he was invited. It was therefore found necessary to hold discussions with the EPK Operations Director (Mr Goose), who is based at the Nairobi headquarters
- According to Mr Goose, the proposed plan for providing power to the local community in Nandi Hills through the agency of the EPK-OEP (EPK Outgrowers Empowerment Project) would be helpful. EPK would support the electrification initiative through hydropower once the proposed power generation project by the company is actualized, and if there is enough power to meet the company's own requirements.
- The director also indicated that electricity supplied for rural electrification from the proposed EPK source would be sold at a price equal to production cost plus a small margin to cover overhead costs. Electrification of EPK workers' housing units would be considered by EPK, and the proposed electrification should therefore be exclusive of power supply to the units

AFD

- This is the bilateral development assistance arm of the French government, which in Kenya has been actively supporting rural electrification
- The body has virtually stopped grant aid and is focusing on leveraging loans and credits for energy development
- Out of the four countries covered by the PACEAA project, only Kenya and Tanzania could qualify for their aid
- Since the projects being assisted currently are mainly commercial the PACEAA type of electrification projects would not qualify for AFD assistance; instead, a recommendation was made to try the French embassy for the required funding

DGEF

- The first draft feasibility study report of the proposed Suma hydropower project (Tanzania), which had just been issued, was briefly discussed; and it was noted that rural electrification had not been given necessary attention. The issue would be included among comments to be sent to the consultants who prepared the study.
- The Gura hydropower project (done under the GTIEA project but outside the scope of the PACEAA Project) was also briefly discussed
- It was suggested that follow-up of possible EU funding for PACEAA electrification could be made through Sanne Williams of DG Aid of the European Commission
- Talks with the Senior Programme Officer, Regional Office for Africa (Division of Regional Cooperation), indicated that the PACEAA type of electrification initiative could be assisted by her programme if there were explicit environmental benefits. However, the specific pilot projects being considered fall short of the environmental benefits

requirements and would not qualify for the assistance. In general, the requirements aim for very direct environmental benefits whereas the benefits expected from the pilot projects are indirect.

REA

- This authority is responsible for the national rural electrification programme, and recently (from July 2007) took over this function from the Ministry of Energy and the national power utility (KPLC)
- The body is mainly active in using rural electrification funds for construction of grid extensions that are handed over to KPLC for service to rural customers
- Off-grid and community-based rural electrification is one of the approaches that REA will be promoting and there are plans to undertake pilot projects in this respect
- Technical assistance and some funding support could be provided by REA to the PACEAA pilot project, but co-funding must be available
- It was suggested that the PACEAA team should seek co-funding first and revert back to REA to find out how much support could be given

4. Training activities – 28th to 31st July 2009

The event took place at the Methodist Guest House, Nairobi. Conduct of the training proceeded according to schedule (programme in Appendix B3), and there was a good turnout on the first day (about 65% of the 40 people expected). For the remaining three days, the turnout dropped to an average of about 40% as many participants felt they could not afford to be away from their normal duties for long. Those who were consistent in attendance and actively took part in the proceedings included staff of power utility (KPLC), regulatory authority (ERC), and NGOs; as well as consultants and university students. In Appendix B3a the names of the participants who attended for at least one day are given.

The most popular topic in the training was the use of GIS in rural electrification planning, and there were several enquiries on how the software could be acquired. As it was not possible to give very definite answers to the enquiries it would be advisable for IED to follow-up and guide those who are keen to get the software. Enthusiasm was also shown towards the concept of rural electrification engaging agro-industries and communities around the industries. As a result, support for such electrification initiatives is expected from the participants. Overall, there was sustained participation from technocrats right from the first to the last day. The first day drew the largest level of interest when those with busy schedules were able to attend.

5. Training activities – 3rd to 5th August 2009

The event was similar to the one in Nairobi but was delivered in a shorter time (See the programme in Appendix B4). The event took place at Crossroads Hotel, Lilongwe, Malawi. In this case the turnout was very encouraging as it was nearly 100% (of the 20 people expected), and the attendance was high on all the days. This could probably be attributed to the absence of similar training in the country, and the comparatively greater demand for rural electrification. A list of the attendees is given in Appendix B4a, and it shows the even representation among departments of energy and survey (from the concerned government ministries), the national power utility (ESCOM), energy regulatory authority (MERA), NGOs, and academic institutions.

Once again application of the GIS software and the concept of rural electrification fostered by the PACEAA Project were well received. Follow-ups will be necessary and can be expected as in the case of the training in Kenya.

6. Contacts and meetings – 6th to 14th August 2009

Following the training in Malawi, visits were made to the south of the country (Mulanje Mountain region), where a PACEAA pilot project is being considered. Here meetings were held on 6th and 7th August, first with the Lujeri tea estate management, and later with Sukambizi association and Mulanje Renewable Energy Agency (MUREA) – see list of all people met in Appendix B5. Owners of the tea estate are proposing to upgrade the existing small hydropower plant which would supply power requirements for their tea processing, and any surplus could be used for rural electrification. Related to the tea estate is the association, which is a grouping of tea farmers who sell tea to the estate for processing. The tea farmers have no electricity supply and would be beneficiaries of the proposed rural electrification. On the other hand, MUREA is an NGO that is developing a micro hydropower plant (63 kW) in an area that is partly occupied by the Sukambizi farmers, and the power produced under the MUREA scheme could serve a small portion of the Sukambizi population. Meetings with Sukambizi leaders were held first with the leaders alone and then jointly with the leaders and MUREA personnel.

Following are the main points that were noted in the Mulanje area meetings:

- The Upper Ruo site that was initially proposed for a hydropower generation development was found unsuitable on grounds of environmental degradation that would occur with the development; and therefore an alternative site is being considered (Lower Lujeri, 400-500 kW). The site was rejected on the grounds that Lujeri TF is 100% reliant on the existing hydro site on Ruo – if works were to go ahead on Ruo upstream it would mean that the existing hydro plant would need to close down for 18 months meaning that the TF could not be in operation for this same period of time which makes the project impossible for the time being as they can not close down a tea factory for 18 months. In the first phase

therefore they are looking to upgrade the Lujeri SHP site, extend the ESCOM grid to the area and then in a second phase they may go ahead building ruo upstream or see what other possibilities there are.

