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Republic of LEBANON

Ministry of Education
and Higher Education (MEHE)

Environmental Management Plan

And Guidelines

For

Reaching All Children with Education in Lebanon

(R.A.C.E. LEBANON)

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Section I- Environmental and Social Management Plan and Guidelines for R.A.C.E

A- INTRODUCTION:

As the Syria conflict enters its 3rd year with few signs of abating, the influx of refugees fleeing the fighting into Lebanon continues to increase. It is a refugee crisis compounded by an already fragile socioeconomic and political context and by a constrained public system, both in terms of resources and capacity. The impact on the education system is large to say the least. It means addressing a rapid and massive surge in the number of out-of-school children (OOSC) reaching, in June 2014, more than 280,000. By December 2014, the number of registered Syrian refugees in Lebanon is projected to reach nearly one and a half million, a figure exceeding 30% of the total population in the country.[1].[2]

In school year 2013/14, Syrian refugee children represented 28% of the total student population in public schools, and have required the introduction of a second shift of instruction in the afternoon to accommodate demand. One of the defining characteristics of the Lebanese education system is the use of French and English as a language of instruction starting at the primary level. This, along with demand side constraints such as older children working and social and political tensions, have led to low overall enrollment rates among Syrian refugees of school age, particularly at the secondary level.[3] The coping capacity of Lebanese host communities is being eroded especially that they are the most vulnerable communities. The already dire socioeconomic situations in these areas are weakened even more by the Syria crisis as the GDP is already declining and there are no social safety nets. The economic slowdown exacerbates mounting socio-political tensions. The additional burden is draining the public sector; as a matter of fact available resources and capacities are starting to fail in addressing the needs of Lebanese citizens.

UN agencies and development partners, with the support of the Global Partnership for Education (GPE) and led by the Government of Lebanon (GoL), specifically the Ministry of Education and Higher Education (MEHE), committed to doing more to meet the acute and immediate education needs of Syrian refugee and Lebanese vulnerable children. They agreed to develop a well-coordinated three-year response Program, building on existing initiatives and providing a framework for bringing the immediate emergency and longer term development efforts together, while strengthening the Lebanese public sector to address the crisis and improve and sustain its provision of quality education for vulnerable children.

This Environmental Management Plan (EMP) was specifically prepared for the Lebanon "Emergency Education System Stabilization Project" (EESSP), which supports RACE Lebanon.

B- Project Description:

[1] R.A.C.E. Lebanon document, *1.1 Background and rationale: the Lebanon Syria crisis,* p.3
[2] World Bank ESIA, UNICEF and UNHCR reports.
[3] Aide-memoire on Joint WB- DFID preparation mission for Proposed EESSP World Bank, *Introduction,* p.2

The objective of the EESSP is to ensure equitable access to educational opportunities in the public system, improve the quality of teaching and learning environment, and strengthen national education systems and monitoring. The project has three components: access, quality of learning environment and project management and support. The total estimated cost is US$32 million.

Component 1. Access

Sub-component 1.1. School Fees Support: The Project will provide financing for school operating costs at the level of the school. Two funds currently exist to serve essential school needs, The "Parent Council Fund" and the "School Fund," each with its own account for each school;

- The Parent Council Fund, which is normally financed at the rate of US$60 per student,
- The School Fund, financed at the rate of US$100 per student.

MEHE currently provides the majority of the financing for these two funds at these rates, supplemented by other agencies. This component will support these funds at a student per-capita rate of approximately US$160 for an average of 28,000 of these students for each of the three years of the life of the Project

Component 2. Learning Environment Quality

Sub-component 2.1: School rehabilitation

This component will improve the quality of the public school learning environment by financing the rehabilitation of school buildings that are in the greatest need of repair. Activities will include improving structural security, access to water and sanitation with consideration of girls' and boys' needs, as well as the physical appearance of the school. No hazardous chemicals will be procured for school rehabilitation.

Sub-component 2.2: Supplemental School Financing

Supplemental School Financing provide small emergency funds to all public primary schools in the country to fulfill frontline school needs with a focus on helping schools themselves improve the learning environment and foster social cohesion between different student communities through extra-curricular activities. Allocations will be based on brief School Improvement Plan proposals submitted by the school to MEHE regional offices and funds will be deposited directly into the school's bank account. Financial accountability will follow existing procedures.

Sub-component 2.3: National Textbook Program for Public Primary Schools

This subcomponent seeks to provide national textbooks and workbooks to students (grades 1 through 9) enrolled in public schools for the school years 2015-16 and 2016-17 depending on final student numbers and negotiated textbook prices.

Sub-component 2.4: Strengthening Direction d'Orientation Pédagogique et Scolaire - DOPS

The "*Direction d'Orientation Pédagogique et Scolaire*" (DOPS) has three different types of counselors: pedagogic, health and psycho-social/child protection.

Strengthening DOPS is a priority for MEHE and the project would finance essential tools to enable this unit to provide high quality services to schools, teachers and students.

The DOPS strengthening component could include support for:

* Transportation costs for DOPS counselors to conduct school field visits
* Running costs and supplies for the 16 regional DOPs centers, including meeting room furniture, computers, photo copiers, office supplies, flip charts for the education gatherings, white boards, meeting supplies
* Training to pay trainers from the Lebanese University Faculty of Education to train the newly recruited counselors, trainees transportation costs
* Additional child protection counselors, if funds become available

Component 3: Project Management and Support

MEHE is the project implementing agency that will oversee the implementation of all RACE and EESSP activities. This modality ensures that this project will strengthen government leadership of the response and contribute to sustainability. There will be specific risk mitigation measures and capacity development in the areas where MEHE itself and partners have identified specific implementation weaknesses from past operational experience. Project oversight will be through the RACE Executive Committee (REC), and day-to-day coordination of project activities will be undertaken by the RACE Program Management Unit (PMU).

The PMU will coordinate with various department heads in the central and regional offices. Detailed modalities and arrangements for financial and procurement operational processes, transactions, and decisions will be developed by the PMU and will be outlined in the Financial and Procurement sections of the Project Operations Manual.

C- IMPLEMENTATION ARRANGEMENTS:

The implementation and supervision of the EMP is the responsibility of MEHE. MEHE will coordinate the overall implementation process and will be in charge of monitoring and evaluation, and preparing progress reports at critical phases. Under the overall supervision of the PMU Manager, the PMU Procurement Officer will work closely with the Engineering Technical Support staff of the PMU (between 2-4 staff) to monitor EMP implementation. This team will also work with regionally based field engineers.

The purpose of these Guidelines is to provide the Project technical staff, local communities, implementing agencies, engineers, environmental consultants, contractors, and other related parties with a set of guidelines that will assist them in determining to what extent the rehabilitation proposed to be financed will affect the environment and possibility to improve it. The Guidelines are designed to assist all those who are working on rehabilitation projects to ensure that environmental concerns are duly incorporated in the project design and implementation. When it is determined necessary to have an environmental assessment for a subproject, the project environmental Guidelines outline the actions for conducting the

assessment. This EMP takes into account all government's regulations on environmental issues relating to construction.

Any unlikely potential negative environmental impacts would be localized and mitigated during the implantation stage. Contracts and bill of quantities will include clauses for appropriate disposal of unacceptable construction material and disposal of construction waste. Procurement documents will specify that no environmentally unacceptable or hazardous materials will be used. Bidding documents will include rehabilitation of adequate sanitary facilities, including appropriate disposal of wastewater and sewerage. The environmental management guidelines should be provided to contractors engaged in civil works, and should be made an integral part of the civil works contracts.

When signing construction contracts, contractors will be asked to adhere to this EMP.

The schools to be selected or retained are mostly the overcrowded schools taking into consideration that Schools with the highest proportion of Syrians in their first shift will be subject of having Second-shift schools.
MEHE will confirm its priorities for the school rehabilitation and establish the final criteria for the selection of priority schools. It will also choose the most convenient type of construction for the implementation taking into consideration cost-effectiveness and durability requirements. Ultimately, the options are: heavy prefabricated buildings with precast elements or traditional construction.

For the second component, the selection was based on schools with the most important and urgent rehabilitation needs. A set of criteria in two consecutive stages were applied to filter all public schools, after which 399 priority schools were maintain for rehabilitation.

D- SAFEGUARDS CONSIDERATIONS:

All subprojects that will be financed by the Project have to be in compliance with local environmental rules and regulations, as well as with the environmental policies of the World Bank. The World Bank requires an environmental assessment of any possible environmental impacts of rehabilitation works (and construction, when relevant).

On the basis of the activities financed by this project and on the expected environmental impacts, the following World Bank Policy is applicable: “Operational Policy 4.01 on Environmental Assessment”. In accordance with the World Bank's OP4.01, the Environmental classification of the project is B – Partial Assessment at the level of an environmental management plan. The project is not expected to have any large scale or irreversible negative environmental impacts.

While it is not expected that this project would trigger any safeguard other than OP 4.01 Environmental Assessment, a table of the ten World Bank safeguard policies is presented in Table 1. It is the responsibility of the government to ensure that these policies are not violated.

Table 1: World Bank Safeguard Policies

Safeguard Policy	Brief Description
. Environmental assessment (EA)	WB financed projects must be environmentally sound and sustainable. Type and detail of EA dependent on nature, scale and potential environmental risks.
. Natural habitat	The Bank supports the protection, maintenance and rehabilitation of natural habitats and does not support projects that involve the significant conversion or degradation of critical natural habitats.
. Forestry	Policy triggered whenever a project affects indirectly forest assets.
. Pest management	The WB supports the use of biological or environmental control of pests and strategies that reduce the reliance on synthetic chemical pesticides. It supports integrated pest management and the safe use of agricultural pesticides.
. Involuntary resettlement	People who have to be removed or who lose their livelihood as a result of the project must be resettled, compensated for all of their losses and they must be provided with a situation that is at least as good as the one from which they came.
. Indigenous peoples	Local indigenous people or distinct groups who are marginalized in society who could be adversely affected by the project
. Cultural properties	WB supports the preservation of cultural properties which includes sites with archaeological, paleontological, historical, religious or unique natural values. It seeks to avoid impacts on such sites.
. Dam safety	WB financed new dams must be designed and built under the supervision of competent professionals. Dams over 15 meters in height are of concern particularly if there is a large flood handling requirement or the dam is in a zone of high seismicity and/or where foundations and other design features are complex.
. Projects on international waterways	Any project that may affect the water quality or quantity of a waterway shared with other nations.
. Projects in disputed areas	Projects in disputed areas could affect relations between the country within which the project is being developed and neighboring countries. Disputes would be dealt with at the earliest opportunity.

***Note**: For detailed explanation of each safeguard policy refer to the World Bank website, specifically, www.worldbank.org/environment/QD policies.htm*

The project will support rehabilitation works in schools across Lebanon. The scope of the rehabilitation work will be limited to address the most urgent needs, which include: roof repairs and correction of structural defects; improvement of heating facilities and insulation; provision of adequate water and sanitation; and improvement of electrical systems. Measures will be taken to ensure that the rehabilitation works meet health, safety and environmental standards. There is no need for additional land acquisition associated with the school rehabilitation and renovation as all project activities will be done within existing sites.

