

Environmental Management Plan (EMP) Checklist for Public Buildings Energy Efficiency Project

General Guidelines for use of EMP checklist:

For low-risk construction projects, such as minor building rehabilitation works or the retrofitting of heating systems and insulation, the ECA (Europe and Central Asia) safeguards team developed an alternative EMP (environmental management plan) format to provide an opportunity for a more streamlined approach to mainstreaming the World Bank's environmental safeguards requirements into projects which (a) are small in scale or by the nature of the planned activities have a low potential environmental impact, (b) are located in countries with well functioning country systems for environmental assessment and management. The checklist-type format has been developed to ensure that basic good practice measures are recognized and implemented, while designed to be both user friendly and compatible with the World Bank's safeguards requirements.

The EMP checklist-type format attempts to cover typical key mitigation measures to civil works contracts with small, localized impacts or of a simple, low risk nature. This format provides the key elements of an Environmental Management Plan (EMP) to meet the minimum World Bank Environmental Assessment requirements for Category B projects under OP 4.01. The intention of this checklist is that it offers practical, concrete and implementable guidance to Contractors and supervising Engineers for simple civil works contracts. It should be completed during the final design phase and, either freestanding or in combination with any environmental documentation produced under national law (e.g. EIA reports), constitute an integral part of the bidding documents and eventually the works contracts.

The checklist EMP has the following sections:

Part 1 includes a descriptive part that characterizes the project, specifies institutional and regulatory aspects, describes technical project content, outlines any potential need for capacity building and briefly characterizes the public consultation process. This section should indicatively be up to two pages long. Attachments for additional information may be supplemented as needed.

Part 2 includes a screening checklist of potential environmental and social impacts, where activities and potential environmental issues can be checked in a simple Yes/No format. If any given activity/issue is triggered by checking "yes", a reference to the appropriate section in the table in the subsequent Part C can be followed, which contains clearly formulated environmental and social management and mitigation measures.

Part 3 represents the environmental monitoring plan to follow up proper implementation of the measures triggered under Part B. It has the same format as required for MPs produced under standard safeguards requirements for Category B projects.

Part 4 contains a simple monitoring plan to enable both the Contractor as well as authorities and the World Bank specialists to monitoring due implementation of environmental management and protection measures and detect deviations and shortcomings in a timely manner.

Part 2 and 3 have been structured in a way to provide concrete and enforceable environmental and social measures, which are understandable to non specialists (such as Contractor's site managers) and are easy to check and enforce. The EMP should be included in the BoQ (bill of quantities) and the implementation priced by the bidders. Part 4 has also been designed intentionally simple to enable monitoring of key parameters with simple means and non-specialist staff.

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PART 1: GENERAL PROJECT AND SITE INFORMATION

INSTITUTIONAL & ADMINISTRATIVE				
Country	rmenia			
Project title	Electricity Supply Reliability and Energy Efficiency Project Public Buildings Energy Efficiency Component			
Scope of project and activity	Public buildings energy efficiency measures include: construction of heating system, including boiler house, upgrade of existing heating system, replacement of windows and doors, insulation of walls from outside and inside, insulation of attic, etc.			
Institutional arrangements (Name and contacts)	WB Task Team Leader Ani Balabanyan abalabanyan@worldbank.org	Project Management R2E2 Fund Director Tamara Babayan director@r2e2.am	Local Counterpart and/or Recipient Ministry of Energy and Natural Resources Deputy Minister Areg Galstyan agalstyan@minenergy.am	
Implementation arrangements (Name and contacts)	Safeguard Supervision	Local Counterpart Supervision	Local Inspectorate Supervision	Contactor
SITE DESCRIPTION				
Name of site				
Describe site location	Attachment 1: Site Map [] Y [] N			
Who owns the land?				
Description of geographic, physical, biological, geological, hydrographic and socio-economic context				
Locations and distance for material sourcing, especially aggregates, water, stones?				
LEGISLATION				
Identify national & local legislation & permits that apply to project activity	Here you may want to include a standard text element listing the provisions under which the works are carried out. I assume in most cases this will be a simple construction permit, which may have an environmental section / annex, or refer to environmental regulations (e.g. for waste management, water protection, emission control...). In the latter case these should be listed and briefly explained.			
PUBLIC CONSULTATION				
Identify when / where the public consultation process took place	This will be generic, as one consultation will likely cover all subprojects. Can be taken from ISDS once they have taken place.			
INSTITUTIONAL CAPACITY BUILDING				
Will there be any capacity building?	[] N or [] Y if Yes, Attachment 2 includes the capacity building program			