- The alternative site is being explored outside the scope of the GTIEA (Greening the Tea Industry in East Africa) project which included the Upper Ruo proposal. This site involves upgrading the existing Lujeri SHP site, it is believed that capacity could increase by 15 – 20% - thus it may not yield surplus power that could be used for electrification
- The tea estate management is willing to assist the Sukambizi farmers in obtaining a supply of electricity and they have been working with the Curtain Foundation (a charitable organization) to support the electrification. They have approached ESCOM (the national power utility) to extend power to the community, but the estimated capital costs are prohibitive. In view of this, they are contemplating procuring the required construction materials and equipment, and buying down the costs of electrification by ESCOM
- MUREA personnel have been working on their hydropower project independently of the initiatives by the tea estate, and in consultation with only a few junior members of the Sukambizi association, who could benefit directly from the MUREA development. The PACEAA team therefore brought the MUREA and Sukambizi leaders together to work out joint strategies for electrification. It was also agreed that follow-up meetings for exploring synergies would be held between these two parties and the tea estate management. MUREA has already identified two other sites in the area. With the support of Sukambizi and the Tea Estate it could be envisaged that a number of small SHP grids could be put in place providing power to communities. In the longer term the individual SHP minigrids could be interconnected and power from the excess Lujeri SHP sites could be sold to the community grid.
- o The Sukambizi association is a welfare organization with 5700 members, but its business track record is not yet proven. However, they have earnings from Fair Trade which could be used for community development including electrification. They were established as a Fair Trade company in 2008 and will receive in 2009 up to 500,000 USD. To date they supply 15% of made tea to Lujeri. They have also indicated a willingness to engage in electrification business if they receive adequate support. With the right level of capacity building they could therefore undertake a rural electrification project and eventually manage a power distribution business.

Between 10th and 14th August meetings were held in Nairobi with personnel of IFC (International Finance Corporation) of the World Bank Group, and Practical Action – East Africa. The list of people met is given in Appendices B6. Other contacts were made with personnel of the UNDP Small Grants Programme and Krep Bank, both of which support community based development initiatives. In the latter contacts it was recommended that proposals in writing should be forwarded to the institutions for consideration. Therefore, further follow-up will be made. In the meetings that were held, the major points that came up were:

IFC

- As the private sector arm of the World Bank group, IFC would be interested in any suitable project that promotes entrepreneurship
- The corporation could support the kind of electrification that is envisaged in the PACEAA Project. However, the scale would have to be much larger (over USD 5 Million). The grant element of the projects would also have to be minimal as the dependence on grants is perceived to be a sustainability barrier. Due to the size limitation the proposed rural electrification initiative under the PACEAA Project would not be eligible for IFC funding
- GTIEA hydropower projects could be candidates for support by IFC and it was recommended that the developers of the projects forward their financing requests to IFC for consideration
- The Nairobi office of IFC deals with all East Africa countries, and thus Kenya, Tanzania, and Rwanda projects could be considered

Practical Action – East Africa

- The NGO covers all countries of the East African community, namely Kenya, Uganda, Tanzania, Rwanda, and Burundi; and therefore Malawi which is included in the purview of the PACEAA Project would not be included. However, Practical Action – Southern Africa could take up Malawi
- Projects that demonstrate innovative technologies and bottom-up approaches to development would be of interest to the NGO, and initiatives that the NGO has been undertaking have mainly focused on the demonstration pursuit
- After mobilizing rural communities and organizing for the necessary support frameworks the NGO has been able to engage rural people in hydropower developments and other initiatives where the people ended up taking full ownership
- Sustainability of the projects that the NGO has undertaken has been ensured through full involvement and concrete contribution of the beneficiaries, the contributions being from the peoples' in-kind and monetary resources
- Facilitation of implementation of the PACEAA pilot projects could be undertaken by the NGO subject to the terms and conditions of the facilitation being acceptable, and therefore requirements for the facilitation need to be communicated to them for a decision to be made regarding the facilitation role. It would nevertheless be necessary to secure funding for the facilitation as the NGO has no support resources of its own for providing the required support.

7. Conclusion

The mission was accomplished reasonably according to plan, with minor difficulties like drop in attendance in the case of the training in Kenya. Discussions with stakeholders were very fruitful and implementation issues were dominant. Improvements in the training programme will be made on the basis of feedback obtained from the training sessions held, and a greater level of achievement is expected during the training scheduled to take place in Tanzania and Rwanda.

The discussions that were held with stakeholders particularly focused on the facilitation and procedure for the implementation process. It was noted that there is need for a body that will takeover from the PACEAA team to see the process through after exit of the latter team in August 2010. Arrangements for the hand over should be made before the end of the team's mandate.

At the national level, there is only one promising potential funding source for the PACEAA pilot project in Kenya, and this is the Rural Electrification Authority. Similarly, in Malawi the Curtain Foundation, acting through the Lujeri Tea Estate, appears to be the only source available for the Malawi (Lujeri) pilot project. The challenge is now even larger than in the previous plan as now the cost of facilitation of the pilot projects has to be taken into account. Therefore, as has been suggested, international sources of funding will need to be pursued more vigorously. A discussion on this subject will need to be held between the partners of the PACEAA project as soon as possible.

APPENDIX A

MISSION MINUTES: JULY 2009

Lara Bertarelli, IED; Adrien Jacob, IED & Said Abdallah, UNEP RISOE

Overall mission objectives:

1. presentation of the draft RE plans to main stakeholders in Kenya & Malawi (IED)
2. meetings with potential financing organizations
3. Training on local rural electrification planning (IED)
4. Training on Business Models (UNEP RISOE)

A separate mission for Rwanda and Tanzania is scheduled for October 2009.

KENYA : 18th July to 1st August 2009

20th July : Presentation of the rural electrification plan to main stakeholders

Methodist Guest House, Nairobi

Present:

1. Wilson Tuwei – Chairman, EPK OEP
2. Paul Tiony – Secretary, EPK OEP
3. Paul Mugun – Vice Chairman, EPK OEP
4. Victor Biwot – Accountant/Administrator, EPK OEP
5. Peerke de Bakker, UNEP
6. Bholu Shrestha, GTIEA
7. Lara Bertarelli, IED
8. Adrien Jacob, IED
9. Said Abdallah, UNEP RISOE
10. Graeme Watson, Graeme Watson Associates
11. Financial analyst of Graeme Watson Associates

Absent:

12. Chris Ballard, EPK

The objectives of the meeting was to present the rural electrification plan proposed by IED to the main stakeholders so as to obtain feedback and map out the way forward. Aspects pertaining to the implementation were also discussed. For the benefit of EPK OEP a description of the overall project was presented.

The rural electrification plan was developed for the area surrounding the proposed Kipchoria SHP site which is located in close proximity to Nandi Hills. The proposed rural electrification plan identifies unelectrified trading centres close to the proposed hydro power house. Due to the highly scattered nature of households not many of these are foreseen to be directly connected to an electricity service but it should be noted that these will benefit from the improved services in the surrounding trading centres – electrified schools, health services and commercial centres. The proposed plan also takes into account the foreseen demand of battery charging stations in each trading centre which would supply facilities for households to recharge their batteries thereby reducing considerably a households' time spent and cost of transporting car batteries to far locations. The proposed rural electrification plan focuses on providing power to public services and trading centres. Power & demand matching shows that hydro power availability should not be a major issue, unless additional tea factories are connected to the hydro (on top of Savani, Kibwari and Chemomi).



