



# ***FINAL REPORT***

## **Rural Electrification Guyana – Phase II**

**Project: Rural Electrification - OLADE-UC-CIDA-GEA**

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**Canadian International  
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## Introduction

This report outlines the various aspects of the procurement and installation phase of the Rural Energy Project, Phase II (Implementation of Pilot Projects). This entailed the implementation of five subprojects (Pilot Projects). It also saw the formation of a legal entity, The Wowetta Business Enterprise Inc. to manage the operation of the Pilot Projects (sub-projects). These activities were coordinated and to a greater extent implemented/executed by the local consultant.

This Rural Energy Project is a pilot project being executed by the Latin American Energy Organization” (OLADE) and University of Calgary with funding from the Canadian International Development Agency (CIDA), in collaboration with the Guyana Energy Agency (GEA).

This phase of the project required that the legal framework for the project be put in place. The funds being expended on each subproject constituted the funds towards the formation of a revolving fund. This entailed the formation of a legal entity to control the activities of the project. This entity, The Wowetta Business Enterprise Inc. would have ownership of the equipment supplied for the sub-projects (Pilot Projects) and would be responsible for all financial and administrative oversight over these. The community was already organised into various interest groups who were responsible for the operation of the subprojects. The membership of each subproject was required to make a legal binding agreement with this entity to repay the value of their subproject cost. In addition, another legal mechanism had to be established to enable an external entity to collect payments from the beneficiaries on behalf of the Wowetta Business Enterprise Inc.

This phase also involved training both for the maintenance of the equipment and management of the subprojects. The maintenance training was done via on the job training where the community identified individuals who worked along with the technicians so they learnt how to maintain the systems. The leaders of the groups that managed the subprojects were given formal management training during three sessions.

## Sub – Projects (Pilot Projects)

There were some five subprojects which were identified in Phase I of the project. These were<sup>1</sup>:

- Joinery
- Garden – Solar Water Pump
- Solar Home System
- Village Shop Freezer
- Cassava Processing Unit

The Joinery project was being executed by the youth group, they were asking for seed money of US\$2,000 to start up their furniture making activities. They had most of the equipment to start but needed the funds to acquire the lumber and other consumables.

The Garden – Solar Water Pump project was the initiative of the women’s group to support a school feeding programme. The Solar Pump would supply water for the garden and the school kitchen.

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<sup>1</sup>Ketwaru, P. Identification of Requirements for the Community Guyana, 2008

The Solar Home System project is to provide all the homes at the time of the survey with solar power for home lighting.

The Village Shop Freezer project is to install a solar freezer for the village shop so they can store perishables and beverages for sale.

The Cassava Processing Unit is another initiative of the women's group to produce farine on a commercial scale for sale within the region.

### Development of the Legal Framework

This aspect of the project was rather difficult to execute, the difficulties were due to the logistics of communicating with the community as well as the fact that this was the first time these legal requirements were required for such an enterprise. A lawyer was commissioned to formalise these issues while the consultant liaised with the community and others.

### Formation of the company "Wowetta Business Enterprise Inc"

The first objective was the formation of the legal entity to own and administer the project. The lawyer reviewed the various means via which this could be done and it was decided that the two best options were the "Not for profit Company" and the "Friendly Society". Samples of the incorporation documents of each of these forms were sent to the community with explanations of each along with the advantages and disadvantages of each form. Hard copies of the documents were sent to the community via aircraft, since this was the most reliable form of "postage". While this was being done daily communication was kept with representatives of the community via email. This was possible since one member of the community worked at Bina Hill which has internet facilities. This email communication greatly assisted in the clarification of these issues.

However this process was rather time consuming since most members of the community had to be consulted. Since many members were not always available for meetings this took some time to meet a consensus. It was decided that the Not for Profit company was the better alternative. The legal documents now had to be developed for this purpose. On the finalisation of the documents GEA and OLADE were sent copies for review. After this was done, the documents were sent to the community for signatures. The signed copies were sent back to Georgetown where they were passed through the legal system to have the company Wowetta Business Enterprise Inc. formally incorporated. This legal incorporation took approximately a month due to some internal issues at the Courts.

