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**A Programme Funded by the Governments of Finland and Austria and Hosted
by the Development Bank of Southern Africa**



**Instituto Superior de Educação e Tecnologia
One World University**

Project Progress Report: Milestone 1

1.7.2011 to 1.03.2012

**Enabling 2.400 people to access
sustainable small scale solar
power in Changalane, Namaacha
District, Maputo Province,
Mozambique**

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1. Overview of project Implementation Status

1.1. Overall Expected Project Outputs

The proposed project aims to train 2,400 people (approx. 400 families) to get solar energy from sustainable small-scale energy power stations in Changanane. This project aims at introducing an innovative energy solution to rural communities in Mozambique. The energy will be affordable, decentralised, clean and sustainable.

Due to the illumination the rural families will have access to better education, possibility of realisation of more income generating activities and possibilities to develop local businesses. At least 800 children will gain access to light in order to study after dusk which will contribute to their better learning performance. 50 local business people will receive training on how to use the new technology to develop their businesses, 200 leaders and members of the community will receive capacity training on how to use the new technology to improve their economy and life standard in general.

1.2. Achievements in Previous Milestone

N/A

1.3. Milestone Objectives and Expected Outputs

The Objectives and expected Outputs of the first milestone were basically:

- To get the project started and organized as a part of the ISET/OWU faculty for “Fighting with the Poor” community work and introduced to the administrative authorities of Changanane and out in the target communities.
- To introduce the solar energy project to the Government of Mozambique in order from the very beginning to implement the alternative use of energy as a realization of the national energy policy by promoting renewable energy, energy efficiency and clean technology investments and providing sustainable energy services to the poor rural communities.
- To establish and consolidate the cooperation between the pilot Projects 3 co-partners GAIA, TERI and FUNAE and ISET/OWU in terms of formalities, administrative terms and practical actions and work.
- To identify the LaBL entrepreneurs, sign agreements with them and make drafts on the business plans for the LaBL entrepreneurs plus realizing an initial conference.



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1.1 The expected result of integrating the project as part of the ISET/OWU faculty for community development work has been achieved to fully satisfaction for everybody. The 3 existing “ Fighting with the Poor “ courses with a total of 100 students as well as the permanent 20 Teachers Council members have been introduced to the project ideas and plans and everybody see the demonstration project as a fantastic opportunity to assist the Changalane neighbour communities with improvement in life quality and promote social and economic development. The same positive reaction has come from the local administrative authorities, who has welcomed the project warmly and the cooperation about the upstart and implementation is in full swing.

The approval of the grant opened up a new opportunity for implementing a clean, sustainable, decentralized and affordable innovative solar energy resource with a community based approach methodology of full community participation, moving from the planning phase to the upstart and realization phase. The population has shown profound and hopeful interest in the baseline study and upstart explanations and work carried out by the ISET/OWU Fighting with the Poor, (FWP) students during the first milestone period.

1.2 ISET/OWU was honoured with a visit by the Minister of Science and Technology Mr. Venancio Massingue on Saturday the 29th of October which turned out to be a excellent way of informing the Mozambican Government at highest level about the sustainable solar energy power project for Changalane. The Minister attended the exhibition of the EEP project for more than 15 minutes and expressed his full support for the aims of the project, praised the important initiative of transmitting Science and Technology like solar energy to the rural communities in need for modernization and social - economic development. He encouraged ISET/OWU to work in close cooperation with the Government institutions as FUNAE in order to maximise the results and share the progress and achievements to be obtained with them. He hoped for a possible expansion of the activities in the future to introduce the use of solar energy to more than bringing light to the rural communities but also to have energy for production purposes, like irrigation pumps, grinding mills etc plus open up for the use of modern technology equipment and devices by the poor population.

His visit was filmed by the national news agency TVM and broadcasted with the cover of the historic launching of the EEP solar energy project in Changalane. A big article was published in the Governments national newspaper about the visit, the solar energy panels and also because the government decided that Changalane probably will be the 7th Millennium Village project to be implemented in the National Millennium program and thereby turn ISET/OWU and the cooperation with the local authorities and population of Changalane’s into a centre for promoting research and development in the southern part of Mozambique. (See annexed Newspaper article from NOTICIAS 3.11.2011)



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1.3 The GAIA Movement transferred their contribution value of 10.000 EURO and hereby fulfilled their role as co financier.

TERI and ADPP ISET/OWU are working according to a defined agreement on cooperation defining the role of TERI as the provider/supplier of the solar energy technology equipment and the first equipment has already been purchased.