Appendix A (2 of 13)

The trading centres proposed for electrification are:

- Barasendo
- Chepkiwen
- Kaburo
- Chesekem
- Kipsigak
- Swak
- Tambul
- Kapkuong
- Chemalal

Covering the following public services:
2 dispensaries
6 primary schools 3 secondary schools 1 polytechnic

The total investment costs amount to about 300 000 USD. For more information on the rural electrification plan proposed refer to the presentation made or the rural electrification plan report.

The main comments & suggestions done on the presentation of the plans are the following:

- Demand increase shortly after electrification may be underestimated, as battery charging, welding and other such activities will be quickly attracted
- The financial analysis should suggest a two-level tariff structure to improve the affordability for potential domestic end-users (although there are relatively few, since housing is extremely scattered in the area)
- An extension of the project in the sugarcane growing area (Kapkuong) is possible, but being outside the geographic scope of the tea growers, a subsidy would be required for this part of the scheme (possibly from the Constituency Development Fund).

The main stakeholders for the Kipchoria rural electrification project are:

- EPK : the probable owner of the SHP
- EPK OEP: the probable distribution company
- Project members: UNEP, GTIEA and UNEP RISOE

Graeme Watson Associates was also invited to attend the meeting to shed some light on the advancement of the Kipchoria SHP feasibility study and the perceived outputs of the hydro power station to date.

EPK did not finally attend the meeting which affected the discussions and output of the meeting.

EPK OEP, the proposed distribution company, is a community based organization representing 4000 tea farmers. They supply about 30% of made tea to the five EPK Tea Factories. Today EPK OEP has five directors who are elected by farmers to represent them from their zones, one director for each zone. EPK OEP is presently purchasing the Siret tea factory and to date has contributed 41% of the 5.5M USD to purchase it. The other reasons why EPK OEP was formed are:-

- To assist members mobilize all the resources they have for their maximum benefit.
- To identify possible investments the members can enter into jointly and increase their incomes. This is through diversification of farming activities-not relying on tea alone.
- Educate farmers to run their farms as commercial ventures- and move away from subsistence mentality.
- Pursue all ways and means to assist farmers –e.g. availing of credit services, marketing of produce etc.
- To educate farmers on sustainable use of resources e.g conservation of water sources and afforestation.

EPK OEP is a fairtrade labelled company, meaning that for every kg sold under the fairtrade label (around 8% of the total production) a social premium is provided to EPK OEP for community projects & investments that benefit the farmers. To date EPKOEP has received premiums totalling Kshs 66 Million (USD 857 000), over 3 years. 70% of the premium has been invested in the purchase of the factory, 25% for community projects and 5% is used in administration. Eight projects are currently undertaken: 2 Dispensaries, 2 staff houses in a school and a dispensary, one class room, one school kitchen and two water tanks.

Appendix A (3 of 13)

One of the mandates of EPK OEP is electricity generation and distribution hence there is a genuine interest in going through with the project. It is thought that between 10-30% of the total amount of the premium received could go towards the electricity project as of June 2010 but this should not be a loss making venture.

The EPK OEP expressed that for them to take up the project they need assistance in:

- technical know how in electricity generation and distribution. This will be through recruitment/training of appropriate staff.
- to put in place the necessary billing system and recruit staff to manage it.
- legal expertise to develop systems to govern the project e.g. with customers, KPLC and EPK Ltd.
- EPK OEP directors will require capacity building through training to be able to make correct decisions related to the project.

It is understood that EPK can not make any comments as yet to the rural electrification component of the project without first reviewing the SHP feasibility study. Once this study is made available, discussions between EPK and EPK OEP should commence – it is suggested that PACEAA assist these discussions until the project end. As the project will end in August 2010 it is also suggested that whoever will assist EPK OEP after the PACEAA end date should also be included in the discussions.

The main issues that need to be discussed with EPK include:

- Tariff at which EPK OEP buys power from EPK – can EPK sell the power to OEP at production cost plus marginal upcost
- Guarantee power availability over time
- Channel KPLC power through the EPK private network – is this technically possible?

The main actions that need to be worked out in the next months are:

- SHP Feasibility study – review outputs & adjust rural electrification plan in function to outputs
- Seek assistance for setting up a distribution company: meetings with G Power, DEEP, GVEP & REA
- Seek sponsors: meetings with REA, Danish (a 200 M€ fund has been set up recently), Dutch, GVEP & AFD, JICA
- Integrate comments on the REP into a final report: Chris Ballard / legal aspects of the implementation – coop or not – early Nov deadline
- Letters of committment from the tea factory & developer of the SHP – 15th December .
- Hand-over to « implementation agency » for the projects to go ahead once PACEAA completed – June '10
- Model contracts between different stakeholders
- Project execution – working arrangements with assistance staff –
- ToR for capacity building activities / O&M etc.

23/07/09

1.1.1.1.1 Meeting with Mr Goose, Operations Director, EPK

1.1.1.1.2 EPK Nairobi Office: Rhapta road, Newrehema House, 8th floor

As Mr Ballard could not attend the meeting of the 20th, immediate arrangements were taken to meet with Mr Goose who was in Nairobi during the same week. Mr Goose is the operations director of EPK.

Although he has not been involved in the project and could therefore not provide precise comments, it was important for us to inform EPK of the main points of discussion that should take place once the feasibility study is available. The points are:

- Should the rural electrification plan managed by EPK OEP, also include the workers camps?
- Discussions on the tariff at which EPK will sell power to EPK OEP should be negotiated
- Guarantee power over time

Appendix A (4 of 13)

It is clear that continued discussions need to take place especially once the feasibility study for the Kipchoria SHP site is made available. However, it came relatively clear from this discussion that the workers camps would be taken care of by EPK directly, and should not be considered as part of our rural electrification exercise.

Follow-up actions:

Review SHP Feasibility study – and begin discussions between EPK OEP and EPK.