### Development of the Agreements (Financial Mechanism)

The project required that the beneficiaries be legally bound to make payments to the parent company, Wowetta Business Enterprise Inc (WBEI) to the value of the amount utilised for the implementation of the subproject. Five separate agreements (Pilot Project Agreements) were developed to satisfy each subproject. The agreement for the Joinery project had to be carefully crafted since it bordered on this being a loan and only financial institutions are allowed to give loans.

These agreements had to be discussed with the community as before with the same time constraints being experienced. While this was being done the Collection Agreement was

being crafted, however this was delayed significantly due to requirement that the collection should be done by a Bank or an NGO in the Region. The Collection Agreement is an agreement between an external agency and the company (WBEI) in which the external agency would be responsible for the collection of the payments made by the beneficiaries towards the cost of the equipment and services supplied. This agreement is expected to be for approximately one year to during which time the company would have the systems in place to properly handle the collection. In an earlier report (Identification of the Requirements of the Community, Guyana), it was suggested that the Village Council be this collecting agent due to there not being any banks or NGO with this capability in the region. However OLADE indicated that they required this to be an NGO.

A number of NGOs were contacted but they indicated that they were not in a position to offer the services required. One NGO located at Annai indicated interest but later backed out. Eventually the Annai Village Council was asked to take up the task and agreed. The legal agreement was then signed.

It should be noted that these processes were very time consuming and led to some delay in the movement of the project. This was compounded by an initial reluctance by OLADE to proceed with other aspects of the implementation until the company was legally constituted and the Financial Mechanism was finalised. This led a delay in the ordering of the equipment. However the major delay was due to delivery delays by the main supplier.

### Sourcing the Equipment

The systems were designed by the local consultant; lists of the equipment required were extracted from the various designs. Request for quotations were sent to various suppliers both local and overseas. This process took much longer than expected due to the local suppliers going to overseas wholesalers to get price quotations. The responses were eventually received. They were reviewed by the GEA team which included the local coordinator and some technicians as well as the local consultant. The items on most quotations for the solar equipment were very similar to that requested. As such, the main criteria for selection were cost and delivery time. The overseas supplier Alt Energy had the best, both on prices and the fact that they stocked the equipment.

Quotations for the Cassava Grater and Generator were also received from both local and overseas suppliers however the overseas suppliers only quoted for the grater unit, not the generator. It was important that both generator and grater be supplied by the same vendor since the units had to be electrically matched. Only the local supplier was able to supply both units and ensure that they were electrically matched. As such the local review team decided to accept the quotation from the local supplier.

This decision was sent to OLADE along with the various quotations, OLADE concurred and proceeded to contact each entity and made the relevant payments directly to each entity.

### Shipment

The equipment was consolidated at the supplier's warehouse; this consolidation took much longer than expected, over a month. The freight was shipped via UPS Ground, to the Freight Forwarder, Laparkan Shipping for shipment to Guyana. However due to some logistical mix up the shipment was significantly delayed. The shipment was split into two

consignments due to this problem. The final consignment was eventually delivered in late March.

GEA was responsible for the clearing of the cargo in Guyana; the import taxes on the equipment were waived since the Guyana Government has tax incentives for the implementation of renewable energy systems.

### Transportation and Installation

The installation required significant logistics and it was expected that this could become a very costly exercise if not managed properly. As a result, GEA committed to coordinating the installation with technical inputs from the local consultant. GEA had overall responsibility for the installation of the equipment, this included sourcing and hiring technicians, coordinating, accommodation, transportation and payment of the villagers who were employed on site.

The community was required to identify two persons to work along with the technicians to be trained about the equipment, this included installation, safety, care and maintenance. These individuals were paid for their services while on the training attachment. Additionally a few other villagers made a special effort to be present regularly to assist in the installation. These persons were also given an honorarium by GEA for this work.