The ESREE project development objectives are to: (a) enhance the reliability and capacity of the transmission network and (b) reduce energy consumption of social public buildings. The global environmental objective is to reduce greenhouse gas emissions through the removal of barriers to the implementation of energy efficiency investments. Proposed key project monitoring indicators include increased capacity of the targeted section of the transmission line, reduction of outages on target section of the transmission line, total energy savings and associated GHG emission reductions.

Project Description

The project will have two components - transmission line replacement and energy efficiency. The transmission component will focus on replacement of key infrastructure of around 230 kilometer section of the transmission line. The energy efficiency component will focus on creating enabling environment for energy efficiency and on energy efficiency investments in public buildings by, e.g. thermo insulation measures (replacement of windows and doors, retrofitting with insulation panels) or the replacement of older inefficient burners with ones with better efficiency.

Component 1: Electricity transmission: This component will consist of two sub-components: (i) investment in replacement of the transmission line and (ii) technical assistance.

- (i) Investments in replacement of the transmission line. This component will finance replacement of around 230 km section of transmission line from the Hrazdan Thermal Power Plant (in the north-east of Armenia) to Shinuhayr substation (in the south). The replacement of the above section of the transmission line will include erection of new pylons, replacement of existing conductors, insulators and other key pieces of infrastructure. The replacement of the identified section of transmission line will have the largest potential environmental and social impacts and, hence, is seen to determine the safeguards categorization. The new line will be mostly parallel to the existing transmission line, which will be completely dismantled after the new line is completed.**
- (ii) Technical assistance. In order to ensure sustainability of the investments, some TA is proposed to strengthen the technical and management capacity of the transmission company, High Voltage Electric Networks CJSC.**

Component 2: Energy efficiency. This component will consist of two sub-components: (i) technical assistance and (ii) energy efficiency investments in public buildings.

- (i) Technical assistance. The TA will be directed at the removal of existing barriers to realizing the energy efficiency potential and creation of an enabling environment. The following key activities will be supported: (a) public awareness building to address the information and knowledge gaps; (b) removal of legal and regulatory barriers in the public sector and establishment of energy efficiency incentives; (c) removal of institutional barriers and capacity building for public agencies; (d) support for pipeline development, monitoring, and reporting for the investment component.**

(ii) Energy efficiency investments in public facilities. This sub-component will support energy efficiency investments in public social and other public facilities, e.g. schools, kindergartens, hospitals, street lighting, etc. The selection of public facilities to be financed under the project will be based on eligibility criteria, the energy saving potential and financial viability criteria. The Renewable Resources and Energy Efficiency (R2E2) Fund will assess subprojects, finance them and develop suitable repayment mechanisms. For implementation of the subprojects, performance-based procurement options will be explored under which contractors can use innovative solutions and gradually start assuming performance risks. This sub-component of the project will primarily finance the following key energy efficiency measures: (a) attic and basement insulation, (b) repair/replacement of external doors and windows; (c) windows optimization, i.e. partial replacement of existing windows with walls while complying with day-lighting requirements, (d) reflective surfacing of walls behind radiators, (e) improvement/ replacement of boilers and heating systems of social and other public facilities; (f) replacement of mercury vapor lamps (HGL) with high-pressure sodium vapor lamps or light emitting diodes (LEDs) for street lighting and/or traffic signals; (g) replacement of incandescent bulbs with compact fluorescent lamps; and other financially viable energy efficiency measures.