23/07/09

1.1.1.1.3 Meeting with Mathilde BORD-LAURANS, AFD : Agence Française de Développement

bord-lauransm@afd.fr , +254202718452/57 2715629

AFD Office – Royal Ngao House, Nairobi

- Financing soft loans and commercial loans to private & public
- Grant money
- Up to now Lead donor in Kenya – 200 million Euro Fund – 50% is parastatal support, transferred to the sovereign bank of Kenya.
 - Working on Water, Urban Development, Environment, Energy. The latter is the biggest portfolio.
 - Covering all of East Africa except for Rwanda
- Other donors like JICA and the WB are stepping up their efforts in Kenya

The Energy portfolio

- Intervene in Generation, Transmission & Distribution & Final Consumers. Distribution has historically been AFD's main field of work.
- The AFD has been instrumental in the preparation of a revolving fund for end-users which should be launched by the government by September this year. The revolving fund will be of 6 million Euro with the possibility of increasing it 30 million Euro. The fund will go to assist end-users to pay their connection fee in instalments at 0% interest rate. The end-user is required to pay a 30% downpayment and repay within 18 months.
- A credit line for the private sector is also in the process of being set in place for investments in energy efficiency and renewable energy technologies. All banks can tap this fund if they meet the requirements needed, they will then pass on the advantages and long-terms credit lines to interested investors. The credit lines are being defined as we speak and a pipeline of projects is being identified to provide an immediate kick-start to the process. Loans will be for 10 – 15 years at interesting interest rates. The credit line will start with a 30 million Euro fund and will be operational by the early next year. The credit line will first commence in Kenya and once well established it will be extended also to Uganda and Tanzania. This could indeed be an interesting avenue for GTIEA's and Cogen Africa's large investments.
- In the generation field – AFD is supporting the investments in geothermal and other renewables technologies like what will be the largest wind farm in east Africa - 300 MW – in lake Tūkana. The latter is challenging as it lies 450 km from the grid! But the extension of the line will assist also in the Ethiopia – Kenya Interconnection project. They have been also trying to persuade the government to not to invest in a 600 MW Coal power station planned for in Mombasa.
- They are organizing a workshop in Nairobi on renewable energy in November in close partnership with UNEP.
- No direct grant can be sought for the PACEAA project as there is no grant element available within the AFD. However, as they are direct supporters of the REA she suggested to get in touch with them and she will also “lobby” them on our behalf by sending our documentation to the MD.
- She also suggested to contact the French Embassy SCAC as they may have 40,000 – 70,000 Euro grant money available.
- She will be leaving next year in June to go back to France.

Follow-up actions:

- Send her the Rural Electrification Projects for all our pilot projects

Appendix A (5 of 13)

- ask her to send us the Rural Electrification Master Plan as REA did not provide us with the final copy

21/07/09 & 27/07/09

Meeting with REA : Nganga Munyu (General Manager & Head of Corporate Planning), Edward Gakunju (Senior Economist, Corporate Planning), Samson Ondieki, Economist, James Muriithi, Renewable Energy Officer

- This represents REA's first year of operation so they are very much at the onset of their activities and defining their programmes of activities, etc.
- The REA strategy is that in Phase 1 (2008-12) all public facilities will be connected to the grid
- We presented the rural electrification plan for Kipchoria, we asked what assistance the REA could provide both in terms of financial support and two technical capacity building.
- Suggested that we should work closely with the CDF and try and mobilize funds through them. Also suggested that we need to find donor financing – they can then possibly fill the gap. Financing should be a joint effort between CDF and REA.
- REA could provide the technical expertise needed to manage such a system.
- The project is too small to fit into the cooperative like system pilot project spearheaded by REA. The number of clients is far inferior than what they are targeting.
- They made the following comments on the presentation:
 - Their unit cost for distribution lines are much higher (1.5-1.8M KSh/km instead of 0.9) but they are using much thicker wires (75mm² instead of 35mm²), which may not be necessary in this project.
 - Likewise, their connection costs are higher: 35,000 KSh for single phase customers, instead of 12,000.
 - A 5% levy on sales (handed over to REA) should be added to the retail tariff
 - Loan repayment period should be extended to 10 years
- A target of 8 Economic IRR is what is currently used by REA. Adequate subsidy should be determined so as to reach this target with similar retail tariffs as KPLC's (including fuel surcharge).

Follow-up actions:

- Send them the final version of the report
- once we have a financial proposal we should meet with them again to see how they can help – this meeting should be between EPK OEP and REA.
- firm up REA's commitment to provide technical capacity building to EPK OEP

21/07/09

**Meeting with GVEP: Mahesh Gohil, Regional Manager and Daniel Macharia, Project Manager
mahesh.gohil@gvep.org & Daniel.macharia@gvep.org +254202447499**

- Global Village Energy Partnership Kenya is presently working on a three year project called DEEP – Developing Energy Enterprises Project that has the objective to provide start-up and

Appendix A (6 of 13)

growth support to energy entrepreneurs. The PACEAA project falls very much in line with their activities and EPK OEP could benefit greatly from their support. Support includes seeing how to increase productive uses in the area, diversifying business activities, support in the operation and maintenance of a distribution company and assistance in setting up a billing collection system.

- They have to date trained 200 entrepreneurs and provide support and guidance through their start-up
- GVEP is also managing a fund “Energy Access Fund” for projects in Rwanda, Tanzania, and Uganda. MG will provide us with contacts.

Follow-up actions:

- send email to continue the discussions and cc'ing Victor
- ask Gohil to make the link with the person managing the fund

21/07/09

1.1.1.1.4 Meeting with GPower – Robert Mutsaers

Karen – info@gpower-africa.org

- GPower is the consultancy arm of an NGO. Headed by a dutchman. G Power is presently working on realizing a concept which in a nutshell is built on two phases : the first phase is the development of 10 SHP mini grids all within 10 km radius from one another (a snake shape like form) and the second phase is interlinking the 10 mini-grids and building a 1 MW SHP plant to replace the smaller units. The project is working with local communities who have a share of the generation and distribution company. The beneficiaries of the system would be only households, it does not seem that productive uses would be benefiting from the scheme. The project is linked with the development of shopping malls in each of these 10 mini-grids.
- We invited Robert to make a presentation on the implementation modalities of his project but unfortunately he ended up not coming.
- I don't think there can be much coordination with the PACEAA project.

24/07/09

Meeting with UNEP – Peerke de Bakker UN offices Gigiri

- PdB provided an update on the status of feasibility studies & we discussed about the first comments on the feasibility studies that have been submitted to date
- Presentation on the PACEAA project and specifically activities carried out in Rwanda and Tanzania made to to the ONE-UN initiative – Dr Jenny Clover
- Updated on the discussion we had with EPK
- Work activities in the next coming months
- Suggested to discuss with REED-SCAF for possible loans

Follow-up actions:

- send copy of minutes of meetings



28th to 31st July : Local Rural Electrification Planning & Business Models Training Methodist Guest House, Nairobi

As part of the project “Poverty Alleviation through Cleaner Energy from Agro-industries in Africa” (PACEAA) a four day seminar on “Local Rural Electrification Planning & Business Models”, was

PACEAA mission report- July-August 2009

Appendix A (7 of 13)

held at the Methodist Guest House in Nairobi from the 28th July to 31st July.