The equipment was consolidated at GEA Offices for transportation to Wowetta. In addition to the main equipment a number of installation accessories such as wires, ground rods, etc. had to be purchased. These were purchased locally by the GEA personnel utilising quotations obtained by the local consultant. Before these accessories were purchased OLADE was sent a detailed list and cost of all the installation accessories required along with the quotations. OLADE approved these and wired the funds to GEA to facilitate the purchase.

In addition to the cost of installation accessories OLADE was sent the estimated cost for accommodation, meals, transportation and labour cost for the technicians who were to be employed to execute the installation. The funds for this exercise was also approved and wired by OLADE as one consolidated wire transfer.

The installation was carried out by a team of technicians acquired by GEA. These technicians were given the technical specifications of the installation by the consultant. They were mainly responsible for the installation of the Home Solar Systems. This exercise took approximately two weeks.

The other equipment; the Solar Freezer, Solar Pump and the Cassava Grater were installed by the consultant with some assistance from the technicians. The consultant utilised the help of the residents and used this opportunity to train them in the various skills (e.g. electrical wire installation, plumbing and building of panel supports) required for these installations.

The installation material were purchased locally by GEA from funds supplied by OLADE, these funds also covered the cost of transportation, boarding and lodgings. The technicians travelled to Wowetta overland in a vehicle provided by GEA, the equipment and other supplies were transported by truck to the community. The truck and the technicians travelled to the community together. This was to ensure that all of the items reached Wowetta safely.

The technicians and the equipment departed Georgetown on the evening of March 27, 2009, they arrived during the afternoon of March 28, 2009. On arrival at Wowetta all items were formally handed over to the community for safe keeping. A detailed list of each item was used for this handing over. This handing over was critical since the community would now be responsible for the security of all the equipment and supplies for the project. The company then distributed to each householder the items for the home solar system. The company took responsibility for the other pieces of equipment such as the solar pump, freezer, and installation material.

The technicians took the wires and the other installation materials to the homes and this was utilised as was needed for each installation.

The details of the individual Pilot Projects can be found in the reports for each Pilot Project.



Figure 1: Truck with the equipment at the Kurupukari Crossing (Courtesy GEA)



Figure 2: Residents with their panels (GEA)



Figure 3: Residents at meeting to discuss issues and queries about the systems (GEA)

## Lessons Learnt- Overview

This project was different in many ways to the various energy projects implemented in many rural communities, especially Amerindian communities. The most important aspect was that the residents were deeply involved in the choice of the intervention that was needed in the community. This allowed for significant “buy in” and ownership by the individual residents. They were encouraged to bring any issues to the consultant for discussion and clarification. This helped them to be more directly involved.

However, even though the community members were so involved they still were not convinced that this project would be executed. This was evident by their unwillingness to execute their part of the implementation on a timely basis. This was especially true for the groups that were mainly men. The women were more trusting and went ahead and started their vegetable garden and cassava farm soon after the first round of consultations. It was only after all the agreements were signed up that the males became more proactive with the project.

This attitude towards the project can be as a result of these communities being promised various projects by many organisations which for various reasons did not deliver the projects. The residents were in a holding pattern until they received clear indications that the project would be executed.

The use of the internet to keep in regular contact with the community was very instrumental in crossing many hurdles and maintaining the confidence of the early supporters.

The informal meetings and training sessions were also important in helping the individuals to grasp the concepts and get a deeper understanding of the issues. They mentioned many times that they were able to get much from these sessions than with other more formal training sessions.

Speaking to the residents on the second visit after the initial installation has indicated that generally the residents were very happy for the subprojects that were implemented. They have already started to see the benefit from the project. The children now stay up later to become involved in many activities that would not have been possible before the lights were installed. The refrigerator is now allowing some residents to sell perishables to the village shop and make additional money.

