Client: GZJMS charity.

Title of Project: Architectural Feasibility Study for the Renovation & Construction of the Existing Facility of the Ekumfi Atwea Primary & J.H.S School.

Location: Ekumfi Atwea, Mfantsiman district, Central Region.

Consultants: Dez-intell Workstation (design, build, renovate, Landscape)

Brief History

Ekumfi Atwea School was established and built in 1955.and it's been in existence for the past 63 years. The school has an open playground and with a current population of 330 pupils, which comprises of the Nursery, the kindergarten, the Primary and the J.H.S.

Amongst the above, the School has a 3 bay traditional pit toilet facility which is being used by the Pupils and the entire staff of the school.

The school has 2 classroom blocks with a major block which accommodates the j.h.s pupils and a minor classroom block which currently accommodates the primary pupils.

Currently the school has 28 pupils in each classroom in the j.h.s Block and 30 pupils in each classroom in the Primary Block. The old fashioned white

Chalk and black boards are still in use by the teachers. The School has a nursery and a Kindergarten which is being held at a rented facility about half a kilometer outside the school within the Ekumfi Atwea Township.

The School has a temporal traditional kitchen which is made of Bamboo which is being used to serve as a facility, to help in the school feeding program.

Service Facilities like electricity have been provided with the Lack of pipe borne water still not connected to the school. Due to this current challenge, the school has made provision of a polytank to harvest Rain water for domestic use.

The following picture shows the state of the Ekumfi, Atwea primary & j.h.s School.

CLASSROOMS BLOCK A (J.H.S)

CLASSROOMS BLOCK (B) Primary

EXISTING TOILET FACILITY

EXISTING TRADITIONAL KITCHEN

FEASIBILITY STUDIES BASED ON ENTIRE SCHOOL PROJECT

(Findings/Assessments on Existing School Project)

CLASSROOM BLOCK (A)

As per the team's findings on the existing school structure, the team decided to group the various buildings into blocks by naming them in an alphabetical order as to describe or outline the various structural defects.

With regards to the above structure which represents block A in the alphabetical order. There are serious of structural defects regarding columns with iron rods sticking out and wearing off, with serious cracks within the walls of the existing structure. Some of the columns have been replaced or supported with tree trunks so as to support the roof from caving in. Furthermore, beams sitting on these columns have not been spared either by these defects as some have been temporarily re-enforced as with

parts of the walls chipped off with the floor of the building chipping off as well.

With regards to portions of the wooden members holding the Roof of this particular block (A), parts of it are rotten, with major trusses bending with the roof caving in.

The discolored asbestos roofing sheets looks weak with cracks and leakages with no ceiling's or fixed eaves. Fascia boards are all worn out. Some of the roofs have been virtually ripped off due to the weak nature of it leaving the building at the messy of the weather.

Most door frames, as well as window frames are rotten due to roof leakages.

Finally the entire existing structure lacks painting which contributes to the aesthetics of the structure.

Due to these defects the walls have been discolored leaving portions of the walls greenish.

CLASSROOM BLOCK (B)

The classroom block (B) Above happens to be the Primary block of the Ekumfi, Atwea school, Which comprises of 3 three classrooms within this block. The floor of the entire block is below ground level, as the foundation of the block was not raised to the standard foundation level of our

building code specifications. This may cause Sand/debris within the classrooms, and also create floods within the classrooms

The classrooms do not have windows, since the safety of the children is at stake when it rains.

Furthermore the classrooms do not have ceilings within, as this may cause the roof to expel heat during the day time whilst the children may be in the classroom.

Window frames of the existing structure upon our assessment needs to be replaced due to its weak state.

Also some wooden roofing members need to be replaced as this is causing the roof to cave in, as this is extremely dangerous. Finally there are only doors and window frames, even not all as shown in the pictures and not a single door and window is being fixed.

(Picture above shows some of the table and chairs being used by the school pupils)

BLOCK (C) EXISTING STRUCTURE

TRADITIONAL PIT LATRINE

The above picture block (C) shows a traditional pit latrine which is being used by the school pupils and authorities. This is an old fashioned

toilet facility which is outdated and not hygienic and it’s an open facility due to its structure creates bad odour within the school environment and may cause an epidemic like cholera and other diseases. This is being used because the school is not connected to the main service line of the GWCL (Ghana Water Company limited)

Furthermore the structure happens to be close to the kitchen of the school feeding Facility.

Also the facility may not be safe due to its open design and may harbor dangerous animals like reptiles and so forth.