The Seminar Objectives were to present an overview of rural electrification planning methodologies and tools, and address some of the common planning issues in more detail. The 4th day addressed the organisational issues of project implementation. Various business models were presented, and their suitability for rural electrification assessed.

Participants included KPLC, REC, REA, Consultancies, NGOs and Students.

- Unfortunately the turn out was lower than anticipated, considering all the 40 confirmation that had been received prior to the workshop start. 26 people on the first day, 15 people on the following three days.
- KPLC, REC and REA all attended the first day and unfortunately REA due to other commitments due to shortage of staff could not be mobilized to attend the following days of the meeting. Other participants included consultancy firms, students and NGOs.
- The training was perceived as very useful and interesting for those who attended the four days. However, some would have preferred having the opportunity to actually use Geosim.
- The first day the training focused on a presentation of the project context with presentations from UNEP; REA, the GTIEA and Cogen Africa. IED presented the PACEAA project objectives and the objectives of the training. Two introductory presentations were made on a range of existing planning tools per se and the methodology proposed for rural electrification planning.
- A number of people wished to test Geosim and asked for information on costs and the availability of an evaluation copy
- A list of participants is provided in the Annex's, together with the agenda. Presentations will be uploaded on the project website.



Follow-up actions:

- send copy of minutes of meetings with a few photos and a list of participants
- inform them as to when the presentations will be uploaded on the project website
- provide them dates for the next training in Tanzania
- provide more information on geosim with link on the website
- think of an evaluation copy of Geosim

1.1.1.1.4.1 MALAWI : 1st August 2009 to 8th August 2009

3rd to 5th August 2009: Local Rural Electrification Planning and Business Models Seminar

1.1.1.1.5 Crossroads Hotel, Lilongwe, Malawi



As part of the project “Poverty Alleviation through Cleaner Energy from Agro-industries in Africa” (PACEAA) a four day seminar on “Local Rural Electrification Planning & Business Models”, was held at the Crossroads Hotel in Lilongwe from the 3rd to 5th August.

The Seminar Objectives were to present an overview of rural electrification planning methodologies and tools, and address some of the common planning issues in more detail. The 3rd day addressed the organisational issues of project implementation. Various business models were presented, and their

suitability for rural electrification assessed.

Participants included Department of Energy, ESCOM, MERA, Department of Surveys, Practical Action, the Mulanje Renewable Energy Agency, the Mulanje REC, REA, Consultancies, NGOs and Students. A participant from Practical Action Zimbabwe also attended the workshop. A total of 26 participants attended the three day training.



Dynamic exchanges and an interactive participation throughout the three days of the training. All participants remained interested in the approach presented, wanting to see how this could be applied to the Malawian context. All presentations were followed by practical exercises and the participants engaged themselves to ensure to capture the concepts proposed.

The Malawi rural electrification context was presented by Mr Khumbolawo Lungu, Department of Energy. The electrification rate has reached 8% in Malawi, mostly in urban areas. The Government’s objective is to increase access to electricity for people in rural areas as part of the Government’s effort to reduce poverty, transform rural economies and

improve productivity. Already today the Government is prioritising all trading centres for electrification through grid-extension. The overall methodology for RE planning is based on the previous Master Plan drafted by JICA:

- The programme is split in different phases
- In each phase, a number of trading centres per district is chosen
- Then non electrified trading centres in each district compete for inclusion in the RE programme. The main criterion is the market fee of the TC (taxes levied), which is an indication of the level of economic activity in the TC
- ESCOM does the field surveys to estimate costs of electrifying the selected TCs through grid extension
- The Department of Energy (DoE) provides a subsidy so as to reach 6% project IRR.

It is thought that there is a good scope for least cost rural electrification planning yet with one of the lowest electricity tariffs in Africa it is difficult to get renewable energy projects and off-grid projects off the ground. Tariffs are being overhauled currently, and MERA was not able to clarify what would be the tariff constraints on a private led project, such as the one envisioned in PACEAA. However, they stated that tariffs to the end-user should not be too far from regulated (ESCOM) tariffs, which may be an issue if they are not increased in the near future.

Appendix A (9 of 13)

The Malawian power sector is increasingly suffering from increasing power shortages. An important reflection is needed to plan for the future energy supply diversification of the country, tariffication issues and increasing access to power services in rural areas.

The Government is today testing the use of pre-paid meters, has removed levies on import duties on electrical appliances (although apparently the savings made from not paying the levy were not passed on to the end consumers –ie. costs for appliances remained the same, and the retailers got larger margins!), and is experimenting with three hybrid systems (PV & wind) of 21 kW, 12.6 kW and 7.5 kW capacities. Three new such projects are planned for in the foreseeable future. However, these systems have raised scepticism as they are unable to meet demand from mills (a very common appliance in rural areas) and other large power users. Small hydro has also been studied, but identified potential sites have been considered too far from targeted trading centres. However, the government, and MERA in particular, is looking forward to have a better overview of mini/small hydro potential in the country (several pre-identified sites are still waiting for feasibility studies).

The experience with pre-paid meters has been positive and ESCOM is now commissioning a new tender for more to supply rural areas.

Topics presented were : Overview of planning tools and methodologies available for rural electrification, overview of a bottom-up planning approach, use of GIS in rural electrification planning, prioritising settlements to be electrified through socio-economic indicators, load forecast and least-cost sizing of supply options. A presentation on business models was made by UNEP RISOE wherein the range of business models possible were presented. This was followed nicely by a practical presentation made by Practical Action Zimbabwe who is implementing a number of community led micro hydro projects in Zimbabwe and in Malawi.

In Malawi the project is coordinated with the Mulanje Renewable Energy Agency (MuREA) who is presently implementing a 63 kW MHP which would supply power to communities that lie in close proximity to the Lujeri Tea Estate. Some of the villages considered for electrification by the IED Rural Electrification plan are also included in MuREA's project. A very interesting potential for collaboration was therefore initiated between all parties to ensure that the majority of the communities in these areas are supplied with power in the foreseeable future.



It is clear that from the discussions had that ESCOM needs to be onboard of any rural electrification project. Their expertise and experience can prove extremely beneficial for such projects.

In all we believe that participants remained extremely satisfied of the intensive three day programme, and we hope that some of the teachings will assist them in their future work. IED and UNEP RISOE thank their local counterpart David Chiumya for assisting the organizational aspects and last but not least the fantastic participation of all the participants.