This EMP will take into account any applicable national environmental legislation in this regard (e.g., Ministry of Education and Higher Education, Ministry of Public Health, Ministry of Environment, Ministry of Social Affairs, etc.), such as :

- **Law No. 444 / 2002** on Environmental Protection

- **Law No. 216 / 1993** on establishment of "Ministry of Environment"

- Amendment Act No. 216 issued on 2/4/1993

- SELDAS: In the framework of the EC LIFE/UNESCO-Cousteau Ecotechnie Chair at the University of Balamand/MOE **SELDAS (Strengthening the Environmental Legislation Development & Application System in Lebanon),** a book on the State of the Environmental Legislation Development and Application System in Lebanon was prepared in 2003-2004.

("Environmental impact assessment EIA, shall be undertaken for proposed activities that are likely to have a significant adverse impact on the environment and are subject to a decision of a competent national authority.")

The project would also take into consideration the pertinent Lebanese laws and regulations. The legal basis for the EIA system is established in the Environment Protection Law No. 444/2002, Law No. 690/2005 and Decree No. 2275/2009 on the reorganization of the MoE and the EIA decree No. 8633/2012 and its annexes. The EIA decree and its annexes include all the requirements for screening, preparation of the environmental assessment and the supervision of the environmental assessment process including consultation and disclosure.

E- <u>SITE SCREENING AND REVIEW</u>:

The Environmental Guidelines section details the specifics to be addressed in the ecological/biologic concept, design and planning of small-scale projects for schools infrastructure. The guidelines cover the handling of construction debris generated, selection of construction materials and construction methods with limited impact on the environment, energy saving methods as well as the handling of construction wastes under Program-supported activities. The guidelines are a base for training, programming, research discussions and workshops. However, in selecting suitable construction methods and materials, great attention should be paid to locally available traditions, skills and resources in the project sites.

1- Site: The site specific screening and review should carefully assess the following issues:

- Dust and noise due to the demolition and construction;
- Intrusion into private property;
- Risk of damage to unknown historical and archaeological sites;
- Dumping of construction wastes and accidental spillage of machine oil, lubricants, etc.
- Risk from inadequate handling of waste.

Dust from transportation and handling of construction works will be minimized by water and other means such as enclosure of construction sites. To reduce noise, construction will be restricted during certain hours. All debris, construction and wood

waste will be stored within the work site. Wood waste will be stored separately and arranged to be recycled instead of disposing it. Open burning and illegal dumping will not be permitted. Proper sites for earth/clay and sand disposal will be determined and prior approval from relevant authority for disposal will be obtained. Stockpiling of construction debris on site will be avoided and waste will be disposed of on a regular basis at the authorized government dumping ground. Debris chutes will be provided to transfer debris from higher floors to the ground.

It is necessary to arrange transport and make agreements with relevant organizations involved in waste and construction debris discharge.

It is also required to create necessary conditions for safe removal of sewage during the rehabilitation and renovation and observe the ecological and sanitary regulations during the rehabilitation of sanitary and technical equipment, sewage pipes and purifying constructions.

2- Demolition work: Existing building elements (walls, foundations, ground cement slabs etc.) should be carefully demolished and the debris should be sorted and removed as directed by the EMP (to be determined during the preparation phase of the project). All valuable materials (doors, windows, sanitary fixtures, etc) should be carefully dismantled and transported to the storage area assigned for the purpose. Valuable materials should be recycled within the project or sold.

3- Energy Efficiency, Insulation and Ventilation: Insulation should be tailored to the seasonal impacts of climate, internal thermal load, and characteristics of exposure.
Windows location should be determined on view, ventilation, light, thermal gain, privacy control and interior space functions.

High-efficiency systems for heating domestic water (***including solar systems***) and for interior space heating should be selected with maintenance and long term running costs in mind. Plumbing should be coordinated to minimize plumbing and also water service to toilets, kitchen and utility rooms.

All materials and equipment (to be used) should have a security certificate.

4- Electrical Systems: Ground defective wiring near any plumbing fixture is a precaution. Selecting the most energy-efficient light fixtures, lamps, appliances and equipment will reduce energy demand but can introduce undesirable electromagnetic fields. Be aware that close proximity to table, floor and desk halogen, fluorescent and other high-efficiency fixtures and lamps can cause an exposure to harmful electromagnetic fields.

5- Cabinetry and Wood: Nontoxic finishes are available but expensive. Selecting the least toxic finishes is advised. All materials should have appropriate permissions on quality and safety.

6- Finishes: Water-based interior nontoxic, no allergenic paint for drywall or plaster surfaces is preferable to latex or oil-based paints from a respiratory standpoint. Any enamel coating for doors or other surfaces that require a more durable finish is advised to be applied away from interior spaces and be fully aired for over a month before installation. Indoor space should not be occupied until odor and toxins of the paint or finish has been adequately aired.

7- Selection of Construction Materials and Construction Methods: Environmentally sound goods and services should be selected. Priority should be given to products meeting standards for recognized international or national symbols. Traditionally well-tried materials and methods should be chosen before new and unknown techniques. Construction sites should be fenced off in order to prevent entry of public, and general safety measures would be imposed. Temporary inconveniences due to construction works should be minimized through planning and coordination with contractors, neighbors and authorities. In densely populated areas, noisy or vibration generating activities should be strictly confined to the daytime.

F- MITIGATION MEASURES PLAN

ACTIVITY	PARAMETER	MITIGATION MEASURES CHECKLIST
0. General Conditions	Notification and Worker Safety	- The local construction and environment inspectorates and communities would be notified of upcoming activities - The public would be notified of the works through appropriate notification in the media and/or at publicly accessible sites (including the site of the works) - The Contractor would formally agree that all work will be carried out in a safe and disciplined manner designed to minimize impacts on neighboring residents and environment. - Workers' PPE will comply with international good practice (always hardhats, as needed masks and safety glasses, harnesses and safety boots) - Appropriate signposting of the sites will inform workers of key rules and regulations to follow.
A. Dismantling	Construction debris	Most construction waste is non-hazardous (lime, cement, sand plaster, concrete, glass, ceramics, electrical and mechanical, sanitary pipes, etc.) with the exception of solvents, paints and machines oils. - The general specifications in the construction documents and Bill of quantities would include clauses to ensure that these substances are properly disposed of. (the sites for disposal of construction waste would be government approved sites)
B. General Rehabilitation and /or Construction Activities	Air Quality	- During interior demolition debris-chutes shall be used above the first floor - Demolition debris shall be kept in controlled area and sprayed with water mist to reduce debris dust - During pneumatic drilling/wall destruction dust shall be suppressed by ongoing water spraying and/or installing dust screen enclosures at site - The surrounding environment (side-walks, roads) shall be kept free of debris to minimize dust - There will be no open burning of construction / waste material at the site - There will be no excessive idling of construction vehicles at sites
	Heating and insulation	Deteriorated or non-existent heating insulation in walls, windows and roofs. High heat losses due to construction flaws, damaged insulation of Windows and walls. Absence of protection from winds. - Insulation of construction elements (including walls, windows and roofs). Reducing heat losses through placement of heated areas and buffer zones. Decreasing heat losses through ventilation by using controlled ventilation principles. Increasing heat preservation by planting trees and facade greenery, which also increases wind protection and heating insulation properties of a building.
	Noise	- Construction noise will be limited to restricted times agreed to in the permit - During operations the engine covers of generators, air compressors and other powered mechanical equipment shall be closed, and equipment placed as far away from residential areas as possible
	Water Quality	- The site will establish appropriate erosion and sediment control measures such as e.g. hay bales and / or silt fences to prevent sediment

ACTIVITY	PARAMETER	MITIGATION MEASURES CHECKLIST
		from moving off site and causing excessive turbidity in nearby streams and rivers.
	Sanitation	Proper attention to sanitary services for schools occupants and students. Current issues include: lack of proper toilets, shortage of water, odors due to old systems, etc. - The standard school designs being developed include new toilets for rehabilitated schools. The new designs would include appropriate solutions to the various problems currently experienced.
	Waste management	- Waste collection and disposal pathways and sites will be identified for all major waste types expected from demolition and construction activities. - Mineral construction and demolition wastes will be separated from general refuse, organic, liquid and chemical wastes by on-site sorting and stored in appropriate containers. - Construction waste will be collected and disposed properly by licensed collectors - The records of waste disposal will be maintained as proof for proper management as designed. - Whenever feasible the contractor will reuse and recycle appropriate and viable materials (except asbestos)
C. Individual wastewater treatment system	Water Quality	- The approach to handling sanitary wastes and wastewater from building sites (installation or reconstruction) must be approved by the local authorities - Before being discharged into receiving waters, effluents from individual wastewater systems must be treated in order to meet the minimal quality criteria set out by national guidelines on effluent quality and wastewater treatment - Monitoring of new wastewater systems (before/after) will be carried out - Construction vehicles and machinery will be washed only in designated areas where runoff will not pollute natural surface water bodies.
D. Toxic Materials	Asbestos management	- If asbestos is located on the project site, it shall be marked clearly as hazardous material - When possible the asbestos will be appropriately contained and sealed to minimize exposure - The asbestos prior to removal (if removal is necessary) will be treated with a wetting agent to minimize asbestos dust - Asbestos will be handled and disposed by skilled & experienced professionals - If asbestos material is be stored temporarily, the wastes should be securely enclosed inside closed containments and marked appropriately. Security measures will be taken against unauthorized removal from the site. - The removed asbestos will not be reused
	Toxic / hazardous waste management	- Temporarily storage on site of all hazardous or toxic substances will be in safe containers labeled with details of composition, properties and handling information - The containers of hazardous substances shall be placed in an leak-proof container to prevent spillage and leaching - The wastes shall be transported by specially licensed carriers and disposed in a licensed facility. - Paints with toxic ingredients or solvents or lead-based paints will not be

ACTIVITY	PARAMETER	MITIGATION MEASURES CHECKLIST
		used
E. Affected forests, wetlands and/or protected areas	Protection	- All recognized natural habitats, wetlands and protected areas in the immediate vicinity of the activity will not be damaged or exploited, all staff will be strictly prohibited from hunting, foraging, logging or other damaging activities. - A survey and an inventory shall be made of large trees in the vicinity of the construction activity, large trees shall be marked and cordoned off with fencing, their root system protected, and any damage to the trees avoided - Adjacent wetlands and streams shall be protected from construction site run-off with appropriate erosion and sediment control feature to include by not limited to hay bales and silt fences - There will be no unlicensed borrow pits, quarries or waste dumps in adjacent areas, especially not in protected areas.
F. Traffic and Pedestrian Safety	Direct or indirect hazards to public traffic and pedestrians by construction activities	- In compliance with national regulations the contractor will insure that the construction site is properly secured and construction related traffic regulated. This includes but is not limited to ▪ Signposting, warning signs, barriers and traffic diversions: site will be clearly visible and the public warned of all potential hazards ▪ Traffic management system and staff training, especially for site access and near-site heavy traffic. Provision of safe passages and crossings for pedestrians where construction traffic interferes. ▪ Adjustment of working hours to local traffic patterns, e.g. avoiding major transport activities during rush hours or times of livestock movement ▪ Active traffic management by trained and visible staff at the site, if required for safe and convenient passage for the public. - Ensuring safe and continuous access to office facilities, shops and residences during renovation activities, if the buildings stay open for the public.