1.4. The expected outcome of the 1st Milestone period of identifying the LaBL entrepreneurs, sign agreements with them and make draft business plans for the LaBL has been almost fully reached.

It took longer time to do the Baseline study than expected and to select the specific communities to be the beneficiaries and owners of the project, and therefore this activity is not completely fulfilled. 6 LaBL entrepreneurs are identified, and agreements have been signed.

34 students from the FWP team 2011 have been involved in the process of implementing the BASELINE study and presenting the project objectives and expected outputs to the communities by working and living in the communities for a period of 6 weeks. They have also been implementing many different actions of community work in the areas of agriculture, education and health in order to assist the population in creating integrated rural development. The aim was to have a very broad base for united action and profound cooperation, ready to take decisions together, identify and select the future solar energy entrepreneurs with the best possible recruitment of people trusted by the community to be able of doing a successful job.

1.4. Milestone Achievement Overview

ISET/OWU has completed the introduction of the solar energy power stations to the government of Mozambique with a visit to the institution in September by the honourable Minister of Science and Technology.

ISET /OWU organized it's project team consisting of Bente Jepsen vice Director of ISET/OWU as project responsible, Januário Antonio Guerra as Project Leader, Alberto Salomão Zita 3rd year students at the FWP course as co Project Leader and Horacio Chafatar teacher of Fighting with the Poor Course as assistance and Nelio Giuseppe Bento Siteo as accountant. The ideas and plans of the project was introduced to all 100 "Fighting with the Poor" students at the



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Community Development Faculty and its 20 members of the permanent teachers 'council. The project has been very welcomed by all since it will be a concrete expression of the solidarity ISET/OWU wishes to transmit to the poor communities in its area.

A Baseline Study reaching 600 families in the neighbourhoods of Mafavuca(100 families) Changalane main centre(100 families), Ndividuane (100 families) Chigubuta A (100 families) , Alto Enchisa (100 families) and Mussuquelane (100 families) was carried out by the project team staff and 34 students from the Fighting with the Poor team 2011 in order to investigate the status of living conditions of the people, their economic activities, level of education, family sizes, health problems, and needs for light in the evenings and their level of knowledge about solar energy. After the field work the compiling and analysing of the information has constituted a learning process for the ISET/OWU students and conclusions have been that the solar energy stations will be placed in communities with many development needs, but with a population very open for, interested in, ready for and capable for the challenges of implementing and running the solar energy power stations in a sustainable manner. (See details from Base Line study report).

TERI-The Energy and Resources Institute, is a Society incorporated under the laws of India, having its principal office at Darbari Seth Block, I H C Complex, Lodhi Road, New Delhi – 110 003, India, TERI is a not-for-profit research organization working in the fields of energy, environment and sustainable development and as such is undertaking a 'Lighting a Billion Lives Campaign' . (The details of the Campaign can be seen at <<http://labl.teriin.org>>;)

ADPP ISET/OWU and TERI developed the Logical Framework of the Project to introduce 6 solar lamp stations with each 60 solar lamps and the Equipment has been ordered and arrived in Mozambique in the end of December, on 20th of January the first solar station was installed in Mafavuca II.

TERI sent the professionals/technicians to the project in Changalane in January and March, to train the project staff in running solar lantern charging stations and supervise the installation of solar lantern charging stations over a period of one (1) week, during the phase of installation of solar charging stations, and in the second case for a period of 2 days, to make maintenance and reinforce the training.

The first technician called Mr. M. K. Somashekara, visited us between 18th until 24th of January. The main target was to train the staff, LaBL entrepreneurs and the students from the course "Combatentes 2011" (Fighting with the Poor 2011). One visit to the community Mafavuca II was organized and the first installation happened in the same day. More training took place in the ISET/OWU facilities, also the conference together with FUNAE and a visit all together, FUNAE, the technician and the staff to the station installed in Mafavuca II.



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The second technician Mr. Arvind Sharma visited us on 8th and 9th of March. On the first day a meeting was arranged with all LaBL entrepreneurs, local leaders, students and staff, in one of the communities, Alto Enchisa, he made a new training, gave information about the lanterns, solar panels, how to handle and repair the material and keep in good conditions. On the second day the staff and technician went to Mafavuca II, to the station that is working now for one month, to make maintenance and reinforce the LaLB entrepreneurs' training.

TERI make arrangements for spare parts, batteries and lanterns required by the project, when requested and paid for;

TERI co-operate with ADPP project staff for the achievement of the objectives of the campaign and ensure continuous communication with ADPP ISET/OWU through regular meetings and interactions between key personnel of both parties.

