Activity Report

ON

UNICEF SUPPORTED

"Emergency Preparedness through Repair & Rehabilitation of the DPHE 07Nos different Warehouse"



Store Circle

Department of Public Health Engineering, Dhaka

Introduction:

The repair/rehabilitate the DPHE **Dhaka, Khulna, Khagrachari, Natore, Rangamati, Sunamganj, and Sylhet** central warehouse program has achieved substantial progress in strengthening the DPHE's emergency preparedness capacity through a targeted approach to the repair and rehabilitation of the warehouse infrastructure. By focusing on renovating and reconstructing key facilities such as store sheds, boundary walls, and approach roads, the program enhanced the warehouse's operational efficiency and safety. The introduction of lighting, CCTV, and fire safety measures bolstered security and emergency response capabilities, while stock reorganization improved management and accessibility. Collaborative efforts with UNICEF enabled the successful completion of crucial renovations and repairs, with future expansion planned to further increase the warehouse's capacity. Nonetheless, ongoing monitoring, maintenance, and staff training are recommended to sustain the improvements made. Maintaining partnerships with external organizations and stakeholders, such as UNICEF, will provide continuous support for future initiatives. Overall, the program's efforts have significantly improved the DPHE's ability to respond effectively to emergencies and manage water supply and waste management in the Dhaka, Khulna, Khagrachari, Natore, Rangamati, Sunamganj, and Sylhet region.

Activity Details in Seven Different Warehouses:

Activity No:	**Activities in Tongi Warehouse (DHAKA).**
1	Repair 03/1 Godawn/store Room & Others Works for tongi warehouse.
2	Repair 03/2 Godown/store Room & Others Works for tongi warehouse.
3	Repair 03/3 Godawn/store Room & Others Works for tongi warehouse.
4	Drain Construction With Cement Concrete and Brick Masonry in front of the Tongi warehouse.

Detail Activities in Tongi Warehouse (Dhaka): The proposed intervention encompasses comprehensive civil and electro-mechanical works aimed at the rehabilitation and functional optimization of DPHE Central Warehouses across selected districts. The scope begins with site mobilization and systematic clearance, ensuring a safe and operational construction environment. Foundational work includes sand filling in trench and plinth areas to achieve 95% dry density, followed by brick flat soling and mass concrete placement with designated mix ratios and material standards. Cement-sand plastering, floor polythene sheeting, and structural installations are to be executed in strict adherence to PWD specifications. Structural enhancements include the fabrication and installation of collapsible gates, MS rolling shutters, and robust roof trusses made from seasoned plastic or galvanized components. These elements are designed for both security and structural integrity. Interior finishes involve dual-coat premium enamel painting over anti-corrosive base coats to ensure longevity and environmental resilience. Electrical works are equally comprehensive, with concealed conduit wiring systems laid using high-grade PVC-insulated copper cables, conforming to IEC and BDS standards. Provisions include light, fan, and call bell points, equipped with switchboards and accessories. Additional electrical fittings such as LED tube lights and energy-efficient ceiling fans are incorporated to ensure adequate lighting and ventilation within the warehouse units.

Activity No:	**Activities in Natore Warehouse.**
5	Repair & Rehabilitation works of the Boundary wall in Natore warehouse.

