



**GLOBAL ALLIANCE FOR VACCINES AND IMMUNIZATION (GAVI)  
HEALTH SYSTEM STRENGTHENING II (HSS-2) PROGRAMME**

***PRILIMINARY ASSESSMENT REPORT  
EPI BUILDING, KUSHTIA***



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Submitted By



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## TABLE OF CONTENTS

1. INTRODUCTION .....	1
2. OBJECTIVE.....	1
3. GUIDELINE CODE .....	2
4. BUILDING INFORMATION .....	2
5. REPORTED DISTRESS HISTORY .....	3
6. OBSERVATION .....	3
7. CONCLUSION .....	8
8. RECOMANDATION.....	8

## LIST OF FIGURES

Figure 6.1: Cracks in load bearing wall below steel beam.....	4
Figure 6.2: Dampness in load bearing wall .....	4
Figure 6.3: Dampness in roof slab.....	4
Figure 6.4: Back side condition of building .....	5
Figure 6.5: Measuring physical dimension of steel beam.....	5
Figure 6.6: Measuring physical dimension of the building using laser meter .....	6
Figure 6.7: Existing Vaccine Storage Room Condition .....	6
Figure 6.8: Existing Dry Storage Condition (ground floor).....	7
Figure 8.1: Proposed land for EPI Construction .....	9

## 1. INTRODUCTION

GAVI (Global Alliance for Vaccines and Immunization) Health System Strengthening II (HSS 2) Programme is to facilitate the vaccine availability in 44 districts of Bangladesh. The objectives of this programme are (1) strengthening VPD surveillance and its integration into HMIS and (2) improving cold chain and supply chain management system performance. Under this programme, UNICEF is going to preserve various vaccines in the selected buildings of Civil Surgeon's office in those 44 districts. For this purpose, UNICEF is looking for a consultant engineering company to provide architectural and building design services by assessing the structural integrity & safety of the selected buildings, verifying the accessibility & availability of the space for Walk-in-Cold Rooms (WICs), water pack freezer & Ice Lined Refrigerators (ILRs) in those buildings and providing design services for new buildings if necessary. As a part of this programme, technical division of Environment & Infrastructure Management Solution (EIMS) Limited completed total 32 districts assessment, design, drawing, preparation of Bill of Quantity and finally successful implementation of civil work by forming a team of consultants, design expertise, and skilled team of Civil work implementation by assessing the structural integrity of selected buildings by UNICEF, providing logical & accurate design consultancy service and finally by supporting UNICEF to supervise the successful implementation of civil work to complete the project within schedule time. As a chronological part of the programme UNICEF GAVI HSS-2, EIMS again completed total 12 districts assessment out of 44 districts. Among these 12 districts, in order to observe the present physical conditions of the selected building visually and perform the assessment, three members of the team comprising Md. Aminur Rahman, Abidur Rahman and Md. Mizanur Rahman were assigned for the visit to Civil Surgeon Office at **Kushtia** on April 18, 2018 to April 19, 2018. Civil Surgeon of **Kushtia** and EPI Superintendent were present during the assessment work.

## 2. OBJECTIVE

The main objectives of the structural integrity assessment by EIMS team are written below:

- i. To assess the structural integrity of existing building.
- ii. To verify architectural plan of the building.
- iii. Performing non-destructive tests and measuring physical dimensions for some major structural elements.
- iv. Performing some quick calculations based on the present occupancy and considering existing gravity loads as per NTPA Standard.
- v. Identifying the accessibility and availability of the space as per UNICEF recommendation.
- vi. Preparing relevant drawings for renovation purpose where space is available.

- vii. Coordinating with the District Civil Surgeon over phone to prepare a plan of allocation in case of space constraint.
- viii. Preparing the detail architectural and structural design with relevant drawings for the renovation, extension and new generator building.

### 3. GUIDELINE CODE

The works mentioned above are performed as per the guideline of National Tripartite Plan of Action (NTPA). It was prepared on July 25, 2013 jointly by the Ministry of Labour and Empowerment (MoLE) and International Labour Organization (ILO) for the fire safety and structural integrity of Readymade Garments Factory buildings.

### 4. BUILDING INFORMATION

At present there is one storied office building which is single storied RCC building. No credible document was found during the assessment work on site. Based on the verbal information the building was constructed in one phases. This building is used for Storage purpose.