Follow-up actions:

- send copy of minutes of meetings with a few photos and a list of participants
- inform them as to when the presentations will be uploaded on the project website

Appendix A (11 of 13)

up to the Lujeri Tea Factory which is being seriously considered, upgrading the Lujeri SHP and in a second phase assessing the ruo upstream SHP.

- Extending the ESCOM line to Lujeri would also render less costly any grid extensions to the rural villages.
- Although it was agreed that rural electrification through ESCOM would not be the most viable solution due to the frequent power cuts (for example in February 2009 – Lujeri Tea Estate had to rely on its diesel generators for 68% of its power needs – incurring huge costs for the company) – it may act as an important back up to the hydro's in the dry season and when demand of the tea factory requires all of the generation capacity. Should the existing and upcoming SHP's have excess power the Tea Estate would consider selling it at bulk sale (at production cost with small markup to cover administrative costs) to the distribution company who would then distribute power to its customers and collect payments. In any case, with the current regulated tariff structure, the bulk tariff from the grid and from hydro would be roughly equal (according to first estimates from the PreFS), therefore from the point of view of the RE distribution company, the origin of power would not have a significant impact on the bulk purchasing tariff (it may have an impact on the availability of power, though).
- MV distribution standards being used by Lujeri are 6.6kV, and any new equipment is very costly (custom made). They are considering switching to 11kV, to be able to buy second hand material from South Africa, which is currently upgrading its own network to 33kV and thus supplying the market with large quantities of 11kV equipments (lines & transformers). In any case, they suggested not to consider the existing 6.6kV line for interconnection. Using ESCOM standards (33kV) for their internal lines seems out of question.
- We discussed the importance of having a tea outgrowers association that is fair trade labelled as the contributions provided can assist significantly to setting up a distribution network. Sukambizi, the smallholder tea outgrowers association, was registered in 2008, so this year was its first year that it started to benefit from the fairtrade premium of 50 US cents/kg – To date, in less than one year, they have received four payments amounting to 601 000 USD and it is expected that per year the association will secure about 500 000 USD per year. A meeting with the association was arranged for us.
- The tea from the smallholders (Sukambizi) represents to date 15% of the total made tea (or 2 million kg of made tea) – this is expected to increase in the near future.
- Other funding sources that the Tea Factory can rely on are:
 - UTZ – European Accreditation System for the worldwide implementation of a baseline standard for responsible tea and coffee growing and sourcing. It ensures that socially and environmentally appropriate methods are applied for tea / coffee growing practices, and efficient farm management.
 - Rainforest Alliance – for environmental / biodiversity projects.

Follow-up actions:

- send report asap
- find out how the meeting with MuREA and Sukambizi went & what actions have been agreed
- follow developments of the SHP projects of Lujeri

6th August 2009

1.1.1.1.7 Meeting with Sukambizi association: Oubrey Tungama (0999 465022), President; Johnston Sabulani, EPK

- A meeting was quickly and kindly convened to meet with Mr Tungama again during this mission.

Appendix A (12 of 13)

- Sukambizi is registered as an association / trust. It has a committee of 13 members, and all 5700 growers supplying tea to Lujeri TF and Bloomfield TF are members of the association.
- Lujeri Tea Estate assist them with fertilizer supply, planting tea, nurseries.
- Although very much at the onset, the fairtrade label will allow them to go ahead in the building of schools, hospitals, water pipes for drinking water. The fairtrade labelling organization will soon provide training to the association which is eagerly awaited for.
- The association has bought maize stocks and fertilizer with some of the money provided.
- They see three priority activities: (1) fertilizer, (2) water pipes for drinking water and (3) electricity to supply power to maize mills – women often have to travel very far to mill their maize, supply of power will help reduce the burden.
- Very interested in engaging the association, in finding the way forward, in acting as a distribution company although they would need a lot of capacity building both technical and managerial.
- A meeting with MuREA was set on the next day.

Follow-up actions:

- call every so often to see how the project is progressing

7th August 2009

Meeting at the Mulanje Renewable Energy Agency (MuREA):

MuREA: John Mthandi, Executive Director; Hannock Mphande, Technical Supervisor, Doreen Phwandaphwanda, Technical Officer;

SUKAMBIZI ASSOCIATION: Fredrick Mkwapatira, Chairman; Aubrey Tungama, President

- The reason for which this meeting was convened was that we saw an immediate potential to coordinate activities between MuREA and PACEAA. There are interesting synergies between the



projects and activities that are already underway by MuREA can help as of today the SUKAMBIZI association build capacity in this new field.

- MuREA a recent spin off of the Mulanje Mountain Conservation Trust came to being in December 2008 when the energy portfolio of the Trust began to be too large and so with the support of GTZ a new agency was formed.
- They are conducting 5 projects: (1) micro hydro – developing three community run MHP – Bondo 63 kW, Manchebo – 98 kW, Likulezi – 75kW. They obtain technical support from Practical Action. (2) energizing mountainous communities for sustainable livelihoods – GEF and UNDP funding – working with 20 youth clubs to develop a business centre that would be powered by PV – battery charging station, barber shops, entertainment etc.. The youth by so doing learn a skill in so doing. PV is free, but the business needs to pay 500 MWK/month to MuREA for the service. (3) E-mind set: energizing the MDG's – capacity building on how to conserve energy – sending messages through mobile phone networks, (4) fixed stove project: 1000 stoves produced by the Sukambizi association for their members. Project has a carbon trading element, working with HESTIAN an Irish company. (5) promotion of clay stoves – for the poorest rural areas.
- They are an active team submitting proposals to ESMAP, EC etc. Five staff and 3 interns – 2 civil engineers and 1 mechanical. Total of 15 people.
- Presently reviewing the rural electrification and renewable energy technology strategy paper for Malawi – 10 year programme
- MuREA has had problems in identifying a strong community head for which ownership of the SHP could be passed, it had not contacted the SUKAMBIZI association – so it is thanks to the work done by PACEAA, and its catalytic role, that it brought these actors together. This link made

Appendix A (13 of 13)

through PACEAA is a critical point to ensure that the Bondo SHP project and others in the area will be a success.

- Hydro portfolio: MuREA has identified a number of MHP sites in the area that could be built to supply power to the Sukambizi members through the association. One can easily imagine a phased system where small mini grids could be developed in the catchment area that could all one day be interconnected to each other – purchase power from Lujeri excess power and at times of low hydro productivity obtain grid power. This was indeed something that MuREA and Sukambizi think realistic.
- With the significant potential for pico and micro hydro power that there is in the area, combined with a competent local NGO working on community run hydro schemes with donor backing, a well organized smallholder tea outgrowers association representing nearly 6000 growers and receiving about 500 000 USD per year from the fairtrade label, and with the strong support of the Lujeri Tea Estate and the Curtain Foundation already committed to the area and to financing it is definitely not unrealistic to envisage extended access to power in this densely populated area on Malawi the next 5 years.
- The role for PACEAA is not really well defined, have we done our work by putting the main actors together and defining where power is needed? Or do we need to provide more support to ensure Sukambizi is supported in its endeavour...