PART 2: SAFEGUARDS SCREENING AND TRIGGERS

ENVIRONMENTAL /SOCIAL SCREENING FOR SAFEGUARDS TRIGGERS			
	Activity/Issue	Status	Triggered Actions
Will the site activity include/involve any of the following??	A. Boiler house construction or building rehabilitation	<input type="checkbox"/> Yes <input type="checkbox"/> No	If “Yes”, see Section A below
	B. New construction of small structures or infrastructure	<input type="checkbox"/> Yes <input type="checkbox"/> No	If “Yes”, see Section A below
	C. Impacts on surface drainage system	<input type="checkbox"/> Yes <input type="checkbox"/> No	If “Yes”, see Section B below
	D. Historic building(s) and districts	<input type="checkbox"/> Yes <input type="checkbox"/> No	If “Yes”, see Section C below
	E. Hazardous or toxic materials ¹	<input type="checkbox"/> Yes <input type="checkbox"/> No	If “Yes”, see Section E below
	F. Impacts on forests and/or protected areas	<input type="checkbox"/> Yes <input type="checkbox"/> No	If “Yes”, see Section F below
	G. Risk of unexploded ordnance (UXO)	<input type="checkbox"/> Yes <input type="checkbox"/> No	If “Yes”, see Section G below
	H. Traffic and Pedestrian Safety	<input type="checkbox"/> Yes <input type="checkbox"/> No	If “Yes”, see Section H below

¹ Toxic / hazardous material includes but is not limited to asbestos, toxic paints, noxious solvents, removal of lead paint, etc.

PART 3: MITIGATION MEASURES

ACTIVITY	PARAMETER	MITIGATION MEASURES CHECKLIST
(a) 0. General Conditions	(b) Notification and Worker Safety	(c) The local construction and environment inspectorates and communities have been notified of upcoming activities (d) The public has been notified of the works through appropriate notification in the media and/or at publicly accessible sites (including the site of the works) (e) All legally required permits have been acquired for construction and/or rehabilitation (f) The Contractor formally agrees that all work will be carried out in a safe and disciplined manner designed to minimize impacts on neighboring residents and environment. (g) Workers' PPE will comply with international good practice (always hardhats, as needed masks and safety glasses, harnesses and safety boots) (h) Appropriate signposting of the sites will inform workers of key rules and regulations to follow.
A. General Rehabilitation and /or Construction Activities	Air Quality	(a) During excavation works dust control measures shall be employed, e.g. by spraying and moistening the ground (b) Demolition debris, excavated soil (if required) shall be kept in controlled area and sprayed with water mist to reduce debris dust (c) During pneumatic drilling or breaking of pavement and foundations dust shall be suppressed by ongoing water spraying and/or installing dust screen enclosures at site (d) The surrounding environment (school yards) shall be kept free of soil and debris to minimize dust (e) There will be no open burning of construction / waste material at the site (f) All machinery will comply with Polish emission regulations, shall well maintained and serviced and there will be no excessive idling of construction vehicles at sites
	Noise	(a) Construction noise will be limited to restricted times agreed to in the permit (b) 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	(a) The site will establish appropriate erosion and full water contamination control
	Waste management	(a) Waste collection and disposal pathways and sites will be identified for all major waste types expected from excavation, demolition and construction activities. (b) 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. (c) Construction waste will be collected and disposed properly by licensed collectors (d) The records of waste disposal will be maintained as proof for proper management as designed. (e) Whenever feasible Contractor will reuse and recycle appropriate and viable materials (except when containing asbestos)
B. Impacts on surface drainage system	Water Quality	(a) There will be no unregulated extraction of groundwater, nor uncontrolled discharge of process waters, cement slurries, or any other contaminated waters into the ground or adjacent streams or rivers; the Contractor will obtain all necessary licenses and permits for water extraction and regulated discharge into the public wastewater system. (b) There will be proper storm water drainage systems installed and care taken not to silt, pollute, block or otherwise negatively impact natural streams, rivers, ponds and lakes by construction activities (c) There will be procedures for prevention of and response to accidental spills of fuels, lubricants and other toxic or noxious substances (d) Construction vehicles and machinery will be washed only in designated areas where runoff will not pollute natural surface water bodies