The associated costs for all mitigation measures will be determined in the contractors' contracts. Costs cannot be estimated until a needs assessment is conducted for each school; this needs assessment will be conducted by PMU engineers once they undergo orientation sessions with the EDP II engineers regarding the EMP and some lessons learned from the previous projects.

G- MONITORING MEASURES PLAN

The implementation and supervision of the EMP is the responsibility of MEHE. MEHE will coordinate the overall implementation process and will be in charge of monitoring and evaluation, and preparing progress reports at critical phases. The MEHE PMU will appoint the procurement officer to monitor the implementation of the EMP. The PO will work closely with the Engineering Technical Support staff of the PMU (between 2-4 staff) to monitor EMP implementation. This team will also work with regionally based field engineers.

ACTIVITY	WHAT *PARAMETER TO BE MONITORED?*	WHERE *IS THE PARAMETER TO BE MONITORED?*	HOW *IS THE PARAMETER TO BE MONITORED?*	WHEN *IS THE PARAMETER TO BE MONITORED?*
General Rehabilitation and /or Construction Activities	Sanitation: Appropriate and functional design.	These clauses will be specified in Architectural drawings, specifications and Bill of Quantities.	PMU engineer will check it by experienced engineers for compliance with coordination with ESDS/ECU.	During design stage for rehabilitation
	Waste management: waste types expected from demolition and construction activities	These clauses will be specified in the Bills of Quantities and in the bidding documents.	PMU engineer will check it by experienced engineers for compliance with coordination with ESDS/ECU.	On Site, during rehabilitation process.
Protection and safety measures	Direct or indirect hazards to public traffic and pedestrians by construction activities	These clauses will be specified in the Bills of Quantities and in the bidding documents.	Checked by PMU site Engineer, Provision of safe passages and crossings for pedestrians where construction traffic interferes (PMU engineer)	During Site supervision and all through rehabilitation process.

H- INSTITUTIONAL STRENGTHNING

All the necessary precautions to avoid negative environmental impacts from the items identified are to be taken by the architects and engineers in charge of the schools rehabilitation designs and specifications.

The architectural/construction project documentation will be prepared so as to comply with environmental protection laws, regulations, decrees and construction norms concerning building rehabilitation.

In the context of the rehabilitation of schools (for on-going and future plans related to the Ministry), the concerned entities within Ministry of Education will manage the design, bidding, supervision of projects(including civil works, goods and services). The responsibility includes the following activities:

- Hire the services of consultants capable of providing comprehensive services, i.e. engineers, all required engineering, preparation of tender documents and site supervision;
- ensure that the agreed EMP is followed, including the appropriate disposal of waste.

- Organize tendering procedures, review tender evaluation performed by the engineers, and arrange for the contracts to be signed in accordance with agreed procedures.

- Ensure that the engineers are providing adequate site supervision, particularly the supervision of carrying out the environmental plan (monitoring the disposal of paint issue, disposal of waste water and sewage, etc.)

I- STAKEHOLDER CONSULTATIONS

MEHE led consultations on the EMP on November 12, 2014, with two separate groups of project stakeholders (e.g. school directors/principals, parents' council members, regional education office staff). The consultations consisted of a presentation about the project and the suggested environmental safeguards plan. A report summarizing the consultations is attached as Appendix II.

J- PMU EENGINEERS CAPACITY BUILDING

PMU civil engineers will undergo capacity building training regarding the environmental management concept and implementation, as well as monitoring, auditing and reporting trainings.

The monitoring, auditing and reporting training will be conducted by the EDP II consulting firm as agreed with the EDP II engineer. This capacity building activity will be covered through EDP II contractual agreement with the consulting firm, with no additional fees. The environmental management concept and implementation training will be conducted by a qualified consultant, to be funded by the EESSP project. The training will include theoretical sessions and practical demonstrations.

The below table summarizes the PMU engineer's capacity building trainings:

Training / Capacity	Participant	Skills to be acquired	Scheduling
Environmental Management Concept and Implementation	PMU PO Officer and Field Engineers	• Familiarization, orientation and awareness-raising on environmental issues, impacts, avoidance, minimization and mitigation • Acquiring knowledge and understanding of the EMPG	Prior to the implementation phase
Monitoring, Auditing and Reporting	Field Engineers	• Learn monitoring, auditing and reporting techniques • Prepare monitoring reports for various activities • Compile and analyze progress reports	Prior to and during the implementation phase

Once the trainings and the field visits are complete, PMU engineers will be able to fully assess the schools and prepare the appropriate BOQs, monitoring reports and progress reports.

APPENDIX 1- General Safety, Health and Environmental Regulations

Table of Clauses

1 Introduction

1.1 The prevention of injury and/or illness to site personnel and the public, damage to the Works and to public and private property, protection of the environment, and compliance with applicable laws, are primary objectives of the Employer, and because of the importance the Employer places on meeting these objectives, selected minimum requirements are outlined in these Safety, Health and Environmental Regulations with which Contractors shall comply while working on Government contracts. Given that these Regulations cannot cover every eventuality, the Contractor shall be expected to exercise good judgment in all such matters, even though not mentioned in these Regulations, and shall take any and all additional measures, as required or necessary, to meet his responsibility for safety, health and environmental matters during the period of the Contract.

The Employer and its representatives shall not be held liable for any actions taken by the Contractor that are attributed to following the minimum requirements stated hereinafter.

1.2 The Contractor shall, throughout the execution and completion of the Works and the remedying of any defects therein:

(a) Have full regard for the safety of all persons on the Site and keep the Site and the Works in an orderly state appropriate to the avoidance of danger to any person;

(b) Know and understand all laws governing his activities along with any site requirements and work site hazards. Such information shall be communicated by the Contractor to his personnel and subcontractors;

(c) Take all necessary measures to protect his personnel, the Employer's personnel, other persons, the general public and the environment;

(d) Avoid damage or nuisance to persons or to property of the public or others resulting from pollution, noise or other causes arising as a consequence of carrying out the Works.

2 Compliance with Regulations

2.1 The Contractor shall comply with the requirements of these Safety, Health and Environmental Regulations and all other applicable regulations or requirements under Lebanese laws, laid down by relevant authorities or issued by the Employer or the Engineer concerning safety, health and the environment, in force or introduced or issued from time to time during the period of the Contract. In so far as these Regulations are applicable, they shall apply to sites and personnel outside the Site associated with the performance of the Contract.

2.2 The Regulations equally apply to subcontractors and all other parties engaged by the Contractor and their personnel. The Contractor shall ensure all such parties are fully aware of and comply with the Regulations.

2.3 The Contractor shall comply with all notifications and written or verbal instruction regarding safety issued pursuant to these Regulations by the Employer, Engineer or relevant authorities within the time specified in the notification or instruction.

Whenever the Contractor is required to obtain the approval, agreement, permission, etc of the Engineer, such approval, agreement, permission, etc shall not relieve the Contractor of his responsibilities and obligations under these Regulations or the Contract.

2.4 The Contractor shall adopt a positive approach, awareness and responsibility towards safety, health and the environment, and take appropriate action, by:

(a) Ensuring the Regulations are enforced and followed by the Contractor's personnel. Any failure by the Contractor's personnel to follow the Regulations shall be regarded as a failure by the Contractor.
(b) Paying attention to possible injury to unauthorized persons entering the site, particularly children.

2.5 Whenever in these Regulations the Contractor is required to provide test certificates for equipment and personnel or to comply the relevant authorities' requirements and no independent test facilities are available or no relevant authorities exist in Lebanon, the Contractor shall provide:

(a) In lieu of independent test certificates:

* For equipment -details of the tests and the date of the tests that have been carried out by the Contractor and a written statement that the Contractor has satisfied himself that the item of equipment is fit and safe for use;
* For personnel-details of the training and experience and a written statement that the Contractor has satisfied himself that the person has the required level of competency;

(b) In lieu of relevant authorities' requirements-details of the Contractor's own rules, regulations, requirements and procedures regarding safety, health and the environment.

If the Engineer is dissatisfied with the details provided by the Contractor, the Contractor shall provide further details or carry out further tests or provide further written statements as may be reasonably required by the Engineer.

When the Engineer has satisfied himself regarding the Contractors own rules, regulations, requirements and procedures provided in accordance with (b) above, such rules, etc should be deemed to form part of these Regulations and to which Clause 3 shall equally apply.

3- Failure to Comply with Regulations

3.1 General

3.1.1 Should the Contractor fail to comply with any of the Regulations or requirements:

(a) The Engineer may suspend the Works or part of the Works until the Contractor has taken necessary steps, to the satisfaction of the Engineer, to comply with the regulations or requirements.

(b) The Employer may, following written notice to the Contractor, carry out themselves or arrange for another contractor to carry out such measures, as they consider appropriate on behalf of the Contractor. Any such actions by the Employer shall not affect or diminish the Contractors obligations or responsibilities under the Contract.

(c) The Engineer may, following written notice to the Contractor specifying the breach or breaches of these Regulations by the Contractor, impose the fines stipulated in Sub-Clause 3.2. All deductions for fines by the Engineer will be subject to the approval of the Employer.

(d) The Engineer may, by written notice of suspension to the Contractor, suspend all payments to the Contractor under the Contract if the Contractor fails to rectify any breach of the Regulations within the period specified by the Engineer, provided that such notice of suspension:

(i) Shall specify the nature of the failure or failures; and

(ii) Shall request the contractor to remedy each such failure within a specified period after receipt by the Contractors of such notice of suspension.

Such suspension of payment will remain in force until such time as the Contractor has rectified the breach or breaches to the satisfaction of the Engineer. No interest shall be paid on the suspended payments.

3.1.2 Failure to comply with the Regulations or requirements shall be considered a breach of contract by the Contractor and may result in termination of the Contract by the Employer.

3.1.3 In the event of the Employer or Engineer taking action based on Sub-Clause 3.1.1(a) or (b) or 3.1.2, the Contractor shall not be entitled to any additional costs or extension to the Contract Completion Date.

3.1.4 All costs incurred by the Employer pursuant to Sub-Clause 3.1.1 (b)and the fines imposed on the Contractor by the Engineer under Sub-Clause 3.1.1 (c) shall be deducted from amounts otherwise due to the Contractor.