Cooperation with FUNAE the National Energy Fund was and still is very successful; the first meeting took place on 21st of January. It coincided with the first conference that gathered the FUNAE representatives, the technician sent from TERI, students and teachers from the different courses offered in ISET/OWU and others workers and ISET/OWU's staff.

Different Project equipment as the 6 solar energy stations, a motor bike, video camera, digital camera, a desktop computer and video projector have been bought as well as building materials for the six stations.

The project contract was signed by the representative of the Ministry of Foreign Affairs of Finland and ISET/OWU on the 12.08.2011 and the first advance payment was received on the 26.10. The late payment of the first advance is one of the reasons for the deviation from the original planning. The biggest deviation was the delay in the agreement between ISET/OWU and TERI in purchasing the solar energy stations which has meant that the installation of the solar charging stations has not been according to the schedule.



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2. Achievement in Implementation of Project Activities

2.1. Activity 1 Achievement

Provision of quality illumination to 2.400 people.

2.1.1. Sub-Activity 1.1.

Identification of the LaBL candidates who will be LaBL entrepreneurs and select locations. /Locations have been selected and LaBL candidates have been identified.

2.1.2. Sub-Activity 1.2.,

Sign agreement with the LaBL entrepreneurs and select locations /Has not been completely fulfilled. Two agreements were already sign, with the entrepreneurs from Mussuquelane and Alto Enchisa and the others will be sign until end of March.

2.1.3. Sub-Activity 1.3.

Installation of the solar charging stations.

The 6 station houses have been built. All equipment has been put up at the 6 stations. 1 station (Mafavuca) started working on the 20th of January. The remaining 5 stations are ready to start functioning in week 12.

2.1.4. Sub-Activity 1.4

Training of the LaBL entrepreneurs (maintenance of charging stations, timely distribution and collection of lanterns from users, maintenance of daily logbook, and product knowledge) /has been fulfilled.

2.1.5. Sub-Activity 1.5

Training of the project staff on the advantages of the solar energy, use of affordable lanterns, to promote the use of them by the population./Has been fulfilled. The project responsible, Januario Guerra and Alberto Zita has been trained in maintenance of the lanterns.

2.2. Activity 2 Achievement

Supporting the sustainability of the solar panels.

2.2.1. Sub-Activity 2.1.

Training the target groups to maximize the impact of the added hours of clean, safe and improved lighting./ has started and it will continue during all the project duration.



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2.2.2. Sub-Activity 2.2.,

Training of small business skills to entrepreneurs (how to plan a business, how to get a bank account, enter a micro credit scheme, learn about marked potential and how to use the new technology to develop the business) / not yet done due to delay on others activities as the installation.

2.2.3. Sub-Activity 2.3

Support to local business owners /not done, due to delay on others activities as the installation.

2.2.4. Sub-Activity 2.4

Plan the reinvestment of the profits of the panels and calculate the maintenance costs, pricing tariffs, administration charges etc. /not yet done.

The first station has now been operating for one month. All 60 lanterns are in use. Some families have hired two lanterns, one for the home and the other for small shops selling in the evening. Some people are making handicraft at home, benefitting from the better illumination. The recharging costs are 5 Mt, which is 0.19 US\$. The users are content with this recharging price.

The Mafavuca primary school has 3 lanterns which they are using for adult education in the evening. For this purpose, the project will invest in a specific system of ceiling light, also powered with solar panels, and with the possibility to charge mobile phones. When these arrive the 3 lanterns will also be provided for families.

A meeting will happen in the next days to calculate the profits, costs, see how the materials behave, and from those conclusions the plans shall be make and expand to the others stations.

2.2.5. Sub-Activity 2.5

Training of local leaders, headmasters, women groups and other community groups on the importance of the lanterns. /has started and will continue as part of a long term training that we thought should be done.

After the local people have seen the lanterns in use they are eager to get more, and many have expressed that they want to buy small solar panels and lanterns. The project has ordered 10 small panels with lanterns, which can be sold for 2.000 mt, an affordable price. This will not reduce the need of the community based solar charging stations, as there will always be many people who do not have the means to invest in the panels, and will continue to use the station.



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2.3. Activity 3 Achievement

Demonstration that it is possible to provide affordable solar energy to rural Mozambicans through a system that can easily be replicated.

2.3.1. Sub-Activity 3.5

Organisation of conferences /Has been fulfilled. The first conference took place on the 21st of January. The invited speakers were two representatives from FUNAE, Nelso Bila and **Tiago** , the TERI technician Mr. M. K. Somashekara, in the audience were students, teachers and staff from ISET/OWU.

2.4. Activity 4 Achievement

Management and administration of the project.