ACTIVITY	PARAMETER	MITIGATION MEASURES CHECKLIST
C. Historic building(s)	Cultural Heritage	(a) If construction works take place close to a designated historic structure, or are located in a designated historic district, notification shall be made and approvals/permits be obtained from local authorities and all construction activities planned and carried out in line with local and national legislation. (b) It shall be ensured that provisions are put in place so that artifacts or other possible “chance finds” encountered in excavation or construction are noted and registered, responsible officials contacted, and works activities delayed or modified to account for such finds.
D. Toxic materials	Asbestos management	(a) If asbestos is located on the project site, it shall be marked clearly as hazardous material (b) When possible the asbestos will be appropriately contained and sealed to minimize exposure (c) The asbestos prior to removal (if removal is necessary) will be treated with a wetting agent to minimize asbestos dust (d) Asbestos will be handled and disposed by skilled & experienced professionals (e) If asbestos material is to 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. (f) The removed asbestos will not be reused
	Toxic / hazardous waste management	(a) Temporary storage on site of all hazardous or toxic substances will be in safe containers labeled with details of composition, properties and handling information (b) The containers of hazardous substances shall be placed in a leak-proof container to prevent spillage (c) The wastes shall be transported by specially licensed carriers and disposed in a licensed facility. (d) Paints with toxic ingredients or solvents or lead-based paints will not be used
E. Affected forests, wetlands and/or protected areas	Ecosystem protection	(a) 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. (b) 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 (c) Adjacent wetlands and streams shall be protected from construction site run-off with appropriate erosion and sediment control features to include but not limited to hay bales and silt fences (d) There will be no unlicensed borrow pits, quarries or waste dumps in adjacent areas, especially not in protected areas.
F. Risk of unexploded ordinance (UXO)	Hazard to human health and safety	(a) Before start of any excavation works the Contractor will verify that the construction area has been checked and cleared regarding UXO by the appropriate authorities
G. Traffic and pedestrian safety	Direct or indirect hazards to public traffic and pedestrians by construction activities	(b) 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 <ul style="list-style-type: none"> ▪ 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 ▪ If required, active traffic management by trained and visible staff at the site for safe passage for the public ▪ Ensuring safe and continuous access to all adjacent office facilities, shops and residences during construction

PART 4: MONITORING PLAN

Phase	What (Is the parameter to be monitored?)	Where (Is the parameter to be monitored?)	How (Is the parameter to be monitored?)	When (Define the frequency / or continuous?)	Why (Is the parameter being monitored?)	Cost (if not included in project budget)	Who (Is responsible for monitoring?)
During activity preparation	<p>site access traffic management</p> <p>availability of waste disposal facilities</p> <p>hazardous waste inventory (asbestos)</p> <p>construction material quality control (eg. paints / solvents)</p>	<p>at the site</p> <p>at the site</p> <p>in site vicinity on site</p> <p>Contractor's store / building yard</p>	<p>check if design and project planning foresee diligent procedures</p> <p>visual / analytical if in doubt</p> <p>visual / research in toxic materials databases</p>	<p>before launch of construction</p> <p>before start of rehabilitation works</p> <p>before approval to use materials</p>	<p>safety of general public,</p> <p>timely detection of waste disposal bottlenecks</p> <p>public and workplace health and safety</p>	<p>marginal, within budget</p> <p>marginal, within budget; (prepare special account for analyses at PMU?)</p>	Contractor, Engineer
During activity supervision	<p>dust generation</p> <p>noise emissions</p> <p>waste and wastewater types, quality and volumes</p> <p>surface drainage soundness</p>	<p>on site and in immediate neighborhood, close to potential impacted residents</p> <p>at discharge points or in storage facilities</p>	<p>visual consultation of locals</p> <p>visual, analytical if suspicious</p> <p>count of waste transports off site, check flow rates and runoff routes for wastewater</p>	<p>daily</p> <p>daily</p> <p>daily / continuous</p> <p>daily / continuous</p>	<p>avoidance of public nuisance</p> <p>avoidance of negative impacts on ground/ surface waters ensuring proper waste management and disposal</p>	<p>marginal, within budget</p>	Contractor, Engineer

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