TEMPORAL EXISTING STRUCTURE (D)

The above picture happens to be a temporal structure that houses the caterers under the

school feeding program. This Structure is made of Bamboo and thatched roof which does not make it a secure place to house the caterers.

Furthermore the structure only has the traditional clay cooking unit with no work tops, not secured and also does not look hygienic.

RECOMMENDATIONS BY THE TEAM

REGARDING THE ENTIRE SCHOOL FACILITY

Based upon our assessment regarding the feasibility studies on the Ekumfi Atwea school facility, the entire Project requires major Renovation/Refurbishment works, Planning, Design of new facilities, and Replacement of Existing Facilities that will help in the operational and running of the School.

CLASSROOM BLOCK (A)

From our assessment with regards to the JHS block (A), we recommend the following:

a) Columns and beams with cracks and iron rods sticking out must be demolished, reinforced and reconstructed.
b) Walls with major cracks must be demolished and reconstructed.
c) The floors must be repaired and given a smooth masonry finish.
d) Some of the Wooden members holding the roof must be replaced, weak trusses, including ceiling hungers as well as fascia boards and eaves must be fixed and replaced.
e) With regards to the entire asbestos roof, we recommend that long span aluminum roofing sheets be used, instead of the asbestos, as most of the slate roof looks very fragile and may collapse and cause serious damage.
f) Most of the doors and window frames need replacement under our assessment.

g) Finally the entire structure needs painting, which will enhance the aesthetics of the structure.

CLASSROOM BLOCK (B)

This block happens to be the Primary section of the school. There is quite a no. of recommendations and an immediate attention must be paid to this structure. We recommend the following:

a) The floor of this existing structure must be raised to the standard floor level of the building code specifications.
b) Major cracks and gradient of the roof must be raised so as to prevent leakages.
c) All masonry works must be fixed.
d) Parts of the wooden members need to be replaced as some looks weak.

e) The entire classrooms require plywood ceilings so as to reduce the amount of heat that is released during the day time.

f) Again doors and windows must be fixed to secure the safety of the structure.

g) The entire roof also must be replaced with the long span aluminum roofing sheets since the asbestos roofing sheets looks fragile or weak.

EXISTING STRUCTURE (C)

TRADITIONAL PIT LATRINE

This traditional toilet facility, which has been used by the school over a no. of years, needs to be replaced.

Our recommendations, regarding this structure is that since it's a traditional pit latrine, it needs to be replaced by a modern toilet facility. The structure lacks hygienic principles within the school and due to its size, lacks the ability to accommodate the

no. of pupils using the facility. Therefore a modern spacious toilet facility may be required, designed, constructed so as to reduce the burden of the no. of pupils and authorities using the facility.

TEMPORAL EXISTING STRUCTURE (D)

The Temporal existing structure which is being used by the caterers under the school feeding program needs to be replaced by a modern facility. Our recommendations are as follows:

(a) A modern Facility be provided, designed and constructed which must include a kitchen and a dining area so as to accommodate the caterers and also serve as a dining area for the entire school.
(b) This facility must have an overhead water reservoir to serve the kitchen and dining to serve the entire facility.

Information reaching us is that the school has been allocated vast land for future developments by the chiefs and authorities at Ekumfi, Atwea Township.

EXISTING FACILITIES WITHIN THE SCHOOL COMPOUND

(1) JHS BLOCK
(2) MINI PRIMARY BLOCK
(3) TRADITIONAL PIT LATRINE
(4) TEMPORAL BAMBOO STRUCTURE USED AS KITCHEN

LACK OF SCHOOL FACILITIES REQUIRED BY THE SCHOOL AUTHORITIES

(1) COMPUTER LABORATARY
(2) KITCHEN WITH DINING HALL
(3) MODERN TOILET FACILITY
(4) NURSERY AND KINGDERGARTEN BLOCK

(5) SCHOOL ADMINSTRATION

PROVISION OF NEW FACILITIES WITHIN SCHOOL COMPOUND

The above subject requires a proposed design for the facilities. It will include a concept design of which will be a subject for discussion which will involve all parties and based on that, the team will produce full detailed architectural drawings, structural engineering drawings, service layout drawings and the bill of quantities. The bill of quantities will determine the cost of the project and the description of each phase or stage in relation to the cost involved as well as the duration of the project.

Furthermore the above drawings and documents will be submitted to the district municipal assemblies and town and country planning for a permit in other to develop the above facilities.