Detail Activites in NATORE Warehouse: The scope of work encompasses comprehensive civil and structural construction activities. It begins with the dismantling of damaged or unserviceable brickworks in both the foundation and superstructure, utilizing either cement or lime mortar. Debris is to be removed and disposed of at a safe distance, as directed by the supervising engineer. Excavation works include preparing foundation trenches in all soil types, including setting out, establishing benchmarks, leveling, and base compaction. Trench maintenance, dewatering, and safe disposal of excavated materials are integral to the process, all conducted in accordance with an approved method statement. Earth filling is performed in compacted layers using site-cut earth, with adequate watering, leveling, and compaction. Brick flat soling is laid beneath foundations and related structures using first-class bricks, ensuring sand filling, leveling, and full site preparation. Brick work is to be constructed using quality first-class bricks and cement-sand mortar, applied in all internal and external walls, including parapet walls. Bricks are to be soaked prior to use, and proper curing, joint raking, and sand washing are mandatory. Plastering involves applying a minimum thickness of cement-sand plaster on both wall surfaces. The cement must meet specific fineness, setting times, and compressive strength standards. The application process includes proper mixing, surface cleaning, and curing. Reinforced Cement Concrete (RCC) works follow standard engineering practices and codes (ACI, BNBC, ASTM), including the use of certified cement, Sylhet/coarse sand, and graded brick chips. The process includes steel formwork, reinforcement placement, concrete mixing, vibration, and curing. Reinforcement bars are to comply with Bangladesh standards, involving cleaning, cutting, bending, and binding, with adequate splicing and placement per design specifications.

Finishing tasks include applying two coats of color wash over a primed surface, ensuring proper surface preparation. Barbed wire fencing work is completed by fixing wire to angle posts set in concrete bases, ensuring alignment and durability per approved specifications.

Activity No:	Activities in Tahirpur Warehouse (SUNAMGANJ).
6	Site Development (Land Filling) at Tahirpur Upazila Sunamganj Warehouse.

Detail Activities in Tahirpur Warehouse (SUNAMGANJ): The site development activity involves the use of carted earth, dredged sand, or sandy silt that is free from any organic, foreign, or environmentally hazardous substances. The materials may be transported to the site by manual labor, trucks, or any other approved method. This process includes the full cost and logistics of material extraction—whether by cutting from a borrow pit or dredging operations. The scope of work further includes the local handling and placement of the earth, sand, or sandy silt into the designated development area. Following placement, the material is to be evenly spread, slopes are to be maintained, and lumps broken down to ensure a uniform layer. The operation also covers proper levelling and dressing of the surface in incremental layers to achieve the required final formation level. Each phase of the work must be executed in accordance with the approved methodology and must comply with the specifications and directions issued by the Engineer-in-Charge.

Activity No:	Activities in Gowainghat Warehouse (Sylhet).
7	Construct a storage facility in the Gowainghat sub-district for storing (30ft height) life-saving WASH supplies at Gowainghat, Sylhet.

Detail Activites in Gowainghat Warehouse (SYLHET): The construction activities commence with thorough site preparation, including layout marking, level demarcation (such as EGL, FGL, HFL, and PL), and safeguarding of existing utilities. This is followed by excavation of foundation trenches in all soil types, accompanied by earth and sand filling in controlled layers, compacted to achieve optimum density and moisture content. The structural groundwork includes brick flat soling using high-quality bricks, placement of polythene sheets as moisture barriers, and mass concrete casting with a standard mix of cement, sand, and graded Picked/jhama brick chips. Brickwork involves constructing both standard and thick walls using first-class bricks and cement-sand mortar, ensuring full compaction, proper bonding, soaking of bricks, and adequate curing. Surface finishing includes cement-sand plastering over exposed masonry and structural components, with neat finishing and careful edge detailing. Reinforced concrete components are executed using specified mix designs with appropriate wooden shuttering and support systems, ensuring the required compressive strength is achieved.

Additionally, the scope includes light fittings with energy-saving lamps, aluminum shades, and complete wiring in PVC conduits. The final item involves the manufacture and installation of collapsible gates, incorporating precise fabrication, welding, and anchoring techniques with painting and protection for durability.

Activity No:	**Activities in Rangamati Warehouse.**
8	Repair & Renovation of tinshade godown at Rangamati warehouse.