Follow-up actions:

- call every so often to see how the project is progressing & the link with SUKAMBIZI

APPENDIX B

APPENDIX B1

Stakeholders' consultation meeting on 20-07-09 – Participant list

NAME	INSTITUTION	CONTACT INFO
Victor Biwott	EPK Outgrowers Empowerment Project (Accountant/Administrator)	epkoep@hotmail.com Tel +254721 517 636
Wilson M. Tuwel	EPK Outgrowers Empowerment Project (Chairman)	epkoep@hotmail.com Tel +25453 543 222 / 0723 748 932
Paul Tiony	EPK Outgrowers Empowerment Project (Secretary)	epkoep@hotmail.com Tel +25453 543 222
Paul Mugun	EPK Outgrowers Empowerment Project (Vice Chairman)	epkoep@hotmail.com Tel +25453 543 222
Peerke de Bakker	Programme Officer UNEP DGEF	Peerke.Bakker@unep.org
Bhola Shrestha	PMO Director, GTIEA Project	bhola.shrestha@gtiea.org
Graeme Watson	Graeme Watson & Associates	gwatson@wananchi.com +254722730701
Said M. Abdallah	UNEP Risoe-DTU	smba@risoe.dtu.dk +4546775190
Lara Bertarelli	IED	l.bertarelli@ied-sa.fr +33472591320
Adrien Jacob	IED	a.jacob@ied-sa.fr +33472591320

APPENDIX B2a

Meetings on 21-07-09 (GVEP and Green Power)

NAME		INSTITUTION	CONTACT INFO	METING DATE
Mahesh Gohil		GVEP International (Regional Manager)	mahesh.gohil@gvep.org +254202447499	21-07-09
Daniel Macharia		GVEP International (Project Manager)	Daniel.macharia@gvep.org +254202447499	21-07-09
Said M. Abdallah		UNEP Risoe-DTU	smba@risoe.dtu.dk +4546775190	21-07-09
Lara Bertarelli	} IED Team **	IED	l.bertarelli@ied-sa.fr +33472591320	21-07-09
Adrien Jacob		IED	a.jacob@ied-sa.fr +33472591320	21-07-09
Robert Mutsears			info@gpower-africa.org	21-07-09
IED Team ** (as above)				21-07-09

APPENDIX B2b

Meetings on 23-07-09 (AFD and EPK) and 24-07-09 (UNEP DGEF)

NAME		INSTITUTION	CONTACT INFO	METING DATE
Mathilde BORD-LAURANS		AFD (Programme Officer)	bord-lauransm@afd.fr +254202718452/57 2715629	23-07-09
Abungana Khasiani		GTIEA	abu.khasiani@gtiea.org +254733621812	23-07-09
Said M. Abdallah	} PACEAA Team *	UNEP Risoe-DTU	smba@risoe.dtu.dk +4546775190	23-07-09
Lara Bertarelli		IED	l.bertarelli@ied-sa.fr +33472591320	23-07-09
Adrien Jacob		IED	a.jacob@ied-sa.fr +33472591320	23-07-09
Mr Goose		EPK (Operations Director)	+254 20 444 0115, Fax +254 20 444 9635	23-07-09
PACEAA Team * (as above)				23-07-09
Peerke de Bakker		Programme Officer UNEP DGEF	Peerke.Bakker@unep.org	24-07-09
Jenny Clover		UNEP (Senior Programme Officer)	Jeanette.clover@unep.org +254207623779	24-07-09
PACEAA Team * (as above)				24-07-09

APPENDIX B2c
Meeting with Rural Electrification Authority (REA) on 27-07-09 – Participant list

NAME	INSTITUTION	CONTACT INFO
Nganga Munyu	REA (General Manager)	ngangamunyu@yahoo.com +254203533663
Edward Gakunju	REA (Senior Economist, Corporate Planning)	egakunju@rea.co.ke +254202341400/2710955
Samson Ondieki	REA (Economist)	s_ondiek@yahoo.com +254202341400/2710955
James Muriithi	REA (Renewable Energy Officer)	jamesmmuriithi@hotmail.com +254725 607728
Said M. Abdallah	UNEP Risoe-DTU	smba@risoe.dtu.dk +4546775190
Lara Bertarelli	IED	l.bertarelli@ied-sa.fr +33472591320
Adrien Jacob	IED	a.jacob@ied-sa.fr +33472591320

APPENDIX B3 (1/2)

**LOCAL RURAL ELECTRIFICATION PLANNING &
BUSINESS MODELS**
SEMINAR
AGENDA

28th July 2009 to 31st July 2009
Methodist Guest House, Nairobi

DAY 1 : 28th July 2009

08:30	09:00	Registration
Welcome & Opening Speeches		
09:00	09:15	WELCOME & OPENING Peerke de Bakker, UNEP
09:15	09:30	GREENING THE TEA INDUSTRY IN EAST AFRICA – AN OVERVIEW Bhola Shresta, PMO, GTIEA
09:30	09:50	PRESENTATION OF THE STUDY : AGRO-INDUSTRIES AS ACTORS FOR RURAL ELECTRIFICATION Presentation of the Kipchoria Project – Lara Bertarelli & Adrien Jacob, IED
09:50	10:10	CASE STUDY OF THE SUGAR INDUSTRY Stephen Karekezi, AFREPREN/FWD
Session 1 : Overview of Planning Approaches		
10:10	10:30	OVERVIEW OF THE RURAL ELECTRIFICATION STRATEGY IN THE COUNTRY AND PLANNING METHODOLOGY FOR RURAL ELECTRIFICATION ADOPTED Ng'ang'a Munyu, Rural Electrification Authority
10:30	11:00	<i>COFFEE BREAK & Group Photo</i>
11:00	11:20	OVERVIEW OF PLANNING TOOLS AND METHODOLOGIES AVAILABLE FOR RURAL ELECTRIFICATION Lara Bertarelli & Adrien Jacob, IED
11:20	12:30	OBJECTIVES OF THE TRAINING & OVERVIEW OF THE PLANNING METHODOLOGY <ul style="list-style-type: none"> - Relationship between GEOSIM© & GIS - an introduction to the GIS based planning tool « GEOSIM© » - presentation of the different modules: Spatial Analyst®, Demand Analyst®, Network Options®, Distributed Energy® - applications to RE from agro-industries
12:30	13:30	<i>LUNCH</i>
Session 2 : Key Concepts of RE Planning (IED)		
14:00	15:30	UNDERSTANDING GEOGRAPHICAL INFORMATION SYSTEMS (GIS)
15:30	16:00	<i>Demonstration</i>
	16:00	Close of Day 1

