

Project Comboni Hospital, Sogakope, Volta Region



Renewal of the Emergency Power and Power Distribution



The Comboni Center and Comboni Hospital, New Richard Novati Catholic Hospital

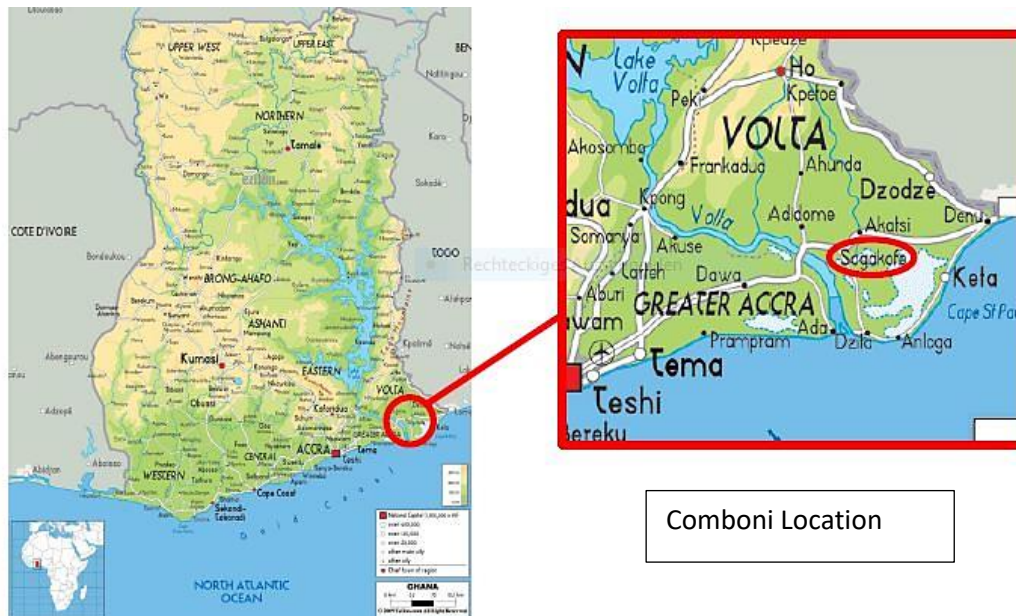
The Comboni Center, is in the small town of Sogakope, located right on the bank of the River Volta, about 120 km northeast of the capital Accra. The population in the catchment area is usually unemployed and very poor. In the tree and shrub savannah, the people still live mainly in traditional clan structures in simple houses / huts - often without electricity or running water, feeding mostly from fruit, vegetable growing and fishing.

The Comboni Center is an on-site aid project, in the district of South Tongue with about 110'000 inhabitants; it is a multifunctional medical supply, education and training center for the people of Ghana. It was founded by the Comboni missionary Father Ricardo in 1985 - expanded over the years with the significant support of the Comboni Order of Italy, numerous international donors and volunteers, to the largest training center with a private hospital in the region. Today the Comboni Center consists of a hospital with 150 beds, a kindergarten for 120 children, a primary school for 640 children, a vocational school for about 500 young people. All the kids and students receive boarding in the large center compound. At the vocational school, courses for mechanics, electrical engineering, carpenters, masons, tailors sewing, cooking and commercial areas are offered, with degrees and diplomas officially recognized.

The Hospital offers all kind of medical services to outpatients, daily appear 200 to 300 patients, some travel very long ways to receive medical treatment. The hospital is equipped with stations such as surgery,

internal department, gynecology, radiology department, pediatrics, etc., as well as a modern eye department with its own operating theater and a very well equipped dental clinic.