2.4.1. Sub-Activity 4.1

Management of the project. /has been done.

2.4.2. Sub-Activity 4.2

Administration of the project /has been done.

2.4.3. Sub-Activity 4.3

Purchase of the equipment. /has been done with delay.

2.5. Activity 5 Achievement

Monitoring and evaluation

2.5.1. Sub-Activity 5.1

A Baseline study./has been done with success. The project team decided to move part of the budget for baseline survey to the budget for Evaluation at the end of the project period. It is very good to support our final evaluation and conclusion activities with another study and we have learned several lessons of how to improve the different aspects of the study work.

2.6. Progress (Motivation for) in Utilization of Advance Payment

ISET/OWU acknowledges that an advance payment request for all the Project Milestones is a major deviation from the EEP Guidelines for Execution, with the exception of the first Milestone. However, given ISET/OWU 's circumstances of being a NOT FOR PROFIT



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ORGANISATION that is not allowed to cross-finance projects with funds from other projects, the EEP Regional Coordination Office (RCO) has granted these exceptional upfront payments to enable the implementation of the MOZ202 project. ISET/OWU thus agreed that this upfront payment exemption is being granted upon the condition that with the exception of the first milestone, ISET/OWU will submit to the EEP RCO the proof of payments of the contributions of all project partners for the previous milestone when submitting any requests for disbursement. ISET/OWU understands that failure to adhere to this payment condition will result in non-payment of any further disbursement requests or advance payment requests submitted to the EEP.

2.7. Activity Variations and Outstanding Tasks

The biggest activity variations that gave the project several outstanding tasks for the 2nd milestone period was the delay we had in purchasing the solar panels from India. The process of establishing the communication with TERI and the supplying company has taken some time. ADPP Mozambique has a similar project in the Province of Cabo Delgado, with the establishment of 40 solar charging stations, financed by EU. The 2 projects have placed an order of 37 solar charging stations, of which 6 were for Changalane. This co-operation was established so that the project could pay the first installment for the solar charging stations, even before the advance payment from EEP was received.

The company supplying the solar charging stations is GLOBAL TELELINKS, and the address is:

5-3-456/A/20, 201, II Floor, Maruthi Grandeur Dwarakapuri Road, Punjagutta, Hyderabad - 500 082 A.P., INDIA Telephone: 040 - 2335 0291 Fax: 040 - 2335 0292 cvraosd@gmail.com
prakruthipower@gmail.com sales@prakruthipower.com

VAT T.I.N. 28320186068 C.S.T. No.VSP/08/04/1335 SSI 28-005-11-012

The order was ready on the 10th of December, when TERI inspected the equipment, and then it was shipped to Mozambique by air.

The consignment arrived in Mozambique on the on 14th of January 2012, after which it was cleared in the customs, import duties were paid and the equipment was transported to ADPP head office. The equipment was divided into the 6 stations for Changalane and the 31 stations going to Cabo Delgado, and when the Engineer Mr. M. K. Somashekara arrived, the equipment was transported to Changalane.

ISET/OWU has adjusted the activity plan in the 6th, 7th 8th and 9th month of the existence of the project and we are confident that we can catch up, since the project team is now in an organized position and have been a lot out in the communities and created a good base for the work. The project team does not see any unforeseen variations of the plan and there will be



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weekly and monthly meetings evaluating that all tasks are moving fast enough and take necessary actions if any delays.

3. Achievement towards project Outputs, Results and Impact

The 1 Milestone results create the following final outputs, results or impact achievements possible to measure with specific indicators:

Reach the goal for the number of beneficiaries, with the installation of the first solar station, 45 families benefit of clean and sustainable illumination's source until now. Others lanterns are being use in the local church and in the school, enabling adults education in the evenings/nights.

Raise the number of people participating in adult literacy education by 5% by the end of the project, as mentioned above the use of the lanterns in the local school allows the implementation of night classes for adults. It is too soon to conclude what rate of adults attend to the classes.

Increase the knowledge and understanding of the solar energy technology, including community leaders and women in the activities. Before and during the installation of the solar stations it was given training not only for the population, including the local leaders, entrepreneurs and community groups, but also to the students from the course Fighting with Poor that are in this moment working with the communities, that will use their training and knowledge to reinforce the message.

Others outputs as improvement of income level, reduction of Greenhouse Gases, and reduction of the use of fossil fuels, decrease of respiratory diseases among the population and aim for improvement of performance of students/pupils in their school work, don't yet have visible and measurable outputs as consequence of the delay in the solar panels' installation.