APPENDIX B3 (2/2)
Kenya Seminar Agenda (Continued)

DAY 2: 29th July 2009		
Session 2 (contd.) : Key Concepts of RE Planning (IED)		
09:00	10:00	IDENTIFYING AND PRIORITIZING SETTLEMENTS TO BE ELECTRIFIED : Spatial Analyst© - maximising socio-economic impact of Electrification - cross-sectoral planning - key concepts of spatial analysis: Development Poles, hinterlands and remote areas
10:00	10:30	Questions & Answers
10:30	11:00	COFFEE BREAK
11:00	12:30	<i>Demonstration</i>
12:30	13:30	LUNCH
13:30	14:30	LOAD FORECAST : Demand Analyst© - introduction on main families of load forecast models - presentation of a “bottom-up” model - willingness to pay assessment - socio-economic surveys
14:30	16:00	<i>Demonstration</i>
	16:00	Close of Day
DAY 3: 30th July 2009		
Session 2 : Key Concepts of RE Planning (IED)		
9:00	10:30	LEAST-COST SIZING OF SUPPLY OPTIONS ON A GIVEN TERRITORY : Network Options© and Distributed Energy© - defining “off-grid” areas - grid expansion simulation through cost-benefit analysis - least-cost optimisation and cost structures of various decentralised energy projects (hydro, biomass, diesel) - options for remote areas
10:30	11:00	Questions & Answers
11:00	11:30	COFFEE BREAK
11:30	13:00	<i>Demonstration</i>
13:00	14:00	LUNCH
Session 3 : Key Concepts of RE Planning – Wrap-Up (IED)		
14:00	16:00	MAKING A LOCAL RURAL ELECTRIFICATION PLAN - A recap on the Step by step methodology
	16:00	Close of Day
DAY 4: 31st July 2009		
Session 4 : Implementation Business Models (UNEP RISOE)		
09:00	10:00	Presentation of models
10:00	10:30	COFFEE BREAK
10:30	11:30	Group Work Exercise
11:30	12:30	Group Work Presentations
12:30	14:00	LUNCH
14:00	15:30	Discussion and Summing Up of Models
15:30	16:00	Highlights of the Whole Seminar
16:00	16:30	Closing Remarks
	16:30	Close of Seminar

APPENDIX B3a
PACEAA Training, Nairobi Participants

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APPENDIX B4 (1/2)

LOCAL RURAL ELECTRIFICATION PLANNING & BUSINESS MODELS SEMINAR

Agenda

3rd to 5th August 2009
Crossroads Hotel, Lilongwe, Malawi

DAY 1 : 3rd August 2009		
08:30	09:00	Registration
Welcome & Opening Speeches		
09:00	09:20	WELCOME & INTRODUCTION
09:20	09:50	PRESENTATION OF THE PACEAA PROJECT Presentation of the Ruo Project – Lara Bertarelli & Adrien Jacob, IED
Session 1 : Overview of Planning Approaches		
09:50	10:20	OVERVIEW OF THE RURAL ELECTRIFICATION STRATEGY IN THE COUNTRY AND PLANNING METHODOLOGY FOR RURAL ELECTRIFICATION ADOPTED <i>Ministry of Energy</i>
10:20	10:50	OVERVIEW OF PLANNING TOOLS AND METHODOLOGIES AVAILABLE FOR RURAL ELECTRIFICATION Lara Bertarelli & Adrien Jacob, IED
10:50	11:20	<i>COFFEE BREAK & Group Photo</i>
11:20	12:00	OBJECTIVES OF THE TRAINING & OVERVIEW OF THE PLANNING METHODOLOGY <ul style="list-style-type: none"> - Relationship between GEOSIM© & GIS - an introduction to the GIS based planning tool « GEOSIM© » - presentation of the different modules: Spatial Analyst®, Demand Analyst®, Network Options®, Distributed Energy® - applications to RE from agro-industries
12:00	13:00	<i>LUNCH</i>
Session 2 : Key Concepts of RE Planning (IED)		
13:00	13:30	<i>UNDERSTANDING GEOGRAPHICAL INFORMATION SYSTEMS (GIS)</i>
13:30	14:00	Demonstration
14:00	15:00	IDENTIFYING AND PRIORITIZING SETTLEMENTS TO BE ELECTRIFIED : Spatial Analyst© <ul style="list-style-type: none"> - maximising socio-economic impact of Electrification - cross-sectoral planning - key concepts of spatial analysis: Development Poles, hinterlands and remote areas
15:00	16:30	Exercises
16:30		Close of Day 1

APPENDIX B4 (2/2)
Malawi Seminar Agenda (Continued)

DAY 2: 4th August 2009		
Session 2 (contd.) : Key Concepts of RE Planning (IED)		
09:00	10:00	LOAD FORECAST : Demand Analyst© <ul style="list-style-type: none"> - introduction on main families of load forecast models - presentation of a “bottom-up” model - willingness to pay assessment - - socio-economic surveys
10:00	10:30	Exercises
10:30	11:00	COFFEE BREAK
11:00	12:30	LEAST-COST SIZING OF SUPPLY OPTIONS ON A GIVEN TERRITORY : Network Options© and Distributed Energy© <ul style="list-style-type: none"> - defining “off-grid” areas - grid expansion simulation through cost-benefit analysis - least-cost optimisation and cost structures of various decentralised energy projects (hydro, biomass, diesel) options for remote areas
12:30	13:30	LUNCH
13:30	15:00	LEAST-COST SIZING OF SUPPLY OPTIONS (contd.)
15:00	16:00	MAKING A LOCAL RURAL ELECTRIFICATION PLAN <i>A recap on the Step by step methodology</i>
16:00		Close of Day
DAY 3: 5th August 2009		
Session 4 : Implementation Business Models (UNEP RISOE)		
09:00	10:00	Presentation of models
10:00	10:30	COFFEE BREAK
10:30	11:15	Group Work Exercise
11:15	12:30	Exercise results and summing up
12:30	13:30	LUNCH
13:30	14:00	Panel Discussion of the Entire Seminar
14:00	14:30	Presentation of Certificates
14:30		Close of Seminar

APPENDIX B4a (1/2)
Malawi Training Participants

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APPENDIX B4a (2/2)
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APPENDIX B5

Meetings with Lujeri Tea Estate management (06-08-09) and MUREA and Sukambizi teams (07-08-09)

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APPENDIX B6

Meetings on 12-08-09 (with IFC) and 14-08-09 (with Practical Action)

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