EBRD COVID-19 Resilience Framework - Environmental Social Assessment Training Programme

Video 3 – Water supply

June 2020

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Introduction

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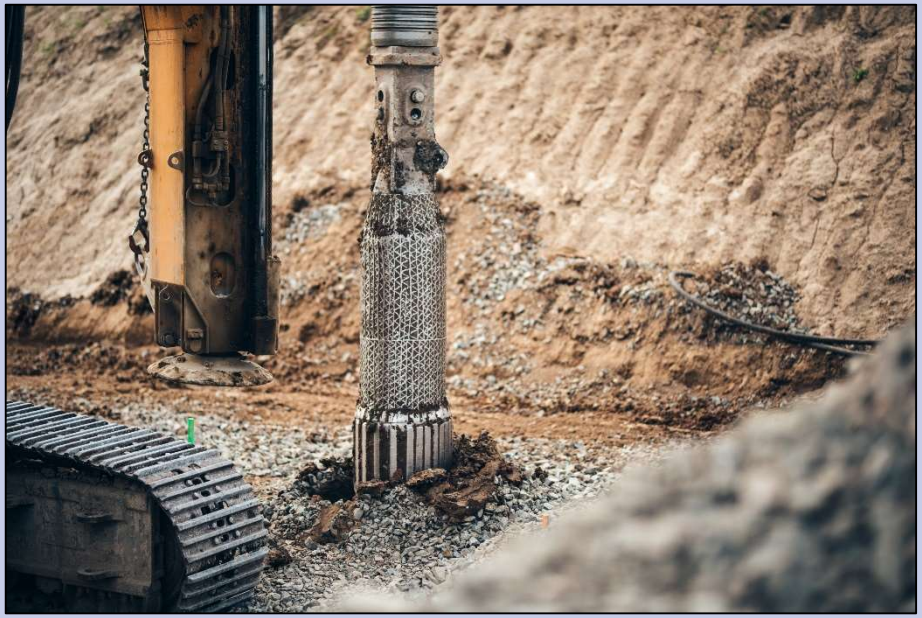
The purpose of this training video is to illustrate how EBRD's Environmental and Social Policy (2019) and the accompanying Performance Requirements can be applied during an environmental and social assessment of a Project within the water supply sector.

The example used is the rehabilitation and expansion of municipal water supply and treatment infrastructure.

Introduction to the Project

Key facts:

- Construction of new water treatment and distribution infrastructure
- Provision of reliable and safe drinking water to an expanded customer base
- Improving operational procedures
- Reducing health and safety risks to the workforce



Application of the PRs

EBRD Performance Requirement		Applicability and justification
1	Assessment and Management of Environmental and Social Risks and Impacts	Yes – category B Project. The Project is expected to generate significant environmental, social and health benefits. The construction works will generate environmental and social risks and impacts.
2	Labour and Working Conditions	Yes – the Project involves the use of a workforce and multiple primary suppliers to provide goods and services. Contractor management is required.
3	Resource Efficiency and Pollution Prevention and Control	Yes – the Project involves the abstraction of groundwater and use of fuel for pumping and water treatment infrastructure.
4	Health, Safety and Security	Yes – from road vehicles, and from workforce exposure to hazards associated with construction works (particularly excavations and confined space entry) and chlorination/disinfectant systems.
5	Land Acquisition, Restrictions on Land Use and Involuntary Resettlement	Yes – additional land is required for the expansion of existing infrastructure which involves temporary restrictions in access to land users.
6	Biodiversity Conservation and Sustainable Management of Living Natural Resources	Yes – due to the clearance of vegetated land.
7	Indigenous Peoples	No – there are no people in the project area that meet the PR7 applicability criteria.
8	Cultural Heritage	Yes – significant excavations and earth movements.
10	Information Disclosure and Stakeholder Engagement	Yes – a comprehensive public disclosure and consultation process was required and undertaken. There was significant stakeholder interest in the Project as the current water supply infrastructure is inadequate.

Introduction to the Project

Using the Project we will explore the application of:

- PR3: Resource Efficiency and Pollution Prevention and Control
- PR4: Health, Safety and Security

Existing water supply and treatment infrastructure is unsafe and requires rehabilitation.

50% of the local population has access to safe and reliable water supply.

High risk of microbial contamination of water due to the low reliability of disinfection systems.