3.2 Fines

3.2.1 Failures by the Contractor to comply with the Regulations or requirements are classified as follows:

F1 - breaches of Sub-Clause 5.6 (personal protective equipment);

F2 - breaches of Clause 7 (work in Public Areas);

F3 - breaches other than F1 and F2.

3.2.2 The basic fine for each classification in Sub-Clause 3.2.1, is as follows:
for F1-US$ 100
for F2-US$ 500
for F3-US$ 200

3.2.2 Fines will be applied as follows:

(a) For the first breach of each regulation or requirement -the basic fine. If the same or similar breaches occur in different situations or locations at the same time, the Engineer may apply fines for each situation or location; this will not apply to breaches related to personal protective equipment.

(b) For a second or subsequent breach of the same Regulation or requirement or failure to rectify a previous failure within the time specified by the Engineer - twice the basic fine.

4 General Requirements

4.1 Preamble

4.1.1 All references to safety shall be deemed to include health and the environment.

4.2 Safety Officer

4.2.1 The Contractor shall appoint a competent Safety Officer who shall be responsible for safety, health and the environment. The Safety Officer shall be given sufficient time by the Contractor to carry *out* his duties; minimum requirements shall be as follows:

Workforce on Site of over 250	full time Safety Officer;
Workforce on Site of 100-250	50% of Safety Officer's time;
Workforce on Site below 100	as required for the Works but a minimum of 5 hours per week of Safety Officer's time where more than 20 workers.

4.2.2 The Contractor shall provide the Safety Officer with appropriate identification, including a white hard hat with Red Cross symbol and an identification badge. The appointment of the Safety Officer shall be in writing and copied to the Engineer. The appointment shall include specific instructions to enforce these Regulations and delegated authority to take any action, measure or to issue instructions regarding their enforcement. All persons on Site shall be made aware of the name and authority of the Safety Officer and instructed to comply with any instruction or direction on safety matters, verbal or in writing, issued by the Safety Officer.

4.2.3 The Safety Officer shall be provided with a mobile phone or other similar means of communication. The Safety Officer shall be accessible and available at all times including outside normal working hours.

4.3 Safety Training

4.3.1 The Contractor shall provide safety induction training for all site personnel upon

starting on site.

4.3.2 The Contractor shall provide safety refresher/reinforcement training at regular intervals for his staff.

4.4 Safety Meetings

4.4.1 The Contractor shall hold regular safety meetings to provide safety instructions and receive feedback from site personnel on safety, health and Environmental matters. A weekly Safety Meeting shall be chaired by the Safety Officer and minutes shall be taken of the meeting. The meeting/minutes shall cover all relevant issues including actions to be taken. A copy of the minutes shall be given to the Engineer. The Safety Officer should attend the Contractor's weekly site meetings and "Safety" should be an item on the agenda.

4.5 Safety Inspections

4.5.1 The Safety Officer shall make regular safety inspections of the work site. The Safety Officer shall prepare a report of each inspection. This report shall include details of all breaches of these Regulations and any other matters or situations relating to safety found during the inspection, instructions issued by the Safety Officer and actions taken by the Contractor. A copy of the Safety Officer's inspection reports shall be given to the Engineer.

4.6 Control of Substances Hazardous to Health

4.6.1 Hazardous materials shall be stored in approved safety containers and handled in a manner specified by the manufactures and/or prescribed by relevant Authorities (see Sub-Clause 2.5).

4.6.2 Only properly trained and equipped personnel shall handle hazardous materials.

4.7 Potential Hazards

4.7.1 The Contractor shall inform employees of potential hazards, take appropriate steps to reduce hazards and be prepared for emergency situations.

4.7.2 The Contractor shall make an assessment of every operation involving hazardous substances. The assessment shall be recorded on a Hazardous and Flammable Substances Assessment Method Statement, which shall be submitted to the Engineer prior to the delivery and use of the substance on Site.

4.8 Accident Reporting

4.8.1 The Contractor shall report all accidents and dangerous occurrences to the Engineer. The Contractor shall prepare a report on each accident or dangerous occurrence and a copy of the report, together with witness statements and any other relevant information shall be submitted to the Engineer. A reportable accident or dangerous occurrence shall include any accident to any person on Site requiring medical attention or resulting in the loss of working hours or any incident that resulted, or could have resulted, in injury, damage or a danger to the Works, persons, property or the environment.

4.8.2 In the event of an accident or dangerous occurrence, the Contractor shall be responsible for completing all statutory notifications and reports. Copies of all statutory notifications and reports shall be passed to the Engineer.

4.8.3 All accidents and dangerous occurrences shall be recorded in a Site Accident Book. The Site Accident Book shall be available at all times for inspection by the Engineer.

4.8.4 The Contractor shall immediately rectify any situation or condition that could result in injury, damage or a danger to the Works, person, property or the environment. If the situation or condition cannot be corrected immediately, the Contractor shall provide temporary barriers and appropriate warning signs and devices and/or take other appropriate action necessary for the protection of persons, property and the environment.

4.9 Notices, Signs, Etc...

4.9.1 All safety, health, environmental and other notices and signs shall be clearly displayed and written in both Arabic and English. All requirements, instructions, procedures, etc. issued by the Contractor concerning these Regulations shall be printed in both Arabic and English and displayed and readily available to Contractor's personnel.

4.10 First Aid and Medical Attention

4.10.1 The Contractor shall have comprehensive First Aid Kit(s) on Site at all times. First Aid Kits shall be conveniently located and clearly identifiable.

4.10.2 The Contractor shall have one employee on site trained in first aid for every 25 employees. Such persons shall be provided with appropriate identification, including a red hard hat with a white "red cross" symbol and an identification badge.

4.10.3 The Contractor shall make contingency arrangements for calling a Doctor and transporting injured persons to hospital. The telephone numbers of the emergency
services and the name address and telephone number of the Doctor and nearest
hospital shall be prominently displayed in the Contractor's site office.

4.11 Employee Qualifications and Conduct

4.10.4 The Contractor shall employ only persons who are fit, qualified and skilled in the work to be performed. All persons shall be above the minimum working age.

4.11.1 Contractor's personnel shall use the toilet facilities provided by the Contractor.

4.11.2 The Contractor shall ensure:

(a) That no firearms, weapons, controlled or illegal substances or alcoholic beverages are brought onto the Site and that no personnel under the influence of alcohol or drugs are permitted on Site.
(b) That all personnel obey warning signs, product or process labels and posted instructions.

(c) That drivers or operators of vehicles, machinery, plant and equipment follow the rules for safe operations. Drivers shall wear seat belts and obey all signs and posted speed limits.

5 Safety Requirements

5.1 Personal Protective Equipment

5.1.1 The Contractor shall provide personal protective equipment, including hard hats, safety glasses, respirators, gloves, safety shoes, and such other equipment as required, and shall take all measures or actions for the protection and safety of Contractor's personnel.

5.1.2 Non-metallic hard hats shall be worn at all times by all personnel at the worksite with the exception of those areas where the Engineer has indicated it is not necessary to do so.

5.1.3 Safety glasses shall meet international standards and be available for use and worn in specified worksite areas. As a minimum, safety glasses shall be worn for the following types of work: hammering, chipping, welding, grinding, use of electrically powered or pneumatic equipment, insulation handling, spray painting, working with solvents, and other jobs where the potential of an eye injury exists. Face shields and/or mono-goggles shall be worn where possible exposure to hazardous chemicals, cryogenic fluids, acids, caustics, or dust exists and where safety glasses may not provide adequate protection.

5.1.4 When handling acids, caustics, and chemicals with corrosive or toxic properties, suitable protection, such as acid suits or chemical resistant aprons and gloves, shall be worn to prevent accidental contact with the substance.

5.1.5 Personnel shall not be permitted to work whilst wearing personal clothing or footwear likely to be hazardous to themselves or others.

5.1.6 The wearing of safety shoes with steel reinforced toes is recommended for all contractor's personnel on site. In all cases, Contractor's personnel shall wear substantial work shoes that are commensurate with the hazards of the work and the worksite area.

5.1.7 Hearing protection, including muffs, plugs or a combination thereof, shall be provided for all personnel operating in areas where the noise level exceeds 90 decibels. Such protection shall also be provided for operators working with equipment exceeding such a level. This may include equipment such as excavators, shovels, jackhammers, saws, drills, grinders, and the like are being used.

5.1.8 The Contractor shall encourage employees to wear substantial work gloves whenever practical and safe to do so.

5.2 Fire Protections and Prevention

5.2.1 The Contractor shall comply with fire protection instructions given by the Authorities having jurisdiction in regard to fire protection regulations.

5.2.2 The Contractor shall, upon moving on site, provide to the Engineer and the Authorities a fire prevention and evacuation plan. This shall include drawing(s) showing the fire assembly points. The fire prevention and evacuation plan and drawing(s) shall be updated from time to time as the Works progress. The Contractor shall ensure all personnel are fully informed on escape routes and assembly points and any changes thereto.

5.2.3 Fuel storage will not be permitted in construction work areas. Contractors may establish fuel storage tanks in special areas set aside for the purpose and approved by the Engineer. Storage tanks shall be adequately bonded to control spillage. Fire extinguishers shall be provided and installed in a suitable nearby location.

5.2.4 Highly combustible or volatile materials shall be stored separately from other materials and as prescribed by relevant authorities and under no circumstances within buildings or structures forming part of the permanent Works. All such materials shall be protected and not exposed to open flame or other situations, which could result in a fire risk.

5.2.5 No combustible site accommodation shall be located inside or within 10 meters of a building or structure forming part of the permanent Works, Where units have to be used in these circumstances, they shall be constructed of non-combustible materials and have a half-hour fire rating inside to outside and outside to inside. Non-combustible furniture shall be used where practical.

5.2.6 All temporary accommodation and stores shall be provided with smoke detectors and fire alarms.

5.2.7 Smoking shall be banned in high-risk areas.

5.2.8 Expanded polystyrene with or without flame retarding additive, polythene, cardboard and hardboard shall not be used as protection materials.

5.2.9 Plywood and chipboard shall only be used as protection on floors. Vertical protection shall be non-combustible. Debris netting and weather protection sheeting shall be fire retardant.

5.2.10 When using cutting or welding torches or other equipment with an open flame, the Contractor shall provide a fire extinguisher close by at all times. All flammable material shall be cleared from areas of hot works, or work locations prior to welding or oxy/gas burning operations. All hot works shall cease half an hour before the end of a work shift to allow for thorough checking for fires or smoldering materials. Where appropriate, areas of hot works are to be doused in water before the shift ends.

5.2.11 An adequate number of fire extinguishers of types suited to the fire risk and the materials exposed shall be provided. These shall be placed in accessible, well-marked locations throughout the job site. Contractor's personnel shall be trained in their use. Extinguishers shall be checked monthly for service condition and

replaced or recharged, as appropriate after use.

5.2.12 Only approved containers shall be used for the storage, transport and dispensing of flammable substances. Portable containers used for transporting or transferring gasoline or other flammable liquids shall be approved safety cans.

