

Aleimar

Insieme ai bambini del mondo

**Gruppo Aleimar Onlus
&
Istituto suore Agostiniane di Lubumbashi**

ENERGY FOR SAMBWA

PHOTOVOLTAIC SYSTEM INSTALLATION

SAMBWA-R.D.CONGO



1. PROJECT IN BRIEF

TITLE

Energy for Sambwa

APPLICANT ORGANISATION

Gruppo Aleimar Onlus

Via Curiel 21/D

20066 Melzo (MI)

LOCAL ORGANISATION

Augustinian Sisters institute- St. Rita Community

Sambwa- Haut Katanga- R.D.Congo

PROJECT COORDINATORS

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DIRECT BENEFICIARIES

30 people in the residence (20 students + 10 members of staff)

INDIRECT BENEFICIARIES

Local community

TOTAL COST

\$16.000

FUNDS REQUESTED

\$13.900

ESTIMATED TIME TO COMPLETE PROJECT

Six months from the purchase of the system

2. SUMMARY

The project is to install a photovoltaic system in the rural village of Sambwa to produce enough electricity to run the recently built residence that houses 20 students.

Sambwa is a large village of around 6.600 inhabitants, 30km from Lubumbashi.

The residence belongs to the Augustinian nuns and is designed to host around 20 girls from nearby villages who study at the school next-door. They need electricity for the kitchen appliances, bathroom and the water pump, which is currently operated by hand and with great difficulty.

The hand pump is used, not only by the students but also by the people living near the well as it is the only source of drinkable water in the area.

Therefore, the direct beneficiaries of this photovoltaic system are the 20 students and the security staff staying in the residence but the local community will also benefit from the system.

The cost of the photovoltaic system plus various other costs totals €15.000 (see section 8 for details).

It is possible to complete the project in a short space of time because all necessary materials are already in stock at the Italian supplier FGS Energie Alternative srl.

3. INTRODUCTION

The Democratic Republic of the Congo is located in Central Africa and classified by international organizations as one of the poorest sub-Saharan African countries. It has the lowest human development index in the world due to its lagging economic and social indicators.

Here are some facts and figures compared with Italy (in brackets)¹:

- Area: 2.344.858 (301.000) square meters
- Population: 77 (61) million
- Average age: 18 (44)
- Urban population: 34% (68%)
- Life expectancy: 56 (82)
- Fertility rate: 4,8 children born per woman (1,4)
- Adult literacy: 66,8% (99%)
- Years in education: 10 (17) years
- Population with access to drinking water: 46% (100%)
- Per capita income: 400 USD/year (24.200)

- Human development index: 186th place (25th)



The Congo's economy depends heavily on subsistence farming, while foreign companies own the rights to the mineral resources underground.

Agriculture, including forestry, animal farming and fishing, makes up 40% of the GDP and employs around 75% of the workforce. The most important crops exported are cocoa, coffee, cotton, palm oil, tea, rubber, sugar and chinchona bark while the main food sources within the country are cassava, bananas, sweet potatoes, cereals (rice, maize, millet) and legumes. Following the years of suffering during the civil war, there are now signs of a recovery in this market.

Katanga is a region in the south of the Congo and one of the most prosperous and mineral-rich regions of the country. Lubumbashi, its capital, has around 1,5 million inhabitants. This region has often seen violent attempts at independence and has seen large influxes of refugees fleeing from the war in the north of the country.

Aleimar presence in Congo

Aleimar has been working with orphaned or abandoned children in the Congo since 1994. It manages around 60 sponsorships and various development projects in partnership with the Salesian and Augustinian orders and a centre for the disabled called "Balou".

4. DESCRIPTION

Ignored for many years, energy is now recognized as being an essential element in the international debate regarding sustainable development. It has a central role to play in three dimensions: social (fighting poverty), economic (ensuring a continuous supply) and environmental (protecting the environment).

Energy also has huge importance when working with developing countries because their social and economic development is restricted by problems such as limited access to energy sources, widespread use of traditional biomass fuels (wood and coal) and reliance on imported energy.

Recent trends indicate that demand and energy intensity (the ratio between energy produced and consumed) will increase dramatically in most developing countries.

These reasons make it essential to plan ways of promoting new technologies for the development of renewable energy sources and more energy efficiency.