Renewal of the Emergency Power and Power Distribution

Statement of the Problem

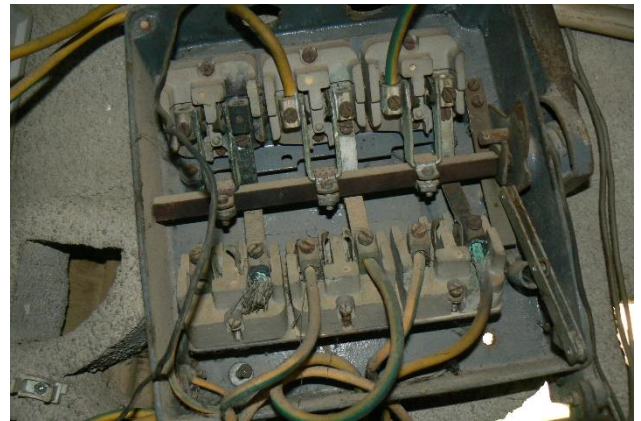
The Hospital grew constantly in the past few years, however the Hospitals power supply and power installations are in an extreme poor condition and do not fulfill any more the requirements for a Hospital to deliver, reliable and secure medical services as the Comboni Hospital is intended and supposed to do (power inspections report of GSHT, 11.04.2016). Almost all the installations are not save, even very dangerous. There is no electrical grounding in general and massive exceeded voltage is a normality. The hospital receives the power by the ECG (State Power Company of Ghana) through the feedline to the overhead transformer, (250 kVA +/-), position, opposite of the street in front of the main entrance to the hospital (report GSHT # 01). During ECG shut downs, which regularly are occurring for a couple of hours, up to full days and nights. The generator of the hospital compound, placed between the dental- eye clinic and the residency of the doctors, comes into function as an emergency power supply (35 kVA, old and underpowered, report GSHT # 02). There is no emergency backup system to guarantee and supply power for finishing ongoing interventions at the theater, in case of ECG power shut down and the emergency generator cannot be started for any reason (report GSHT # 04).

Conclusion of the inspection visit by the GSHT project team in spring and autumn 2016:

- The electrical installation of the Comboni Hospital is in an extreme poor condition.
- The generator and the changeover switch are in a very bad condition.
- The present generator, very aged, 35 kVA, cannot produce the necessary power for the hospital.
- The main power distribution board and the power meters show marks of overload.
- There is no electrical grounding in general.
- Massive exceeded voltage is a normality.



Old Generator



Marks of overload

Project objective and description

The complete system needs to be renewed to fulfill common and save standards for the Hospital:

- To guarantee a continuation of all the medical services offering by the Hospital.
- To enable further growing as well as new and improved services.
- To enable the implementation of new and up to date medical equipment's

1. New power house

- Construction of a new power house, with space for two generators, according the plans of GSHT. Ideal location behind the Canteen and the Assembly Hall. This is enough away of residencies and hospital facilities, because of the noise and fume emissions.
- New transformer station close to the power house to be built by ECG.
- Installation of the new generator, donated by Comboni Association of Italy.
- Installation of a new main power distribution board with changeover switches for the generators.
- Installation of 3 power meters for the: Power house, Cantina, Assembly Hall.

- Placing a new main power cable, 230 meters, underground from the new the power house to the old power house.
- Excavating work from the new to the old power house, for the main cable placed underground.
- Moving the new generator to the new power house and connecting to the system.

2. Old power house

- Changes and modifications (enlargements) on the old power house to receive new electrical equipment, making closable, protecting against animals and mosquito.
- Installation of a new distribution Board at the old power house.
- New installations of power meters for the: Hospital 3x, Doctors residence 6x Volunteer residence 1x.