Detail Activites in RANGAMATI Warehouse: The scope of renovation and refurbishment works involves the removal of unserviceable and damaged building components, surface preparation, and repainting tasks. The demolition phase includes stripping old and deteriorated plaster from brick or concrete surfaces, involving proper joint racking, cleaning, and roughening of the exposed substrate to ensure a sound base for future treatment. All debris generated from this process is to be safely collected and disposed of in compliance with standard safety and environmental protocols. The cost includes all necessary materials, labor, VAT, income tax, and contractor's profit. Further demolition works comprise the dismantling and removal of old corrugated iron (CI) sheet roofing, and the removal of deteriorated or unserviceable wooden door and window frames (chowkats). Additionally, the scope includes the careful picking-up of damaged or worn-out patent stone from floors and dado areas, followed by debris removal to a designated safe distance. Following the clearance and surface preparation, the painting work includes applying standard synthetic enamel paint of approved quality and shade. The paint must be sourced in sealed containers from certified agents of the manufacturer. The product should possess high water resistance, superior adhesion, and flexibility. Before application, all surfaces—metallic or wooden—are to be cleaned thoroughly of grease, wax, chalk, and dirt. The process includes an initial anti-corrosive primer coat followed by two coats of enamel paint applied with a brush, roller, or spray as specified. The entire operation—from surface dismantling to final finishing—must be executed with strict adherence to quality standards and under the supervision and acceptance of the Engineer-in-Charge. The objective is to ensure functional restoration and aesthetic improvement of the building elements while maintaining safety, quality, and structural integrity.

All works must comply with drawings, specifications, and directions of the Engineer-in-Charge, ensuring quality, safety, and long-term performance through proper supervision, material testing, and execution standards.

Activity No:	**Activities in Khulna Warehouse.**
9	Painting work of Godown wall for khulna warehouse.

Detail Activites in KHULNA Warehouse: The scope of work includes the complete application of a Weather Coat exterior painting system using premium quality acrylic emulsion paint from the BERGER brand, known for its high durability, dirt resistance, and protection against efflorescence. The paint system incorporates Standard Damp Shield sealer, also of BERGER brand, to enhance moisture resistance and improve the longevity of the coating. Prior to painting, all exterior surfaces shall undergo thorough surface preparation. This includes cleaning, drying, and removal of dust, grease, wax, chalked paint, scaled materials, and fungal growth. Surface defects are to be repaired and smoothed using sandpaper. All works must be executed with appropriate scaffolding, ensuring safety and accessibility across all building elevations. The prepared surface is to be treated with a specified exterior-grade sealer to ensure a uniform and well-bonded base. Following sealing, exterior putty of approved brand is to be applied for surface levelling, spot filling, and crack repair. Sanding with zero water paper ensures a smooth substrate before final coats. The painting process consists of two coats of exterior emulsion paint, applied using brush, roller, or spray techniques, depending on the project requirement. Sufficient time should be allowed for drying and recoating, as per manufacturer's specifications, to achieve the desired aesthetic finish and performance standards.

All materials used must be factory-sealed and sourced from authorized local agents to ensure product authenticity and compliance with quality standards. The painting work is to be executed on all floors, maintaining uniformity and high workmanship quality. Final acceptance of the work is contingent upon inspection and approval by the Engineer-in-Charge, confirming adherence to the specified application procedures and finish standards.

Activity No:	**Activities in Khagrachari Warehouse.**
10	Maintenance & Repairing works of Khagrachari warehouse.

Detail Activites in KHAGRACHARI Warehouse: The scope of work involves the systematic execution of structural and finishing tasks essential to both the durability and aesthetics of the project. It begins with the removal of deteriorated plaster, including racking out joints and surface roughening, to prepare for new surface applications. This is followed by high-quality external plastering using a cement-sand mix, ensuring precision at corners, thorough surface preparation, and proper curing to enhance adhesion and longevity. Interior finishes include the application of superior-grade, odorless acrylic emulsion paint on ceilings and walls. This paint system offers high durability, aesthetic value, and resistance to environmental wear, applied over a cleaned and prepared surface in multiple coats for optimal coverage. Structural works comprise reinforced cement concrete of controlled mix design, utilizing a carefully calibrated blend of local and coarse sands, well-graded aggregates, and certified high-strength cement. The concrete mix is designed for high performance, with machine mixing, mechanical compaction, accurate formwork, and standard curing methods to ensure integrity. Reinforcement is specified with high-yield deformed steel bars that comply with national and international standards. These bars provide superior mechanical properties, including high tensile strength, ductility, and elongation capacity—making them suitable for critical load-bearing components such as retaining walls, pile caps, and water-retaining structures.

