



Project proposal for constructing four solar powered boreholes in Gulumpe (West and East) in the Kintampo North District of Ghana



Name of Organization: African Foundation for Climate Change and Sustainable Development (AFCCSD)

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BASIC INFORMATION

Project Description

Project Title: Solar powered Drinking Water Supply

Project Sector: Drinking water

Project Duration: Four Months

Description of the Area

District: Kintampo North District

Nearest City: Kintampo

Village: Gulumpe (West and East)

Brief about Our Organization: African Foundation for Climate Change and Sustainable Development (AFCCSD) is a non-profit, non-partisan, non-governmental organization registered

under the Government of Ghana. AFCCSD is established with the view to promote Climate Change Awareness and its Adaptation, Sustainable Livelihoods and Development in Africa.

Vision: Resilience African communities with equitable solutions to climate change.

Mission: To embark on climate change awareness and its adaptation, and to promote sustainable livelihoods and development in Africa.

Background/Problem: This proposal presents a project to provide solar powered potable water supply to the people of Gulumpe (West and East) in the Kintampo North District of Ghana.

Gulumpe is located on longitude $1^{\circ}40^1$ W and latitude $8^{\circ}35^1$ N, 60km North of Kintampo and 32km of Buipe. It lies about 2km in length of the main trunk road between Tamale and Kintampo. It shares common boundary with Portor to the North and Kawampe to the South. The land size (area) of the Gulumpe Community is about 75.1km^2 .

The community is made up of about 624 houses with a total population of about 4,948 people; of which males constitute 2,572 and females 2,376

The community can boast of most of the Northern tribes, such as Gonja, Kokomba, Sissala, Dagomba, Grusi and the Fulani, with Kokomba and Gonja dominating.

Due to the fertile nature of the land, migrant farmers from the North (Gonja, Dagomba, Kokomba, Sissala and Grusi) moved to settle on arable lands where they engage in agricultural activities like any rural community in Ghana.

The mean monthly temperature ranges from 30°C in March to 24°C in August with mean annual temperatures between 26.5°C and 27.2°C . It experiences an average temperature of 34.5°C .

Gulumpe Community, experiences two rainfall seasons in a year; from May to July and from September to October, with the minor season (May - July) sometimes being obscured. However, because of the transitional nature of the area, the distinction between the two peaks is often not so marked. The mean annual rainfall is between 1400mm – 1800mm.

The number of people who fall within the labor force (15 – 64 years) constitute 3,280 people representing 66.3% of the total population. The dependents (0 – 14 years) and (65+ years) is made up of 1,667 people representing 33.7% of the total population.