5.2.13 Fuel burning engines shall be shut off while being refueled.

5.2.14 Adequate ventilation to prevent an accumulation of flammable vapors shall be provided where solvents or volatile cleaning agents are used.

5.2.15 Flammables shall not be stored under overhead pipelines, cable trays, electrical wires, or stairways used for emergency egress.

5.2.16 Paints shall be stored and mixed in a room assigned for the purpose. This room shall be kept under lock and key.

5.2.17 Oily waste, rags and any other such combustible materials shall be stored in proper metal containers with self-closing lids and removed every night to a safe area or off site. Every precaution shall be taken to prevent spontaneous combustion.

5.3 Electrical Safety

5.3.1 All temporary electrical installations, tools and equipment shall comply with current regulations dealing with on-site electrical installations.

5.3.2 The Contractor shall establish a perm it-to-work system for work on or in proximity to energized circuits of any voltage. Contractor's personnel shall not commence work on such circuits unless a permit to work has been issued and adequate safety measures have been taken and the work operation has been reviewed and approved by the Engineer.

5.3.3 Only authorized personnel shall be allowed to work or repair electrical installations and equipment.

5.3.4 Portable tools and equipment shall be 110 volt, unless otherwise agreed by the Engineer.

5.3.5 When portable or semi-mobile equipment operates at voltages in excess of 110 volts, the supply shall be protected by a Residual Current Device (RCD) regardless of any such device fitted to the equipment. The RCD must have a tripping characteristic of 30 milliamps at 30 milliseconds maximum.

5.3.6 All static electrically powered equipment, including motors, transformers, generators, welders, and other machinery, shall be properly earthed, insulated, and/or protected by a ground fault interruption device. In addition, the skin of metal buildings and trailers with electric service shall be earthed. Metal steps, when used, shall be securely fixed to the trailer.

5.3.7 Lamp holders on festoon lighting shall be molded to flexible cable and be of the screw in type. Clip on guards shall be fitted to each lamp unit.

5.3.8 All tungsten-halogen lamps shall be fitted with a glass guard to the element. These lamps must be permanently fixed at high level.

5.3.9 Electrical equipment shall be periodically inspected and repaired as necessary by competent persons.

5.3.10 Any work on electrical equipment and systems shall be made safe through locking, tagging, and/or isolation of the equipment before work commences. Prior to the start of the work, the equipment or systems shall be tested to insure that they have been properly de-energized and isolated.

5.3.11 Electrical repair work on energized systems shall be avoided whenever possible.

5.3.12 Electrical trouble hooting shall be conducted only after getting written approval of the Engineer.

5.3.6 Unauthorized personnel shall not enter enclosures or areas containing high voltage equipment such as switchgear, transformers, or substations.

5.4 Oxygen/Acetylene/Fuel Gases/Cartridge Tools

5.4.1 Compressed oxygen shall never be used in the place of compressed air.

5.4.2 Flash-back (Spark) arresters shall be fitted to all gas equipment.

5.4.3 Liquid Petroleum Gas (LPG) cylinders shall not be stored or left in areas below ground level overnight. Cylinders must be stored upright.

5.4.4 The quantity of oxygen, acetylene and LPG cylinders at the point of work "shall be restricted to a maximum of one day's supply. Cylinders shall be kept in upright vertical rack containers or be safely secured to a vertical support.

5.4.4 Cartridge tools shall be of the low velocity type. Operators must have received adequate training in the safe use and operation of the tool to be used.

5.5 Scaffolding/Temporary Works

5.5.1 No aluminum tube shall be used, except for proprietary mobile towers, unless otherwise agreed with the Engineer.

5.5.2 Drawings and calculations shall be submitted to the Engineer, prior to commencement of work on site, for all Temporary Works, including excavations, false work, tower cranes, hoists, services and scaffolding. Design shall conform to international standards.

5.5.3 The Engineer will not approve Temporary Work designs but the Contractor shall take account of any comments on such designs made by the Engineer.

5.5.4 The Contractor shall inspect and approve all Temporary Works after erection and before access, loading or use is allowed. Completed and approved Temporary Works

shall be tagged with a scuff-tag or similar safety system and the Safe Structure insert displayed. For scaffolding, one tag shall be displayed every 32 m2 of face area. A central record system shall be kept on all Temporary Work. Temporary Works shall be inspected weekly and similarly recorded.

5.5.5 All mobile scaffold towers shall be erected in accordance with the manufacturer's instructions and a copy of these shall be submitted to the Engineer prior to any use on site. Additionally, all towers shall be erected complete with access ladder, safety rails and kick boards whatever the height.

5.5.6 The Contractor shall repair or replace, immediately, any scaffold including accessories, damaged or weakened from any cause.

5.5.7 The Contractor shall ensure that any slippery conditions on scaffolds are eliminated as soon as possible after they occur.

5.5.8 All scaffolds used for storing materials, for brick or block laying, for access to formwork or for any other purpose where materials may accidentally fall, shall be provided with wire mesh guards or guards of a substantial material, in addition to kick boards.

5.6 Use of Ladders

5.6.1 Manufactured ladders shall meet the applicable safety codes for wood or metal ladders. Metal ladders shall not be used where there is any likelihood of contact with electric cables and equipment. All metal ladders shall be clearly marked: "Caution- Do not use around electrical equipment".

5.6.2 Job made ladders shall not be permitted.

5.6.3 Extension or straight ladders shall be equipped with non-skid safety feet, and shall be no more than 12 m in height. The maximum height of a stepladder shall be2 m. Ladders shall not be used as platforms or scaffold planks.

5.6.4 Ladders rungs and steps shall be kept clean and free of grease and oil.

5.6.5 Extension and straight ladders shall be tied off at the top and/or bottom when in use. Only one person shall be allowed on a ladder at a time.

5.6.6 Defective ladders shall be taken out of service and not used. Ladders shall not be painted and shall be inspected for defects prior to use.

5.7 Elevated Work

5.7.1 The Contractor shall provide all personnel, while working at an elevated position, with adequate protection from falls. Details of such protection shall be submitted to and approved by the Engineer.

5.7.2 The Contractor shall carry out daily inspections of all elevated work platforms. Defects shall be corrected prior to use.

5.7.3 Roofing & Sheet Material Laying

(a) A Method Statement detailing the procedures to be adopted shall be submitted to and agreed with the Engineer prior to commencement of work on site.

(b) Mobile elevating work platforms or the equivalent shall be used to install roofing and sheet materials wherever practicable and a suitable base is available.

5.7.4 Erection of Structures

(a) A Method Statement detailing the procedures to be adopted shall be submitted and agreed with the Engineer prior to commencement of work on site.

(b) Safety harnesses and lines shall be provided by the Contractor for use by the erection personnel and worn at all times.

(c) Mobile elevating work platforms or the equivalent shall be used to erect structures wherever practicable and a suitable base is available.

5.7.5 Mobile Elevating Work Platforms

Operators shall be trained in the safe use of such platforms and hold a current Certificate of Competence (see Sub-Clause 2.5).

5.7.6 Hoists

(a) A copy of the current Test Certificate (see Sub-Clause 2.5) shall be submitted to the Engineer before any hoist (personnel or material) is brought into operation on the site. Where the range of travel is increased or reduced a copy of the revised Test Certificate shall be submitted.

(b) Each landing gate shall be fitted with a mechanical or electrical interlock to prevent movement of the hoist when any such gate is in the open position.

(c) Safety harnesses must be worn and used by personnel erecting, altering and dismantling hoists.

5.7.7 Suspended Cradles

(a) Suspended cradles shall be installed, moved and dismantled by a specialist contractor.

(b) Suspended cradles shall comply with local regulations.

(c) All powered suspended cradles shall incorporate independent safety lines to over speed braking devices and independent suspension lines for personal safety harness attachment.

5.8 Use of Temporary Equipment

5.8.1 The safe design capacity of any piece of equipment shall not be exceeded, nor shall the equipment be modified in any manner that alters the original factor of safety or capacity.

5.8.2 Mobile equipment shall be fitted with suitable alarm and motion sensing devices, including backup alarm, when required.

5.8.3 The Contractor shall ensure that the installation and use of equipment are in accordance with the safety rules and recommendations laid down by the manufacturer, taking into account the other installations already in place or to be installed in the future.

5.8.4 The Contractor shall inspect Equipment prior to its use on the Works and periodically thereafter to ensure that it is in safe working order. Special attention shall be given to such items as cables, hoses, guards, booms, blocks, hooks and safety devices. Equipment found to be defective shall not be used and immediately removed from service, and a warning tag attached.

5.8.5 Natural and synthetic fiber rope made of material such as manila, nylon, polyester, or polypropylene shall not be used as slings unless approved by the Engineer.

5.8.6 Only trained, qualified and authorized personnel shall operate equipment. All drivers and operators shall hold a current Certificate of Training Achievement for the equipment being used (see Sub-Clause 2.5).

5.8.7 A safety observer shall be assigned to watch movements of heavy mobile equipment where hazards may exist to other personnel from the movement of such equipment, or where equipment could hit overhead lines or structures. The observer shall also ensure that people are kept clear of mobile equipment and suspended loads.

5.8.8 When mobile or heavy equipment is traveling onto a public thoroughfare or roadway, a flagman shall insure that traffic has been stopped prior to such equipment proceeding. While the mobile or heavy equipment is traveling on a public roadway, a trailing escort vehicle with a sign warning of a slow-moving vehicle that is dangerous to pass shall be provided.

5.8.9 Cranes:

(a) The Contractor shall give a minimum of 48 hours' notice to the Engineer prior to bringing a mobile crane on site.

(b) No cranes shall be erected on the site without the prior approval of the Engineer. The Engineer may direct the Contractor as to locations where cranes may not be located. The Contractor shall take such directions into account when submitting his proposals for crane location points, base footings pick up points and swing radius. Compliance with any such direction shall not entitle the Contractor to any extension of the Period of Completion or to any increase in the Contract Price.

(c) Safety harnesses shall be worn and used at all times by personnel engaged on the erection, alterations and dismantling of tower cranes.

(d) The Contractor shall provide a copy of the current Test Certificate (see Sub-Clause 2.5) to the Engineer before any crane (tower or mobile) is brought into operation on the Site.

(e) All lifting tackle must hold a current Test Certificate (see Sub-Clause 2.5). All lifting tackle must be thoroughly examined every 6 months and an inspection report to be submitted.

(f) All fibrous/Webb slings shall be destroyed and replaced 6 months after first use.

(g) All crane drivers/operators shall hold a Certificate of Training Achievement for the class of crane operated (see Sub-Clause 2.5).

(h) All banksman /slingers shall hold a Training Certificate from a recognized training agency (see Sub-Clause 2.5).

(i) Only certified slingers/banksmen shall sling loads or guide crane/load movement.

(j) The maximum weekly working hours of a crane driver or banksman shall be restricted to 60 hours.