On the basis of preliminary observation of the building and discussion with the personnel and studying the collected information presented during site visit the following information are written below.

a) Building Occupancy	:	Storage and EPI Cold chain
b) Structural System	:	Load baring masonry wall system
c) Structural Configuration	:	Regular in terms of framing pattern
d) Horizontal Plan Geometry	:	Regular pattern
e) Adjacent Building Distance	:	Adequate and no possibility to pounding
f) No. of storied at present	:	One
g) Building Plan Dimension	:	12.26 m along East-West Direction and 8.38 m along North-South direction. Total area of the ground floor is 106.39 m <sup>2</sup> (approx.)
h) Construction Year	:	1934-36
i) Constructed by	:	Unknown
j) Floor Occupancy	:	Cold and dry storage
k) Roof System	:	Slab system with primary steel beam and secondary wooden beam
l) Floor Live Load	:	Maximum allowed floor live load 2.5 KN/m <sup>2</sup> (BNBC 2006)
m) Architectural Drawing	:	Unavailable

- |                              |   |   |
|------------------------------|---|---|
| n) Structural Drawing        | : | Unavailable   |
| o) Soil Investigation Report | : | Unavailable   |
| p) Foundation Type           | : | Unknown   |
| q) Materials Properties      | : | Brick for load bearing wall, steel bar (40 grade approx.) & concrete with brick aggregate |

During the site visit some physical dimensions were measured for the building. The building is a load bearing masonry wall system. The roof is concrete slab having primary structural steel beam of size 250mmx125mmx10mm and secondary wooden beam. The thicknesses of both internal and external partition walls are found 250 mm.

## 5. REPORTED DISTRESS HISTORY

Distress history wasn't issued to us from representative of CS authority, but our visual observation with no distress is found in the existing EPI building.

## 6. OBSERVATION

The observation of the visiting team members on the general physical condition of the super structure based on visual inspection of the exposed parts are as follows.

- Some cracks were found on the load bearing masonry wall of the building.
- Dampness was found on load bearing masonry walls and roof slab.
- Discolored of paint both in inner and outer side are found.
- No major settlement was found in the building by observing interior wall.

Major observations are highlighted in the following figures:



Figure 6.1: Cracks in load bearing wall below steel beam



Figure 6.2: Dampness in load bearing wall



Figure 6.3: Dampness in roof slab





Figure 6.4: Back side condition of building



Figure 6.5: Measuring physical dimension of steel beam



Figure 6.6: Measuring physical dimension of the building using laser meter



Figure 6.7: Existing Vaccine Storage Room Condition





Figure 6.8: Existing Dry Storage Condition (ground floor)

## 7. CONCLUSION

From the above observation and based some quick calculation; it can conclude that:

- As the building is very old (Construction year-1934) and one storied load bearing wall structure, so vertical extension is not possible considering its age and lateral load.
- Since it is one storied building with Tin shed verandah, so it does not fulfill the present requirement.
- Present dry store room is not sufficient enough to fulfill the cold storage requirements.
- A new generator building is required for electricity supply to the WIC room continuously.
- So, new location is required for the construction of new EPI and generator building.

## 8. RECOMANDATION

On the basis of preliminary assessment of civil surgeon building, EIMS team is giving the following recommendations.

### **Recommendation for New EPI & Generator Building:**

- As existing building is very old, many cracks are visible, so the building is not in usable condition.
- It can be demolished or can be used for any other purpose.
- Since there is no free space inside the Civil Surgeon boundary, and it is not possible to manage the other rooms for fulfilling the present space requirement for 2 WIC, 2 freezers, Precooling room, Monitoring room, CCT room, Office room, dry store room and Generator room in existing Civil Surgeon building or boundary, New land is needed for construction of new EPI Building and Generator room.
- It is mandatory to accommodate WIC, Precooling room, Freezer room and Monitoring room in ground floor. Dry store may remain at 1<sup>st</sup> floor.
- From the above observations, new EPI and generator building is recommended.

### **Recommendation for proposed land for EPI and Generator Building:**

Considering the above condition CS sir has proposed a free space of land for constructing a new EPI building and Generator building which is besides the TB hospital. But new land has some small issues, they are given below:

- The land is a marshy land, avg. 1.5 ft. down from road level. So additional sand filling (Approx. 4500 Cft.) will be needed to develop the land.

**Recommendation for Site Clearance:**

- An electric pole 5.2ft inside from the road is located inside the proposed land. It can be replaced if full area is required.
- Need to clean the bust and grass from the proposed land before commencement of work.



Figure 8.1: Proposed land for EPI Construction

**\*\*Disclaimer**

*The Above Comments Are Made From Visual Observations And Some Quick Calculation Of The Exposed Parts Of The Superstructure And Best Engineering Judgments Of The Visiting Member, Who Do Not Bear Responsibility For Any Deviation From The Predicted Behavior Of The Structure Caused By Uncertainties Of Construction, Performance Or Calamities Or Inappropriate Design.*

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