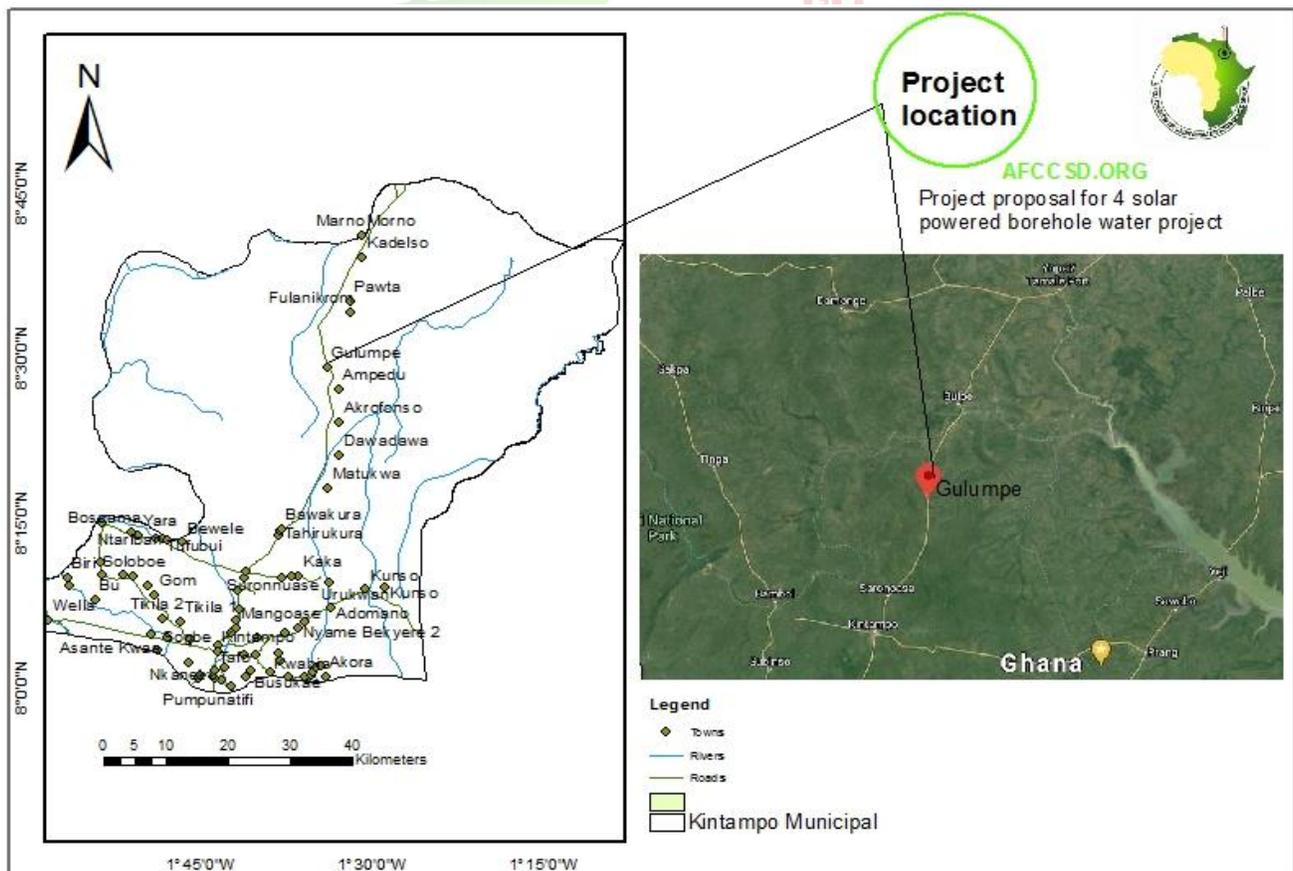
The community has two boreholes; few ponds and a dam, these have continually served as domestic source of water. However, it was noticed that, most of these boreholes dry up during the dry season compelling most people to revert to the old system of drinking from ponds, dams and cut-out streams. These results, has been re-occurrence of water borne disease year after year. Even improvement has been previously made. Constant break down of the facilities as a result of excessive consumption, pressure on boreholes by the community also tends to lend support to some of the disadvantages of this system. This compelled us to propose solar powered boreholes which can access more water than the existing one in the community. Solar water pumping will offer sustainable solution to the challenge of drinking water supply in the community. Solar pump offer great reliability, it energy comes from the sun so it has low operating cost. In addition to the above mentioned, a solar water pump move more water in sunny weather. This project has concrete objective and proven long term impacts for the community of the project beneficiary, as they get potable solar powered drinking water.

Justification: In Ghana, more than 5 million people (about 18%) rely on surface water to meet their daily needs, living them vulnerable to water –related illness and diseases. The water shortage in Gulumpe is more pronounced given the facts that there is no natural source of water such as lake, river, and stream. The few boreholes that have been dug usually dry up during the dry season compelling them to revert to the old system of drinking from ponds and dam in the community. The quality of water in these pond and dam is wanting. Women and children in Gulumpe spend around 60% of their valuable time each day collecting unclean water from ponds from a distance of about 1 to 3 kilometers carrying a 20liter Jerri cans of water. This situation prevents many young girls from attending formal schools and receiving education. This also affects the quality of grades obtain by children in schools and eventually leads to school dropout. Other effects of shortage of clean water includes the spread of water borne diseases such as dysentery, cholera, scabies, typhoid, and gastric infections.

The project seek to provide increased access to safe water. The project activities are designed in a participatory manner and all stakeholders will be consulted to ensure integrated community development approaches take root. Availability of safe water for women and children will translate women and children with potential for education, prosperity, power, literacy, hygiene, security and equality.