All construction processes are to be executed under strict technical oversight and in accordance with accepted engineering standards, ensuring the highest level of structural safety, functional reliability, and long-term performance.

Challenge:

1. **Multifaceted Engineering Demands and Compliance Rigor.**

   The simultaneous execution of divergent construction typologies—ranging from superficial refurbishments to vertically scaled new builds—necessitated harmonized adherence to BNBC, PWD, and global engineering protocols, which overstretched local supervisory and quality assurance capacities.

2. **Volatility in Construction Supply Ecosystems.**

   Erratic market fluctuations, coupled with procurement lags for certified materials such as corrosion-resistant steel, branded coatings, and structural-grade cement, resulted in cascading delays and compromised material uniformity across sites.

3. **Environmental Vulnerabilities and Safety Oversight Gaps.**

   Operations in climatically fragile and topographically unstable zones mandated enhanced safeguards for erosion control, hydrological drainage, and structural resilience—domains that suffered from intermittent availability of specialized environmental and occupational safety expertise.

4. **Institutional Fragmentation and Technical Workforce Deficits.**

   Procedural inertia, data asymmetry, and fragmented inter-agency communication impaired synchronized execution, while acute shortages of certified engineers, technical artisans, and quality control personnel—particularly in peripheral jurisdictions—led to suboptimal construction integrity and episodic rework.

Way Forward:

Strengthening Emergency Preparedness Infrastructure with Continued **UNICEF** Partnership.

1. **Strategic Expansion through Phased Interventions.**
   Leverage learnings from the current phase to design a structured, multi-phase roadmap for rehabilitating additional DPHE warehouses, prioritizing high-risk and underserved regions.
2. **Capacity Development for Sustainability.**
   Scale up training for DPHE engineers and warehouse personnel on modern construction techniques, asset maintenance, and emergency stock management using blended learning models.
3. **Performance Monitoring and Digital Oversight.**
   Introduce a unified digital monitoring dashboard track physical progress, budget utilization, and quality compliance across all warehouse sites.
4. **Budget Allocation for Long-Term Maintenance.**
   Secure dedicated O&M (Operation & Maintenance) funds within annual DPHE budgeting cycles to preserve infrastructure integrity and functionality.

5. **Documentation and Knowledge Sharing.**
   Systematically document project experiences, challenges, and best practices, and disseminate findings through national-level workshops in partnership with UNICEF and relevant stakeholders.

Conclusions:

The comprehensive infrastructure development and rehabilitation initiatives undertaken across seven strategically important districts—**Gazipur (Tongi), Natore, Sunamganj (Tahirpur), Sylhet (Gowainghat), Rangamati, Khulna, and Khagrachari**—reflect a purposeful commitment to enhancing the resilience, efficiency, and operational longevity of the national warehousing network. In Tongi, phased repairs of godown/store rooms and the construction of cement-concrete drains have significantly bolstered both structural stability and environmental safeguards. Natore's reinforced boundary wall enhances perimeter security, while land development in Tahirpur ensures terrain readiness for future infrastructure expansion in flood-prone zones. The construction of a vertical storage facility in Gowainghat introduces a landmark capacity for life-saving WASH supplies, reinforcing emergency preparedness. In Rangamati, the renovation of a tin shade godown aligns with localized needs for durable, climate-conscious storage. Meanwhile, protective painting work in Khulna improves both durability and aesthetics, demonstrating proactive maintenance. Finally, the extensive repair and upkeep efforts in Khagrachari secure continued functionality in a remote yet logistically vital region. Together, these activities signify a harmonized and forward-thinking strategy in public asset management, integrating structural integrity, contextual adaptability, and disaster-readiness into a unified vision for national warehousing excellence.