### 1. Community Consultations

The concept of detailed community consultation before any aspect of the nature of the intervention was determined was very critical for the community buy in. The community welcomed the frank discussions and the objective manner the issues were discussed. No promises were made in the early discussions. Their ideas of the interventions were taken on board. They were also told very clearly when they were asking for was unrealistic. They were also informed about behaviour changes that they would need to implement for any venture to be successful. A key behaviour change was to accept ownership of the project and the equipment; this meant that they had to ensure that it was properly cared for. This idea was emphasised by the consultant very often.

The final pilot projects were arrived at after detailed discussions and analysis of ideas put forward. The choices were based on the cost of the project, the amount of persons who

would benefit and the economic benefit it could bring to the beneficiaries. This initial consultation to determine the interventions to implement was the key to the sustained interest that the community had in the project. Also, it was important that they were allowed to come up with the interventions and the interventions were not imposed on the community.

Based on private discussions with individuals, communities tend to agree to interventions even though they did not want the particular intervention since it is still something the community would be getting. However, since they did not buy into the imposed interventions the interest in caring for it was not there.

Important here also was that groups within the community had direct responsibility for each pilot project. This emphasised the idea of ownership.

The informal contact that was maintained via email and during visits by members of the community to Georgetown was very critical for the success of the project.

The Multi Stakeholder Workshop was the weakest aspect of the consultations, the participants were expected to play a sustained role in the development of the project but this did not occur. Most of them did not follow up, not even to enquire how the project was proceeding. The main benefit of this consultation was the information that was exchanged during the presentations and discussions. The National Advisory Committee (NAC) never got off the ground.

This body (NAC) was unable to meet, this was due to the members being so widely dispersed and it was costly to get them all together. Sustaining this body had to be funded and no source of funding was identified. Funding needs to be identified for this aspect.

Additionally this body was duplicating the functions of offices within the Ministry of Amerindian Affairs and the Office of the Prime Minister. To date neither of the governmental agencies indicated that they would cede these functions to the NAC. There is need for more detailed consultations with the government agencies to ensure that they support these external bodies that duplicate some of their functions.

There is a concept that Amerindians are rather comfortable with the traditional lifestyle and are resistant to change. However, from the consultations it was very clear that they wanted to be able to enjoy the benefits of modern technology and were willing to adjust their lifestyle to accommodate this. This resistance was due to their not fully understanding the ramifications of the change, when these were carefully discussed they were able to make very good decisions which included informed compromises. However, there were certain aspects of their culture that they insisted on maintaining.

It should be noted that due to its relative cultural and intellectual isolation the community was not very knowledgeable of many issues that more exposed communities consider as common knowledge as such this must be taken into consideration. The consultants working in these communities must be willing to spend much time explaining many "everyday" management and business concepts to these communities since they do not have a firm grasp of these. Once explained and understood the community was able to apply them to their management and decision making process.

## 2. Drafting of the Legal Documents

### i) Formation of the Wowetta Business Enterprise Inc

The legal aspects of this were rather difficult since there were not many lawyers locally who are familiar with Amerindian issues. Some expected to be paid at rates that the international organisations such as UNDP, IDB, etc pays. This was beyond the budget since these documents had to be developed, and then reviewed by the community until it was acceptable. The lesson from this exercise was that there is need for more lawyers to be trained in Amerindian issues so the competition could bring down the cost of these exercises. Or some entity such as GEA or Ministry of Amerindian Affairs should offer these services to external agencies/consultants.

The internet communications and “postage” by airplane were very critical in the consultation process to finalise the document.

The time frame given for this exercise was too short given all the issues that developed during the development and consultation process. Now, it may be possible to get this kind of legal document developed a bit faster since there is now a model to be used and modified.

### ii) The Individual Pilot Project Agreements

Like the legalisation of enterprise this was a first also, the difficulties here were crafting the documents in such a manner that they remained in the ambit of the not for profit framework of the parent body, the Wowetta Business Enterprise Inc. This required that the lawyer research and consult on this aspect. Once again since there were no real precedents this was time consuming. Time equates to cost in legal drafting. As before the time allocated was too short. Actually this aspect of the requirement was not brought to the consultant’s attention until the Financial Mechanism for the collection was being formulated.