Project Area: Gulumpe is located on longitude $1^{\circ}40' W$ and latitude $8^{\circ}35' N$, 60km North of Kintampo and 32km of Buipe. It lies about 2km in length of the main trunk road between Tamale and Kintampo. It shares common boundary with Portor to the North and Kawampe to the South. The land size (area) of the Gulumpe Community is about 55.1km^2 .

The community is made up of 624 houses with a total population of about 4,948 people; of which males constitute 2,572 and females 2,376.



Project duration: The project will be completed in a period of sixteen (16) weeks.

Environmental assessment: To analyze the impacts of this project detail environmental review has been carried out. The proposed solar powered water supply project is environmentally friendly and has no bad impact on the environment.

Overall project objective: The overall objective of the project is to provide sustainable access to safe water in the Gulumpe community.

Project cost and benefit (economic analysis): This proposed project deals with potable water supply – a priority for all those in a rural environment, which is increasingly threatened with drought: to provide the proposed community with potable water facility so as to maintain the peoples' way of life. The cost of the project is very little as compared to its benefits:

- The project is targeted to enhance the local populations per capital consumption of water and thus their living standards.
- The project will have intangible benefits (qualitative) in terms of awareness raising, institutional human resource development and developing sense of ownership among the community and tangible (quantitative) in terms of water supply facilities.
- The project is targeted to protect the local population from brunt of diseases by providing them clean potable water at their homes.
- The project will have a great impact on the neighboring communities and generate a feeling of self-reliance, self-help and self-management in them.
- Women folk of the project area are assigned with the duty of fetching water from distant areas as they regularly perform their duty.
- The implementation of this project will relieve them from this difficult task and ultimately their time will be saved for performing other important household chores. They will be able to take part and utilize their time in other developmental and income generation activities like Vocational Skills etc.

Project Phase 1: Scope

Project design: AFCCSD, in conjunction with the Project Partners, will design, Specify, coordinate, manage, implement, monitor and evaluate a program to install solar powered borehole in the Gulumpe community. Project Partners may include a funding organization, one or more government agencies, and the project beneficiaries.

Site Selection: In conjunction with the project partners, we will specify site selection criteria in order to maximize the potential for successful installations. Selection criteria includes aspects such as water supply conditions, public health indicators, community involvement/level of organization, ambient temperature, sunlight conditions, as well as social, cultural and political considerations.

Detailed Planning: AFCCSD will prepare a detailed implementation plan for each installation site. To help ensure a successful project, our Partner, community leaders and beneficiaries will all be engaged from the initial stages to participate in the planning process. Community involvement is essential for 1) determining the best sites for the Solar powered Water project, 2) discussing social and cultural aspects of the project, and 3) coordinating a health education program.

Phase 2: Project Implementation

Equipment Procurement and Delivery: Once specified, the equipment can be ordered and purchased.

Quality Control. AFCCSD will supervise the solar installation crews and carry out quality control inspections to insure proper installation and system performance.

Phase 3: Health and Sanitation Education

A key element in the success of a safe drinking water project is including an educational component. It is essential to teach users the importance of clean water, how water becomes contaminated, how people get sick from contaminated water, how safe water can become re-contaminated, how illness can be prevented through proper sanitation and hand washing, etc.

AFCCSD will coordinate a comprehensive health education program for the people of Gulumpe with the local health officials. Health oriented officials may be contracted to perform the work.

Phase 4: Project Monitoring and Evaluation

To evaluate the effectiveness of the project, a comparison will be made of conditions before and after the installation. AFCCSD will coordinate testing of the water to document effectiveness, and monitor the system's performance for a period of time. Independent organizations may be requested to carry out the testing and evaluation.

Findings and conclusions will be provided in the final report.

Project Budget

Estimated cost of constructing the proposed solar powered water borehole is seen below

S/N	Item	Unit Cost USD\$	Amount USD\$
1	4 solar powered water borehole	11,800	47,200
	Total Cost of the project		USD\$ 47,200

The huge costs of emotional pain and physical efforts involved in dealing with sick community members signify a huge drain on the resources of the communities.

It is hoped that after completion of the proposed project the majority of the people of the Gulumpe (West and East) community will become, to some extent, prosperous and will lead a sound and healthy lives and the Socio-economic conditions of the area will automatically improve

AFCCSD: We Stand for Change in Africa!!

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