Sedimentation tanks

Bioponds

Task 1 – Review of existing documentation

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Task 1 – Review of existing documentation

The following was requested from the Client:

PR3: Resource Efficiency and Pollution Prevention and Control

- Annual resource use (water, fuels, chemicals), permits and authorisations for water abstraction and discharge
- Borehole distribution map and design details (pump depth, abstraction duration)
- Design of treatment infrastructure
- Waste inventory
- Ongoing monitoring activities (abstraction volumes, treatment volumes, water quality records, groundwater elevation records, pump maintenance records)

PR4: Health, Safety and Security

- Health, safety and security policies and procedures
- Incident and occupational diseases statistics, and incident investigation reports
- Health and safety audit log
- Induction training pack provided to workers
- Permit to work system
- Procedures for: confined spaces entry and rescue; excavation; lone or remote working
- Emergency preparedness and response plan

Task 2 - Site visit and discussions

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Findings of the site visit

Environmental management

- Incomplete environmental and social management system
- Client does not have a dedicated environmental and social department
- Client does not have a permits and consents database
- Some permits and consents required under national legislation have expired or are invalid

Resource sustainability

- The Project will increase groundwater abstraction to 20,000 m^3/d and avoid abstraction from rivers (triggers PR3 due to high water demand)
- Existing water supply network has leaks and few shut-off valves that can be used for repairs
- Groundwater elevation monitoring in boreholes is inadequate
- Abstraction volumes are not being accurately recorded
- Inadequate assessment of sustainability of additional groundwater abstraction and impacts on other users (hydrogeologic model)

Findings of the site visit

Pollution risks

- Springs and other water supplies are not regularly monitored for flows and quality
- Parameters tested do not cover the full range of WHO drinking water quality guidelines
- Limited confidence on the quality of the drinking water
- The chlorination system is unreliable and needs to be updated; hazardous chemicals are not stored with proper pollution prevention controls
- Laboratories are poorly equipped and operators need additional training
- Waste management storage arrangements are inadequate

NOTE: Some pollution risks are from leaks within the wastewater and sewage system operated by the same Client. The root causes of poor environmental and social performance are similar across both the water supply and wastewater treatment operations.

Safety Culture and OHS Management

High-risk activities and Permit to Work

Trenching and excavations

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Lifting operations and equipment

Task 3 – Analysis and reporting using the EBRD format

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Task 3 – Analysis and reporting using the EBRD format

The following gaps were identified that needed to be addressed in the ESAP:

1. Update management system procedures to include additional monitoring of abstraction, treatment and supply activities
2. Develop a contractor management plan
3. Develop a permits and consents register
4. Apply/renew expired or invalid consents
5. Implement a pipe repair programme
6. Prepare a laboratory management plan to include personnel roles and responsibilities, training, and regular calibration of equipment
7. Assess sustainability of proposed water abstraction:
    a. Analysis of hydrogeological parameters
    b. Pumping and monitoring observations
    c. Use hydrogeological modelling to assess impacts

Task 3 – Analysis and reporting using the EBRD format

The following gaps were identified that needed to be addressed in the ESAP:

1. Develop an OHS Management System (safety culture, risk control) to include:
    - Roles and responsibilities
    - Risk assessment process, risk register and controls based on hierarchy of hazard control and mitigations incorporated into working procedures
    - Define training and competency requirements (requirements for authorised and competent persons
    - Emergency preparedness and response plan
    - Monitoring processes (audit and inspection)
    - Reporting protocols
    - Management of change procedure
    - Formal review and update procedure
2. Identify high risk activities and associated risk control procedures (Permit to Work) for handling of liquid chlorine and work in confined spaces (refer to recent EBRD guidance document issued in 2020)

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3. Lifting procedure to include:

- Supervision by a qualified banksman or signaller
- Avoid lifting suspended loads over workers or if unavoidable, add additional safety controls based on the hierarchy of hazard control
- Controls required for different sized loads (maximum allowable wind speed)
- Inspection and certification requirements
- Use of qualified, competent riggers to sling (connect) loads
- Additional controls for lifting operations taking place in public areas
- Adoption of a colour codes system to allow workers to identify which lifting equipment has valid test certificate and is certified for use

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4. Trenching and excavation procedure to include:
    a. Minimum depth requiring trench shoring or benching
    b. Prohibiting workers to enter trenches or if unavoidable, add additional safety controls based upon the hierarchy of hazard control
    c. Requirements for edge protection (signs, barriers, rescue buoys for water-filled excavations)
    d. Access requirements including two paths of access and escape
    e. Inspections before the start of each shift and after any changes (heavy rain)
    f. Additional controls for excavation operations taking place in public areas to reduce risks to community safety (signs, barriers, community safety awareness raising leaflets or meetings, etc.)

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Prepared by Environmental and Social Advisory Services Limited (ESAS)
for the European Bank for Reconstruction and Development

www.esaservices.co.uk

ESAS is registered in England at 35 Waldegrave Gardens, Twickenham. London. TW1 4PH. UK
Company No: 7581160. Contact: stuart.hume@esaservices.co.uk

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