### iii) Financial Mechanism (Collection Agreement)

Like the two earlier legal documents this one had issues of drafting since it was rather unique to our legal environment. Additionally the process had to be halted due to the requirement of the individual Pilot Project Agreements.

The main difficulty with this aspect was getting an external agency to accept responsibility for the collection of the funds. This was compounded by the fact that the community was rather isolated so there were not many NGOs in the general area to approach. The lesson here is that this requirement for an NGO to collect the payments should be dropped, especially for isolated communities. Instead, the Village Council should be asked to perform the collection of payments. They should be trained to ensure that this is properly executed.

Generally from the consultant’s perspective, this aspect of the Terms of Reference in the contract was not clearly defined. Greater details should be given with respect to the deliverables for this aspect of the legal requirements of the project.

### 3. Sourcing the Equipment

Equipment was expected to be sourced based on the reports the earlier Phase I. Had another consultant been hired for this Phase II it would have led to many issues of design. The detailed design should be included in Phase I.

The details of the design were left to the consultant but this was not clearly stated in the contract nor was there any payment scheduled for the design. This is a major flaw in the contract since the pilot projects had to be designed in detail and material lists drawn from the designs. This needs to be addressed in any new contracts for projects of this nature.

Since the legal issues can be rather time consuming and it was not possible to go to the procurement stage until the individual Pilot Project Agreements are signed this should be clearly stated in the contract so the consultant can do these in parallel with the formation of the enterprise. This is necessary due to long delays in supply of solar equipment due to high worldwide demand.

The local suppliers for the solar equipment are basically resellers and tend to buy from large distributors based overseas. This leaves them at a serious disadvantage with respect to pricing. Additionally they tend to take rather large profits which add undue costs to the project. As such they should be advised by the relevant government agency (maybe GEA) as to the fact that they make themselves uncompetitive on the wider market.

Shipping to Guyana can be rather cumbersome for solar equipment, especially, since batteries are involved and in some instances be considered hazardous material which leads to shipping restrictions. These issues need to be properly sorted with the supplier, shipping agency and the client before shipping is initiated.

### 4. Training

The key lesson learnt here is that the members of these communities are capable of learning complex issues and can quickly assimilate these concepts. The main aspect to ensure this learning is that the trainer needs to be willing to take them step by step while using examples that are based in their community. The need for relevant examples is important since they have limited experience due to the isolation of the communities.

### 5. Community Commitment to the Community Deliverables

The community was reluctant to commit to doing their part with respect to the community input. This was due to many disappointments from other agencies. This is rather difficult to overcome. There is need for regular updates from the project execution unit. The executing body needs to closely monitor the level of implementation of community input. Since the community only gets really galvanised when they have concrete evidence that the project will be executed, it would be useful if copies of equipment invoices and other such documents are given to them as reassurances that the project will be implemented.

However when the equipment was delivered, they were more proactive in getting the equipment installed. However this late show of interest did delay some aspects of the installation.

## 6. Installation of Equipment

There is a rather low level of technically competent individuals to manage and execute installations of these specialised projects in remote areas. This requires both technical and management skills which are not readily available. There is need to have specialised training for persons to handle these kinds of projects which are multifaceted.

## 7. Monitoring of the Project

Monitoring of the project has to be done at two levels, at the community level and at a central level. There are not an abundance of skills currently available at the community level to monitor projects in a very detailed manner. The community would have to be assisted by the use of specially designed monitoring instruments (Form/Questionnaires) for each pilot project.

However at the central level there are these skills but cost is a major hindrance to executing this monitoring.

Generally, to date, the project seems to have realised its initial objectives. The greater objective of the proper supervision of the revolving fund, as well as that of being a sustainable project greatly depends on the internal management and discipline of the community.