5.9 Locking-out, Isolating, and Tagging of Equipment

5.9.1 Equipment that could present a hazard to personnel if accidentally activated during the performance of installation, repair, alteration, cleaning, or inspection work shall be made inoperable and free of stored energy and/or material prior to the start of work. Such equipment shall include circuit breakers, compressors, conveyors, elevators, machine tools, pipelines, pumps, valves, and similar equipment.

5.9.2 Where equipment is subject to unexpected external physical movement such as rotating, turning, dropping, falling, rolling, sliding, etc., mechanical and/or structural constraints shall be applied to prevent such movement.

5.9.3 Equipment which has been locked-out, immobilized, or taken out of service for repair or because of a potentially hazardous condition shall be appropriately tagged indicating the reason it has been isolated and/or taken out of service.

5.9.4 Where safety locks are used for locking out or isolating equipment, the lock shall be specially identified and easily recognized as a safety lock

5.10 Installation of Temporary or Permanent Equipment

5.10.1 During installation and testing the Contractor's specialist engineer shall be in attendance.

5.10.2 All control mechanism panel and wiring diagrams shall be available and printed in both Arabic and English.

5.11 Laser Survey Instruments

5.11.1 Details of the types and use of laser instruments shall be submitted and agreed with the Engineer.

5.12 Working in Confined Spaces

5.12.1 Confined spaces, including tanks, vessels, containers, pits, bins, vaults, tunnels, shafts, trenches, ventilation ducts, or other enclosures where known or potential hazards may exist, shall not be entered without prior inspection by and authorization from the Site Safety Officer and the issuance of a Hazardous Work Permit.

5.12.2 Prior to entering the confined space, the area shall be completely isolated to prevent the entry of any hazardous substances or materials, which could cause an oxygen deficient atmosphere. All equipment that could become energized or mobilized shall be physically restrained and tagged. All lines going into the confined space shall be isolated and/or blanked.

5.12.3 Personnel working in a confined space where emergency escape or rescue could be difficult shall wear a safety harness attached to a lifeline.

5.12.4 A qualified attendant(s), trained and knowledgeable in job-related emergency procedures, shall be present at all times while persons are working within the confined space. The attendant shall be capable of effecting a rescue, have necessary rescue equipment immediately available, and be equipped with at least the same protective equipment as the person making entry.

5.12.5 All equipment to be used in a confined space shall be inspected to determine its acceptability for use. Where a hazard from electricity may exist, equipment utilized shall be of low voltage type.

5.12.6 The atmosphere within the confined space shall be tested to determine it is safe to enter. Acceptable limits are:

-Oxygen: 19.5% lower, 22% higher;
-Flammable gas: not to exceed 10% of lower explosion limit;
-Toxic contaminants: not to exceed the permissible exposure limit.

Subsequent testing shall be done after each interruption and before re-entering the confined space, as well as at intervals not exceeding 4 hours. Continuous monitoring is preferable and may be necessary in certain situations.

5.12.7 Adequate ventilation shall be provided to ensure the atmosphere is maintained within acceptable limits.

5.13 Demolition

5.13.1 A detailed Method Statement detailing the demolition procedures/techniques to be used shall be submitted to and approved by the Engineer prior to commencement of work on site.

The Method Statement must include full details of measures to be taken to ensure that there are no persons remaining in the building/structure and to

distance members of the public and Contractor's personnel from the building/structure prior to demolition.

5.14 Use of Explosives

5.14.1 The Contractor shall not use explosives without the written permission from the Engineer and relevant authorities (see Sub-Clause 2.5).

5.14.2 The Contractor shall observe all regulations regarding proper purchasing, transportation, storage, handling and use of explosives.

5.14.3 The Contractor shall ensure that explosives and detonators are stored in separate special buildings. These secured buildings shall be constructed, located and clearly marked in Arabic and English:

"DANGER-EXPLOSIVES" All as approved by the Engineer and relevant authorities (see Sub-Clause 2.5).

5.14.4 The Contractor shall ensure that all possible precautions are taken against accidental fire or explosion, and ensure that explosives and detonators are kept in a proper and safe condition.

5.14.5 The Contractor shall ensure that explosives and detonators are always transported in separate vehicles and kept apart until the last possible moment and that metallic tool are not used to open boxes of explosives or detonators.

5.14.6 Blasting Procedure: the Contractor shall carry out blasting operations in a manner that will not endanger the safety of persons and property. The Contractor shall, along with other necessary precautions:

(a) Clear all persons from buildings and the area affected by the blasting. All such persons shall be given adequate notice of the actual time and date of blasting,

(b) Ensure that police and other local authorities are kept fully informed, in advance, of the blasting program so that they may be present when blasting takes place if they so require,

(c) Erect warning notices around the area affected that blasting operations are in progress,

(d) Carry out a thorough search of buildings and the area affected prior to blasting,

(e) Ensure that blasting is only, carried out by experienced shot firers. Priming, charging, stemming and shot firing shall be carried out with greatest regard for safety and in strict accordance with the rules and regulations of the relevant authorities (see Sub-Clause 2.5).

(f) Ensure that explosive charges are not excessive, charged boreholes are properly protected and proper precautions are taken for the safety of

persons and property,

5.14.7 The Contractor shall maintain an up-to-date inventory of all explosives and explosive devices and shall submit a monthly report to the Engineer, detailing the use of all explosives by date and location.

5.15 Excavation and Trenching

5.15.1 The Contractor shall obtain an excavation permit from the relevant local authority before commencing excavation in any public place and he shall observe any restrictions imposed by the authority. He shall produce any such permit for the Engineer's inspection when requested to do so. If he fails to produce the permit, the Engineer shall have the right to order cessation of the relevant work.

5.15.2 The side of all excavations and trenches exceeding 1.3 meters in depth which might expose personnel or facilities to danger resulting from shifting earth shall be protected by adequate temporary supports or sloped to the appropriate angle of repose.

5.15.3 All excavations, slopes and temporary supports shall be inspected daily and after each rain, before allowing personnel to enter the excavation.

5.15.4 Excavations 1.3 meters or more in depth and occupied by personnel shall be provided with ladders as a means for entrance and egress. Ladders shall extend not less than 1 meter above the top of the excavation.

5.15.5 The Contractor shall provide adequate barrier protection to all excavations. Barriers shall be readily visible by day or night.

5.15.6 Excavated or other materials shall not be stored at least 0.65 meters from the side of excavations

5.16 Concrete Reinforcement Starter Bars

5.16.1 The Contractor shall ensure concrete reinforcement starter bars are not a danger to personnel. Where permitted by the Engineer, starter bars shall be bent down. Alternatively, the starter bars shall be protected using either hooked starters, plastic caps, plywood covers or other methods agreed with the Engineer.

6 Environmental and Health Requirements

6.1 Protection of the Environment

6.1.1 The Contractor shall be knowledgeable of and comply with all environmental Laws, rules and regulations for materials, including hazardous substances or wastes under his control. The Contractor shall not dump, release or otherwise discharge or dispose of any such material without the authorization of the Engineer.

6.1.2 Any release of a hazardous substance to the environment, whether air, water or ground, must be reported to the Engineer immediately. When releases resulting from

Contractor action occur, the Contractor shall take proper precautionary measures to counter any known environmental or health hazards associated with such release. These would include remedial procedures such as spill control and containment and notification of the proper authorities.

6.2 Air Pollution

6.2.1 The Contractor, depending on the type and quantity of materials being used, may be required to have an emergency episode plan for any releases to the atmosphere. The Contractor shall also be aware of local ordinances affecting air pollution.

6.2.2 The Contractor shall take all necessary measures to limit pollution from dust and any windblown materials during the Works, including damping down with water on a regular basis during dry climatic conditions.

6.2.3 The Contractor shall ensure that all trucks leaving the Site are properly covered to prevent discharge of dust, rocks, sand, etc.

6.3 Water Pollution

6.3.1 The Contractor shall not dispose of waste solvents, petroleum products, toxic chemicals or solutions in the city drainage system or watercourse, and shall not dump or bury garbage on the Site. These types of waste shall be taken to an approved disposal facility regularly, and in accordance with requirements of relevant Authorities. The Contractor shall also be responsible to control all runoffs, erosion, etc.

6.4 Solid Waste

6.4.1 General Housekeeping

(a) The Contractor shall maintain the site and any ancillary areas used and occupied for performance of the Works in a clean, tidy and rubbish-free condition at all times.

(b) Upon the issue of any Taking-Over Certificate, the Contractor shall clear away and remove from the Works and the Site to which the Taking-Over Certificate relates, all Contractor's Equipment, surplus material, rubbish and Temporary Works of every kind, and leave the said Works and Site in a lean condition to the satisfaction of the Engineer. Provided that the Contractor shall be entitled to retain on Site, until the end of the Defects Liability Period, such materials, Contractor's Equipment and Temporary Works as are required by him for the purpose of fulfilling his obligations during the Defects Liability Period.

6.4.2 Rubbish Removal and Disposal

(a) The Contractor shall comply with statutory and municipal regulations and requirements for the disposal of rubbish and waste.

(b) The Contractor shall provide suitable metal containers for the temporary storage of waste.

(c) The Contractor shall remove rubbish containers from site as soon as they are full. Rubbish containers shall not be allowed to overflow.

(d) The Contractor shall provide hard standings for and clear vehicle access to rubbish containers.

(e) The Contractor shall provide enclosed chutes of wood or metal where materials are dropped more than 7 meters. The area onto which the material is dropped shall be provided with suitable enclosed protection barriers and warning signs of the hazard of falling materials. Waste materials shall not be removed from the lower area until handling of materials above has ceased.

(f) Domestic and biodegradable waste from offices, canteens and welfare facilities shall be removed daily from the site.

(g) Toxic and hazardous waste shall be collected separately and be disposed of in accordance with current regulations.

(h) No waste shall be burnt on Site unless approved by the Engineer.

6.4.3 Asbestos Handling and Removal

The Contractor shall comply with all local regulations regarding the handling of asbestos materials. In the absence of local regulations, relevant International standards shall apply.

6.4.5 Pest Control

The Contractor shall be responsible for rodent and pest control on the Site. If requested, the Contractor shall submit to the Engineer, for approval, a detailed program of the measures to be taken for the control and eradication of rodents and pests.

6.5 Noise Control

6.5.1 The Contractor shall ensure that the work is conducted in a manner so as to comply with all restrictions of the Authorities having jurisdiction, as they relate to noise.

6.5.2 The Contractor shall, in all cases, adopt the best practicable means of minimizing noise. For any particular job, the quietest available plant/and or machinery shall be used. All equipment shall be maintained in good mechanical order and fitted with the appropriate silencers, mufflers or acoustic covers where applicable. Stationary noise sources shall be sited as far away as possible from noise-sensitive areas, and where necessary acoustic barriers shall be used to shield them. Such barriers may be proprietary types, or may consist of site materials such as bricks or earth mounds as appropriate.