The Democratic Republic of the Congo is no exception. The country struggles with energy supplies so in the towns and cities electricity is rationed daily, while rural areas for the most part, are entirely without electricity.

The project will be installed in Sambwa, a country village around 30km from Lubumbashi, the country's second-largest city. Sambwa is in the Kipushi region and is a so-called "pilot village" i.e. a centre of gravity for all the smaller rural villages within a circumference of 10-20km.

There is a school and a small clinic for urgent cases. There is no electrical network in the village: candles and oil lamps are the only means the people have to light their homes. Access to drinkable water is only from home-made wells and no water network nor public waterworks. There is a beaten track if you want to get to the city of Lubumbashi, by jeep, truck or bicycle. There is no public transport between Sambwa and Lubumbashi.

Sambwa is a small militarised village. Being so isolated and far from Lubumbashi, it has been targeted repeatedly by the Mai Mai Bakata Katanga, a rebel group that is destabilising the province of Katanga, now known as Haut-Katanga. No serious crimes have been reported but the level of vigilance remains high.

The ethnic group of the villagers is called Lamba; the population speaks Lamba dialect and only a fraction speaks Swahili and few have mastered French. Almost everyone works in the fields but not on a regular basis.

There is little access to health care and education and therefore extremely low literacy, life expectancy and employment. Girls usually have their first baby at the age of 13/14 and by the time they reach 20 have an average of 3 or 4 children. Marriages are short-lived: lack of education and the young age at which couples produce children mean that it is difficult

to develop a traditional concept of family; the high unemployment rate also means parents cannot give their children a decent life.

5. PURPOSE AND OBJECTIVES

The purpose of the project is to install a photovoltaic system to supply electricity to the local population, thereby improving their quality of life.

The overall objective is to improve the living conditions of the Sambwa villagers. The specific objective is to improve access to energy thanks to the promotion of renewable energy sources.

The objectives are:

- To ensure the students get the electricity they need to power basic appliances used on a day-to-day basis (kitchen, bathroom, water supply).
- Time saved thanks to the electricity powering the water pump will free the students to study after school and improve their performance
- to improve the water supply at the well in order to reduce the time and effort spent by the local population to extract the water they need.
- to improve the basic living conditions of the community, contributing to the economic development of the area.

6. BENEFICIARIES

Direct beneficiaries: The students and staff staying at the residence (Total 30 people)

Indirect beneficiaries: families living in the area around the school and residence

7. METHOD

The photovoltaic system supplied by an Italian company will provide a power supply of 5 KW and can be expanded to provide more power if necessary in the future. It will be installed on land belonging to the Augustinian order of nuns, near the residence and the well. It is easy to install and maintain.

The system components will be shipped by container to the Democratic Republic of the Congo and the shipping and customs charged to the Augustinian nuns.

Local technicians who have already worked for the Augustinian sisters on previous similar projects will also install this system

The system is already available for shipment from the supplier and therefore it is possible to complete the project in a relatively short place of time: estimated at approximately 6 months from purchasing the system to getting it up and running (includes 2 months transportation by ship and truck).

8. COSTS BREAK DOWN

	DESCRIPTION	TOTAL DOLLARS
1	Photovoltaic system purchase	10.909
2	Transportation and customs fees	2.141
3	Building of plant room to house the inverter	1.000
4	Trip on-site by Italian technician to commission the system and ensure installation has been done correctly.	1.950
	TOTAL	16.000

9. BUDGET

Aleimar is asked to contribute \$ 13.900 to this project.

The transportation and customs fees will be funded by the Augustinian Sisters.

10. PARTNERSHIPS

Currently the only partners involved in this project are the ones previously mentioned in this document.

11. SUSTAINABILITY

The only economic cost to be sustained following installation of this project will be simple low-cost maintenance work that will be carried out by local workers already employed by the Augustinian Sisters.

The social and institutional sustainability of the project is guaranteed by the presence of the Augustinian Sisters and the involvement of the staff residents themselves.

The project ensures a high level of environmental sustainability thanks to the production of electricity from a renewable source, thus reducing demand for wood (also used in coal production) which is currently the only energy source available and responsible for deforestation in the country.

MONITORING AND ASSESSMENT

The local partner (the Augustinian Sisters) will oversee the project for the first year and report back to the sponsors on the status of the work in detail. After the first year in operation the project manager will visit to carry out an on-site assessment to measure results and confirm that the project objectives have been achieved.