3. Connecting all hospital blocks and departments

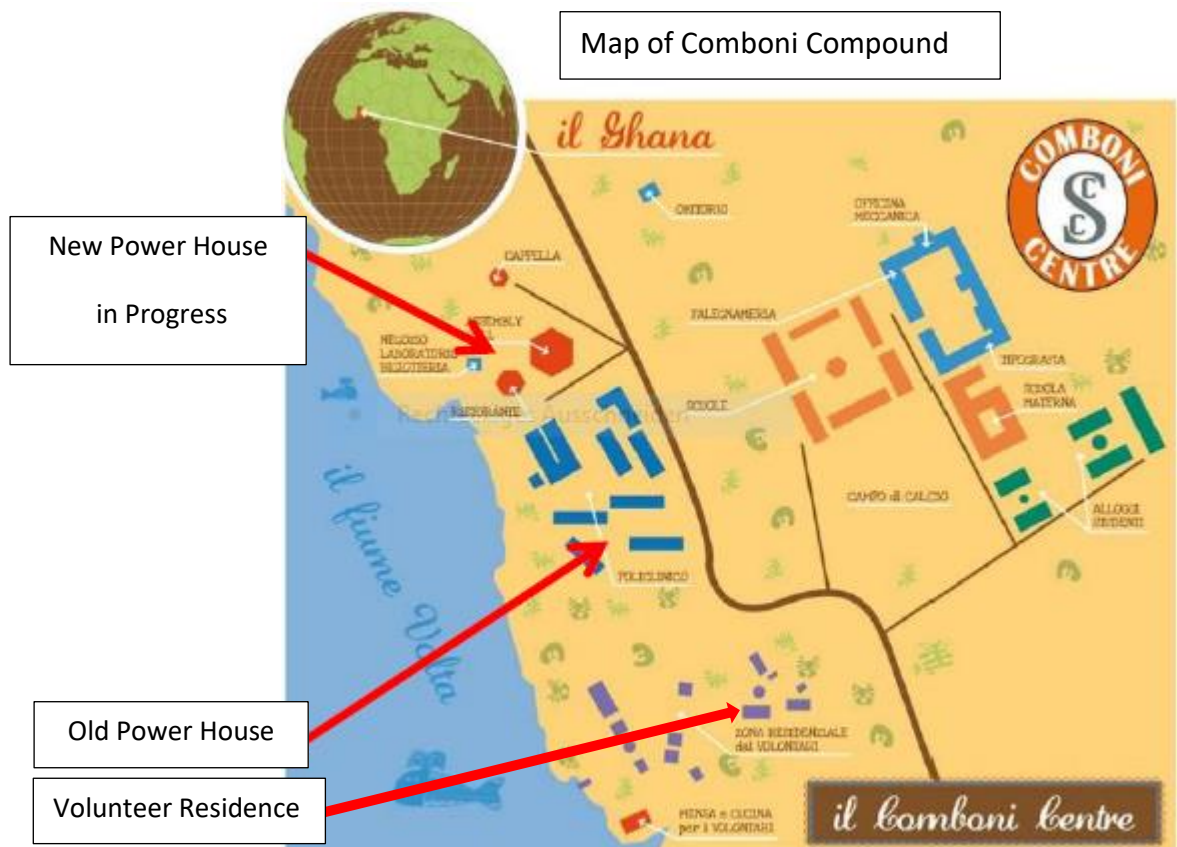
- Placing new cables to all departments, total 15.
- Replacing of all the distribution boards in the departments, total 15.
- Installation of new fuses and protection switches, total 15.

4. Volunteer residence

- Placing a new underground power cable, from the old power house to the residence, 200 meters.
- Installation of a new distribution board.

5. Hospital employee residences

- Improving power installations, fuse boards and switches.



Cost estimates

The provisional project estimate of EUR 297'000 by GSHT revealed, that this power renewal project will require quite a substantial amount of financial resources: Renewal of the complete power installation, EUR 210'000, new Powerhouse, EUR 15'000, two new generators, EUR 40'000, total EUR 265'000 plus-minus.

Revised project procedure and cost assessment

September, 15th 2017

It is advisable to divide the complete project into 5 stages over a period of five years.

With the revised project, we would like to get best price offers, either in Europe or in Ghana, for all the materials and equipment's needed, to go ahead with the power renewal project.

Schedule of the project

The schedule depends on the availability of project support and financial resources.

2017 / 18	Stage 1, Position 1: New powerhouse, new generator new main cable etc.
2019	Stage 2, Position 2: Old powerhouse
2020	Stage 3, Position 3: Connecting all blocks
2021	Stage 4, Position 4: Volunteer residence
2022	Stage 5, Position 5: Employee residence

September 15th 2017

Hans-Peter Spielmann

Progress of the project

2017

The new power house is in the shell stage with a covered roof. The financing is secured by Swiss sponsors. A second tranche of money has been send to the hospital, August 2017 to continuo and finish the power house according the plans by GSHT.



The new generator, sponsored by the Comboni Association of Italy, is placed temporarily at the old power house and has been connected by technicians of GSHT to the hospital power system, at reduced power outlet, in order not to overload the old and insufficient installations.

