



PILOT PROJECT FOR WATER PUMPING WIND-SOLAR HYBRID SYSTEM December 2004

Co-financed by
GEF Small Grants Program

This innovative Project is co-financed by JEKASY/ InterCooperation and the Global Environment Fund (GEF) through its Small Grants Programme. It aims to promote the use of renewable energy sources through hybrid wind-solar systems. First of its type in Mali, this pilot project consists of the installation of a water pumping system to improve provide water for gardening, livestock and a tree nursery to improve rural populations' welfares. This project will provide water to socio-economic groups within the village of Karangana for income generating activities - or so-called productive uses of renewable energy.

The project will allow the production of local tree species, which was hampered by lack of water in the commune of Karangana. The project is jointly implemented by MFC (Mali-Folkecenter and InterCooperation (Swiss Cooperation) through their Sustainable Natural Resource Management Program JEKASY.

The planned activities are as follows:

- ◀ The installation of wind-solar hybrid system for water pumping
- ◀ Reduction of 4 tons of CO₂ per year as a result of the use of a hybrid wind-solar system rather than a diesel motor for water pumping.
- ◀ Building of local expertise through the training of local technicians capable of carrying out maintenance and monitoring the system's operation.
- ◀ Setting up of a local committee at community level for the management.
- ◀ Creating income generating activities through the promotion of the concept 'Rural Service Centre'.
- ◀ The production of local tree species
- ◀ The building of capacity of the various actors, particularly a village maintenance team

The expected outputs of this project comply with the concerns of the rural population, which are: the reduction of greenhouse gas emissions, combating desertification, the preservation of biodiversity, the improvement of livelihoods through the provision of water for income generating activities, and the reduction of rural exodus.





Development of the concept « Decentralized Service Centre »

The Decentralised Service Centre (DSC) concept was developed by the partners of the project as a centre in a rural area that provides services which are paid for by the local population. The community which owns the equipment can delegate its management to a small private enterprise to manage the operation. Such a centre is a means for sustainable development and a stimulator of the local economy (providing income generating activities for the population).



Explanation of the elements of the system during a training session with the population, JEKASY & MFC at the municipal offices of Karangana.

Initial activities of the Service Centre defined with the population

In consultation with the village, four activities were identified to commence the activities of the centre:

- ◀ Sale of water for animals to make the local livestock market profitable.
- ◀ Production and sale of natural tree species
- ◀ Development of vegetable gardening
- ◀ Production of organic fertilisers.

Assembly and test of equipments



Before the installation in Karangana, the equipment was assembled for testing at MFC's office in Bamako. The installation was completed in May 2005. The wind turbine is rated at 1kW, and will be mounted on a pole of 20m height. The wind turbine is combined with an array of 1kW solar PV system. The two sources of energy are complementary to one another depending on the availability of wind and solar radiation.





Installation of wind speed measurement equipments

A system recording the wind speed has already been installed. This system will record data that will be useful for future replication of the system in Mali and other Sahel countries.



Data recording box (left); The Sensor of wind direction and the anemometer (middle); Assembling of the Gin-pole (right).



The 20m pole raised at an angle of 45°, with an electric winch (left) ; The pole is raised to vertical (right).

This project has been presented at several international conferences including the World Wind Energy Conference 2004 in Beijing, China.

For further information on the activities of Mali-Folkecenter, please visit our website www.malifolkecenter.org.