6.5.3 Compressors, percussion tools and vehicles shall be fitted with effective silencers of a type recommended by the manufacturers of the equipment. Pneumatic drills and

other noisy appliances shall not be used during days of rest or after normal working hours without the consent of the Engineer.

6.5.4 Areas where noise levels exceed 90 decibels, even on a temporary basis, shall be posted as high noise level areas.

7 Additional Requirements for Work in Public Areas

7.1 General

7.1.1 These additional requirements shall apply to all works carried out in Public Areas.

7.1.2 Public Areas are defined as areas still used by or accessible to the public. These include public roads and pavements, occupied buildings and areas outside the Contractor's boundary fencing.

7.1.3 All work in Public Areas shall be carried out to minimize disturbance and avoid dangers to the public.

7.1.4 Before commencing work, the Contractor shall ensure that all necessary resources, including labor, plant and materials, will be available when required and that the works will proceed without delays and be completed in the shortest possible time. Periods of inactivity and slow progress or delays in meeting the agreed program for the works, resulting from the Contractor's failure to provide necessary resources or other causes within the control of the Contractor, will not be accepted. In the event of such inactivity, slow progress or delays, the Contractor shall take immediate action to rectify the situation, including all possible acceleration measures to complete the works within the agreed program. Details of the actions and acceleration measures shall be submitted to the Engineer. If the Engineer is dissatisfied with the Contractor's proposals, the Contractor shall take such further actions or measures as required by the Engineer. All costs incurred shall be the responsibility of the Contractor.

7.2 Method Statement

7.2.1 The Contractor shall submit to the Engineer a method statement for each separate area of work in Public Areas. The Method Statement shall include:

(a) A general description of the Works and methodology of how it will be carried out.
(b) Details of the measures and temporary works to minimize disturbance and safeguard the public. These shall include temporary diversions, safety barriers, screens, signs, lighting, watchmen and arrangements for control of traffic and pedestrians and advance warning to be given to the public.
(c) Details of temporary reinstatement and maintenance of same prior to final reinstatement.
(d) For works involving long lengths of trenches or works to be completed in

sections, the lengths or sections of each activity (ex: up to temporary reinstatement, temporary reinstatement, final reinstatement) to be carried out at any one time.

(e) Details of the availability of necessary resources (labor, plant, materials, etc.) to complete the work.

(f) A program showing start and completion dates and periods for all activities of each length or section, including temporary works, and the works overall.

(g) Such further information as necessary or required by the Engineer.

7.2.2 The Contractor shall not commence work, including temporary works, until approval of the Contractor's Method Statement by the Engineer.

7.2.3 Method Statements shall be updated based on actual progress or as and when required by the Engineer.

7.3 Closure of Roads, etc.

7.3.1 The closure or partial closure of roads, pavements and other public areas will only be permitted if approved by the Relevant Authorities and the relevant closure permit has been issued by the Authority. The Contractor shall detail for each closure the extent of area to be closed, the reasons and duration of the closure and, where appropriate, proposed diversions. The Contractor shall produce the Closure Permit for inspection by the Engineer if requested. The Engineer shall have the right to order cessation of the relevant work if the Contractor does not produce the Closure Permit.

7.4 Trench and Other Excavations

7.4.1 The requirements covering trench and other excavations will depend on the location and type of the excavation and the potential risks to the public.

7.4.2 The following guidelines apply particularly to trenches but shall also apply to other types of excavations:

(a) Before commencing work the Contractor shall:

* Notify the Engineer on the location and duration of the work. An excavation permit signed by the Engineer must be issued in accordance with Sub-Clause 5.15.1 before excavation proceeds in any work location;
* Obtain permission from relevant authorities including the police when required;
* Erect all temporary works such as barriers, warning signs, lighting, etc.,

* Have available adequate materials for temporary- supports to sides of excavations and necessary labor, plant and materials to complete the work within the shortest possible time;

(b) In carrying out the works the Contractor shall, unless otherwise permitted or required by the Engineer:

* Not open more than one excavation within a radius of250 meters;
* Limit the length of trench excavation open at one time to 150 meters;
* Maintain and alter or adapt all temporary works including supports to sides of excavations;
* Remove all surplus excavated material the same day it is excavated;
* Complete the works, including final reinstatement within ten days;
* Where final reinstatement is not achieved within the required time, to carry out temporary reinstatement;
* Ensure that any temporary reinstatement is maintained at the correct level until final reinstatement is achieved.

7.4.3 The above guidelines shall not relieve the Contractor of his obligations and responsibilities.

7.5 Safety Barriers

7.5.1 Safety barriers shall be provided to the perimeter of work areas and to trench and other types of excavations and to existing openings such as manholes, draw pits and the like. When exposed to the public, safety barriers shall be provided to both sides of trenches and around all sides of openings.

7.5.2 The Contractor shall provide details of the type or types of safety barriers for each excavation for the approval of the Engineer prior to commencing work. No work shall commence until the safety barriers are in place.

7.5.3 The type of safety barrier used shall be appropriate to the particular location and the potential risks to the public. Examples of different types of safety barriers are given below:

Type 1 -excavated material;

Type 2 -non-rigid barrier of rope or florescent tape strung between metal rods driven into the ground;

Type 3 -rigid barrier of timber, steel or concrete. Such barriers could be in the form of horizontal rail(s) or sheet material secured to posts driven or concreted into the ground.

7.5.4 The following are guidelines on the type of safety barriers that could be used in differing situations. They apply particularly to trenches but also

apply to other types of excavations, existing openings and to the perimeter of work areas:

* Areas not subject to vehicular traffic -Types 1 or 2;
* Roadways (low traffic speed) -Types 1 or 2;
* Roadways (high traffic speed) -Types 1 or 3.

7.5.5 The above examples of the types of barriers and the guidelines on situations in which they could be used shall not relieve the Contractor of his obligations and responsibilities.

8 Contractor's Site Check List

8.1 A sample Contractor's Site Check List is included in Annex 1. This is included to assist contractors should they wish to introduce such a system as part of their site management procedures. The list is not exhaustive and further items will need to be added by the Contractor.

8.2 The list is issued for guidance only, and does not, in any way, revise or limit the requirements covered elsewhere in these Regulations.

9 Protection of Archeological and Historical Sites

9.1 Excavation in sites of known archaeological interest should be avoided. Where this is unavoidable, prior discussions must be held with the Directorate of Antiquities, who should be given the opportunity to undertake pre-construction excavation or assign an archaeologist to log discoveries as construction proceeds.

Where historical remains are unexpectedly discovered in an area not previously known for its archaeological interest, the below chance find procedures must be applied.

9.2 Chance Finding Procedures

The procedures should be applied to ensure the protection of cultural heritages. The procedures should be directly executed whenever new archaeological remains, antiquity or any other object of cultural or archaeological importance are encountered during construction. The required steps are:

9.2.1 Stop construction activities

9.2.2 Delimit the discovered site area

9.2.3 Secure the site to prevent any damage or loss of removable objects. In case of removable antiquities or sensitive remains, a night guard should be present until the responsible authority takes over.

9.2.4 Notify the responsible foreman/archeologist; who in turn should notify the responsible authorities, the General Directorate of Antiquities and the local authorities (within less than 24 hours).

9.2.5 Responsible authorities would be in charge of protecting and preserving the site before deciding on the proper procedures to be carried out

9.2.6 An evaluation of the finding will be performed by the General Directorate of Antiquities. The significance and importance of the findings will be assessed according to various criteria relevant to cultural heritage including artistic, historic, and scientific or research, social and economic values.

9.2.7 Decision on how to handle the finding will be reached based on the above assessment and could include changes in the project layout (in case of finding an irremovable remain of cultural or archaeological importance), conservation, preservation, restoration or salvage.

9.2.8 Implementation of the authority decision concerning the management of the finding.

9.2.9 Construction work could resume only when permission is given from the General Directorate of Antiquities after the decision concerning the safeguard of the heritage is fully executed.

Annex 1 (of Appendix I)

Sample Contractor's Site Check List

Safe Access:

* Arrangements for visitors and new workers to the site
* Safe access to working locations
* Walkways free from obstructions
* Edge protection to walkways over 2m above ground
* Holes fenced or protected with fixed covers
* Tidy site and safe storage of materials
* Waste collection and disposal
* Chutes for waste disposal, where applicable
* Removal or hammering down of nails in timber
* Safe lighting for dark or poor light conditions
* Props or shores in place to secure structures, where applicable

Ladders:

* To be used only if appropriate
* Good condition and properly positioned
* Located on firm, level ground
* Secure near top. If not possible, to be secured near the bottom, weighted or footed to prevent slipping
* Top of ladder minimum 1 meter above landing place

Scaffolding:

* Design calculations submitted
* Proper access to scaffold platform
* Properly founded uprights with base plates
* Secured to the building with strong ties to prevent collapse
* Braced for stability
* Load bearing fittings, where required
* Uprights, ledgers, braces and struts not to be removed during use
* Fully boarded working platforms, free from defects and arranged to avoid tipping or tripping
* Securely fixed boards against strong winds
* Adequate guardrails and toe boards where scaffold 2m above ground
* Designed for loading with materials, where appropriate
* Evenly distributed materials
* Barriers or warning notices for incomplete scaffold (i.e. not fully boarded)
* Weekly inspections and after bad weather by competent person
* Record of inspections

Excavation:

* Underground services to be located and marked and precautions taken to avoid them
* Adequate and suitable timber, trench sheets, props and other supporting materials
* Available on site before excavation starts
* Safe method for erecting/removal of timber supports
* Sloped or battered sides to prevent collapse
* Daily inspections after use of explosives or after unexpected falls of materials
* Safe access to excavations (e.g. sufficiently long ladder)
* Barriers to restrict personnel/plant
* Stability of neighboring buildings
* Risk of flooding
* Materials stacked, spoil and vehicles away from top of excavations to avoid collapse
* Secured stop blocks for vehicles tipping into excavations

Roof work:

* Crawling ladders or boards on roofs more than 10 degrees
* If applicable, roof battens to provide a safe handhold and foothold
* Barriers or other edge protection
* Crawling boards for working on fragile roof materials such as asbestos cement sheets or glass
* Guardrails and notices to it
* Roof lights properly covered or provided with barriers
* During sheeting operations, precautions to stop people falling from edge of sheet
* Precautions to stop debris falling onto others working under the roof work

Transport and mobile plant:

* In good repair (steering, handbrake, footbrake)
* Trained drivers and operators and safe use of plant
* Secured loads on vehicles
* Passengers prohibited from riding in dangerous positions
* Propping raised bodies of tipping lorries prior to inspections
* Control of on-site movements to avoid danger to pedestrians, etc
* Control of reversing vehicles by properly trained banksmen, following safe system of work

Machinery and equipment:

* Adequate and secured guards in good repair to dangerous parts, ex exposed gears, chain drives, projecting engine shafts

Cranes and lifting appliances:

* Weekly-recorded inspections
* Regular inspections by a competent person

* Test certificates
* Competent and trained drivers over 18 years of age
* Clearly marked controls
* Checks by driver and banksman on weight of load before lifting
* Efficient automatic safe load indicator, inspected weekly, for jib cranes with capacity of more than one ton.
* Firm level base for cranes
* Sufficient space for safe operation
* Trained banksman/slinger to give signals and to attach loads correctly, with knowledge of lifting limitations of crane.
* For cranes with varying operating radius, clearly marked safe working loads and corresponding radii
* Regularly maintenance
* Lifting gear in good condition and regularly examined

Electricity:

* Measures to protect portable electric tools and equipment from mechanic damage and wet conditions
* Checks for damage to or interference with equipment, wires and cables
* Use of the correct plugs to connect to power points
* Proper connections to plugs; firm cable grips to prevent earth wire from pull out
* "Permit-to-work" procedures, to ensure safety
* Disconnection of supplies to overhead lines or other precautions where crane, tipper lorries, scaffolding, etc might touch lines or cause arcing

Cartridge operated tools:

* Maker's instruction being followed
* Properly trained operators, awareness of dangers and ability to deal with misfires
* Safety goggles
* Regular cleaning of gun
* Secure place for gun and cartridges when not in use

Falsework/formwork:

* Design calculations submitted
* Method statement dealing with preventing falls of workers
* Appointment of false work coordinator
* Checks on design and the supports for shuttering and formwork
* Safe erection from steps or proper platforms
* Adequate bases and ground conditions for loads
* Plump props, on level bases and properly set out
* Correct pins used in the props
* Timberwork in good condition
* Inspection by competent person, against agreed design before pouring concrete

Risks to the Public:

* Identify all risks to members of the public on and off site, ex materials falling from

scaffold etc., site plant and transport (access/egress) and implement precautions, ex scaffold fans/nets, banksmen, warning notices etc

* Barriers to protect/isolate persons and vehicles
* Adequate site perimeter fencing to keep out the public and particularly children Secure the site during non-working periods
* Make safe specific dangers on site during non-working periods, ex excavations and openings covered or fenced, materials safely stacked, plant immobilized ladders removed or boarded

Fire -general:

* Sufficient number and types of fire extinguishers
* Adequate escape routes, kept clear
* Worker awareness of what to do in an emergency

Fire- flammable liquids:

* Proper storage area
* Amount of flammable liquid on site kept to a minimum for the day's work
* Smoking prohibited; other ignition sources kept away from flammable liquids
* Proper safety containers

Fire- compressed gases, ex oxygen, LPG, acetylene:

* Properly stored cylinders
* Valves fully closed on cylinders when not in use
* Adopt "hot work" procedures
* Site cylinders in use outside huts

Fire -other combustible materials:

* Minimum amount kept on site
* Proper waste bins
* Regular removal of waste material

Noise:

* Assessment of noise risks
* Noisy plant and machinery fitted with silencers/muffs
* Ear protection for workers if they work in very noisy surroundings.

Health:

* Identify hazardous substances, ex asbestos, lead, solvents etc and assess the risks
* Use of safer substances where possible
* Control exposure by means other than by using protective equipment
* Safety information sheets available from the supplier
* Safety equipment and instructions for use
* Keep other workers who are not protected out of danger areas
* Testing of atmosphere in confined spaces; provision of fresh air supply necessary.
* Emergency procedures for rescue from confined spaces

Manual handling:

* Avoid where risk of injury

* If unavoidable, assess and reduce risks

Protective clothing:

* Suitable equipment to protect the head, eyes, hands and feet where appropriate
* Enforce wearing of protective equipment

Welfare:

* Suitable toilets
* Clean washbasin, hot/warm water, soap and towel
* Room or area where clothes can be dried
* Wet weather gear for those working in wet conditions
* Heated site hut where workers can take shelter and have meals with the facility for boiling water
* Suitable first aid facilities

Work in Public Areas:

* All risks to the public identified
* Method statement approved
* Road closures approved
* Temporary diversions in place
* Safety barriers erected/maintained
* Safety signs and lighting installed/maintained
* Labor, materials, plant and other resources sufficient to meet program
* Temporary reinstatement completed and properly maintained
* Permanent reinstatement completed at earliest possible date.

APPENDIX 2- Terms of Reference for PMU Engineers

APPROACH, METHODOLOGY AND WORK PLAN

In the context of the rehabilitation of schools for on-going and future plans at the Ministry of Education and higher Education, the services of PMU engineers capable of providing comprehensive services, i.e. architectural, all necessary engineering, preparation of tender documents and site supervision, are required.

Background

The Syrian crisis started in 2011 and as a result, Syrian refugees fled to Lebanon, seeking for shelter and stability. The Government of Lebanon (GoL), specifically the Ministry of Education and Higher Education (MEHE), committed to set a stabilization roadmap and to doing more to meet the acute and immediate education needs of Syrian refugees and Lebanese vulnerable children. MEHE and the International Community agreed to develop an expanded and well-coordinated three-year Program for response to the crisis. The overall objective is to ensure that vulnerable school-aged children, affected by the Syrian crisis, are able to access quality formal and non-formal learning opportunities in safe and protective environments. More specifically, the Program aims at ensuring equitable access to educational opportunities, improving the quality of teaching and learning, and strengthening national education systems, policies and monitoring.

Field Engineer

The Field Engineer reports to the Program Manager, and coordinates with all the members of the PMU

Responsibilities

- Identify schools in need of rehabilitation according to pre-determined criteria.
- Conduct field visits to assess the needs of the schools selected for rehabilitation.
- Collect the necessary information to document the needs of each school and submit a report to the PMU, including photos, dimensions and data allowing the quantification of the works.
- Coordinate with the PMU Quantity Surveyors to ensure accurate documentation and assessment of the costing for each school's rehabilitation requirements.
- Monitor the progress of works on site during the rehabilitation by contractors, including implementation of the Environmental Management Plan and Guidelines (EMPG).
- Manage the contracts of the contractors and ensure that specifications, quality and good practice including implementation of the EMPG are ensured by the contracting agency.
- Contribute as a member of the evaluation committee for the selection of contractors.
- Communicate with the PM&E Officer on a weekly basis, allowing for a prompt accurate reporting by the latter.
- Submit monthly reports to the Program Manager, showing the physical and financial progress related to the rehabilitation of schools, as well as implementation of the EMPG.
- Any other task relevant to the position as requested by the Program Manager.

Qualifications

- Minimum of 3 years in engineering field work, rehabilitation works, assessment, quantification and project management.
- University degree in Engineering, Architecture or related field.
- Computer literacy and knowledge in AutoCAD, Primavera or MS project and MS Office.
- Excellent interpersonal, written and oral communication skills (English and Arabic, French is a plus).

Quantity Surveyor

The Quantity Surveyor reports to the Program Manager.

Responsibilities

- Set the relevant Bill of Quantities (BOQ), specifications and contract type for each school based on the full report of the field engineer.
- Coordinate with the Procurement Officer (PO) for the issuance of the bidding documents related to every school rehabilitation.
- Coordinate with the Field Engineers to ensure the compliance of the issued tender documents with the actual status on site.
- Contribute as a member of the evaluation committee for the selection of contractors.
- Support the Field Engineers and the PO in managing the construction contracts.
- Submit monthly reports to the Program Manager, showing the deliverables related to school rehabilitation and construction.
- Any other task relevant to the position as requested by the Program Manager.

Qualifications

- Minimum of 3 years in quantity surveying, costing, bill of quantities and construction contracts.
- University degree in Engineering, Architecture or related field.
- Computer literacy and knowledge in AutoCAD, Primavera or MS project and MS Office.
- Excellent interpersonal, written and oral communication skills (English and Arabic, French is a plus).

APPENDIX 2- Summary Report Template on Stakeholder Consultations

I. Report

Two consultations meetings were held on November 12, 2014, following an invitation sent from the office of the Director-General of Education, Mr. Fadi Yarak to all schools through the education regional offices.

a- Consultation #1:

- Place: Education Regional office of Beirut, Corniche Al Mazraa, Beirut
- Time: 10:00 am
- Attendance: school directors, principals, subject coordinators, librarians, members of the parents' council, head of the education regional office of Beirut and staff (see registration sheets attached).
- Proceedings:

  Doreen Farah gave a presentation in Arabic (see attached presentation). She started by introducing the background of the proposed project and its main components. Then, she explained what was meant by the environmental safeguards procedures when it comes to the subcomponent of rehabilitation. The steps to be followed being: an environmental assessment and screening to categorize the project (in this case it is category B as it is only rehabilitation and the scope of impact limited to the site), then the need to develop the EMP tool accordingly before the start of the project. During the implementation, a set of mitigation (mitigation plan), monitoring (monitoring plan) and institutional measures are taken to avoid or minimize adverse environmental impacts and consequently revise the mitigation measures. All this is done in conformity with a timeline while providing support to the administration to comply with the EMP.

  The speaker insisted on the fact that, at this early stage, the meeting was a mere consultation and that more information will follow once the project is finalized. The purpose of the consultation was to inform the main stakeholders about the EMP and share the potential impact of the planned work so that any concern is conveyed to the MEHE and taken into consideration.

  In the end, the floor was open to the Q & A (see the attached minutes for transcript of the comments). The speaker made sure there was a wide participation and that the message got through.
- The points raised by the stakeholders are transcribed in the attached minutes but, a main issue was that a lot of schools are not owned by the government so the directors were concerned about this being a discriminatory criterion as it was the case in previous school selections. Furthermore, everybody was preoccupied by the time of start of works: should they expect inception next year? If ever?

b- Consultation #2 :

- Place: Sid El Baouchrieh School for boys.
- Time: 12:00 pm

- Attendance: school directors, principals, teachers, health counselors, members of the parents' council, head of the education regional office of Mount Lebanon (see registration sheets attached).
- Proceedings: same as above

- Main concerns are transcribed in the attached minutes but, in short, two points were raised more than once: first, the previously bad experience in rehabilitation when the work was not properly done and the schools director didn't have the chance to voice that; second, the complaint that this meeting was another event to no avail, in other words, that hopefully the guidelines and project as a whole would not turn out to be false promises.

II. Attachments:

- Registration sheets in Sid El Baouchrieh School for the consultation of the Mount Lebanon Region (attach. A p.1-8)
- Minutes drafted by the staff of Beirut regional office (attach A p.9)
- Needs of Beirut schools as expressed by the directors & principals (attach A p.10-11)
- Registration sheets in Beirut Regional Office (attach. A p.12-19)
- Minutes of the consultations in Beirut Regional office (attach. B)
- Power Point Presentation given in Arabic on WB Safeguards policies

Pictures of both consultations are available upon request to the Project Management Unit at MEHE.

The issues raised by stakeholders during the consultations were noted but cannot be addressed at present as they are concerns that (i) were not specifically relevant to this project (although valid for other new initiative, such as those that may include new construction of buildings) or (ii) emanating from the consequences of previous projects and the consultations were an opportunity for stakeholders to voice their dissatisfaction.