4. Challenges and Proposed Solutions

One very essential challenge the project faces is to take care of the security of the solar panels. Many people from the communities have expressed concern that it is an issue to secure that the panels will not be stolen. The project decided to solve this in a practical manner by using some more funding for simple but secure constructions where the solar panels can be installed with security. It will be possible due to fewer expenses on the purchasing of the solar stations. There is a secure roof and doors and burglar bars for the windows.



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It is a challenge for the project team to produce a high quality video film technically and also concerning the content of the film. It is absolutely a positive challenge and it will help to capacitate the ISET/OWU staff and students in this important knowledge and capacity area. ISET/OWU go for starting early with the work, do a detailed and interesting script where the results of the project comes out very clearly and hopefully shows an example to be followed and utilized in the future of Mozambique.

The department of Publicity of ADPP Head Office will participate in the production of the video film, to secure that it will have a good quality.

ISET/OWU is well aware that it is a challenge to make the solar energy project sustainable and viable so that the end result will be a supply of services to the 6 chosen communities in the future. The training has to consider very well that the community members have very low level of schooling, speak little Portuguese and that planning and managing economical activities is a new thing for them. The students from the FWP courses plan to implement an active Literacy training program and also involve the local primary school teachers and students in this program. Alberto Salomão Zita has experiences in the field of literacy training and it is also a high priority task for ISET/OWU as an institution to do action- research in this work, so the methods to be used will be very effective and concretely according to the work and tasks the community members have in the project work.

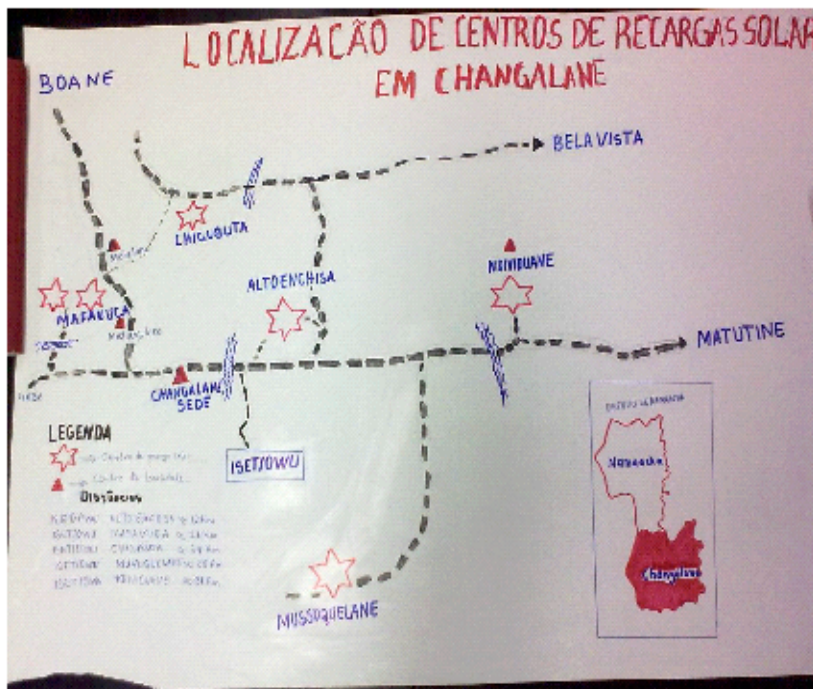
Finally it is already now a challenge for ISET/ OWU to look at further consolidating and expanding the energy and environment project in Chagalane after the 15 months. It is a demonstration project and clearly important that positive lessons will be learned for the future path of energy generation to rural communities. 15 months is a short period in itself and we will start working for continued funding for a 2nd project period to make it possible with 1 or 2 more follow up years in Chagalane and to expand the access to clean and renewable energy for lighting for a bigger number of people. The dream and vision is to use solar energy for production activities and further improving of live quality for the poorest people. ISET/OWU and the ADPP Mozambique Partnership office will produce new applications for mobilizing partners and funds.



8. Appendixes – Deliverables

8.1. Deliverables

Appendix 1: Map with villages' localization and distances between them and ISET/OWU



Legend:

- ★ Solar panels recharger centre
- ▲ Village hall

Distances:

- ISET/OWU – Alto Enchisa: 12km
- ISET/OWU – Mafavuca: 26km
- ISET/OWU – Chigubuta: 34km
- ISET/OWU – Mussuquelane: 28km
- ISET/OWU – Ndividuane: 31km



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Appendix .2: Photographs from training and installation



Arvind Sharma from TERI, India, explaining about the lantern and the solar panels to the population



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Beneficiaries listening concentrated to the instructions



The lanterns are connected to the panel, and the instruction poster is on the door.