

Environmental and Social Data Sheet

Overview

Project Name:	VARDNILI 2 3 4 HPP REHABILITATION
Project Number:	2019-0266
Country:	GEORGIA
Project Description:	Reconstruction of Vardnili 2, 3 & 4 hydro power plants adding up to 123MW to the Enguri-Vardnili Hydro Cascade.
EIA required:	no
Project included in Carbon Footprint Exercise ¹ :	yes

Environmental and Social Assessment

The project is the reconstruction of three-41MW power plants and associated large diversion dams Vardnili HPPs 2, 3 & 4 located on a 25km artificial channel connecting the Enguri and Gali reservoirs to the Black Sea. The water channel forms the administrative boundary line (ABL) between the separatist region of Abkhazia and Georgia. The power plants are currently abandoned and not in operation. The three sites have no reservoir and will be operated as run-of-river. They are located 5, 10 and 15km downstream from Vardnili HPP 1. The most downstream plant (Vardnili HPP 4) is 10km far from the Black Sea. The channel will be partially rehabilitated to ensure the good operation of the cascade. A 15km 110kV transmission line will be reconstructed as part of the project and connect the three plants to Vardnili 1 substation, an important node of the Georgian and Abkhazian electricity networks.

Based on the feasibility study prepared by the promoter, the existing infrastructure will be restored similar to the original layout and parameters. Construction works are expected to take place in 2022-2026.

By prompting electricity generation from existing hydro resources, the project will contribute to a sustainable and secure supply of energy and therefore to the long-term economic growth and development in the country. The project will contribute to meet the increasing electricity demand and to mitigate the risk of electricity shortage during winter period. It will provide up to 123MW additional capacity for the same annual volume of water stored in the existing Enguri reservoir.

¹ Only projects that meet the scope of the Carbon Footprint Exercise, as defined in the EIB Carbon Footprint Methodologies, are included, provided estimated emissions exceed the methodology thresholds: 20,000 tonnes CO₂e/year absolute (gross) or 20,000 tonnes CO₂e/year relative (net) – both increases and savings.

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The project will be co-financed by the European Investment Bank (EIB) and the European Bank of Reconstruction and Development (EBRD) (together “the Lenders”).

Environmental Assessment

Under the EU-Georgia Association Agreement, Directive 2014/52/EU, amending the EIA Directive 2011/92/EU, has been approximated into the Georgian *Environmental Assessment Code*.

The Promoter issued an Environmental and Social screening report for the purpose of the national approval process. Based on the latter the Competent Authority (Ministry of Environmental Protection and Agriculture of Georgia) has decided that the rehabilitation works of the existing hydropower plants and the electrical transmission lines are not considered in the “Environmental Assessment Code” and its annexes and therefore are not subject to screening process under the same code. As a result the Project is not subject to an Environmental Impact Assessment (EIA) under the national legislation.

The project will be co-financed by the European Investment Bank (EIB) and the European Bank of Reconstruction and Development (EBRD) (together “the Lenders”). The Lenders have hired an environmental and social consultant who carried out an environmental and social due diligence and prepared an Environmental and Social Action Plan (ESAP) for the Project. The main findings and recommendations of the Lenders’ due diligence have been discussed with the Promoter, who is committed to implement them. In addition, the Bank has independently screened the project and concluded that the Project does not require an Environmental Impact Assessment. Based on the due diligence and site visit, EIB is of the view that the project is unlikely to have significant adverse effects on the environment due to following reasons, as detailed hereafter in the present document:

- The three hydropower plants, dams and related facilities are rehabilitations of existing infrastructure, not greenfield development, and not a major extension or transformation-conversion.
- The transmission line is expected to run along the existing access road and the channel.
- The Project's environmental and social impacts are limited and can be readily identified and mitigation and/or remedial measures can be put in place.

Environmental, Social, Health and Safety Management System: The principal requirement for the EIB is the establishment of an Environmental, Social, Health and Safety (ESHS) Management System to be followed by the Project at all times including by the contractors and subcontractors during the construction and operation phases. The Promoter's ESHS Management System established during the previous rehabilitation phases, partly financed by the Bank, will be updated so that it covers the rehabilitation and operation of Vardnili 2, 3 & 4. The Management System includes a number of plans developed to address any outstanding residual risk and ensure compliance with the EIB standards and commitments for the Project (captured in the Environmental and Social Management Plan (ESMP) and the Environmental and Social Action Plan (ESAP)).

The project is part of the Enguri and Vardnili cascade rehabilitation program that was started after the civil war in 1990's. Enguri and Vardnili 1 HPPs were rehabilitated in precedent phases of the program, one with the Bank's financial support. The project benefits from several studies carried out in 2007-2011 encompassing dam safety, works methodology and risks assessment, as well as from the corporate Environmental Social Management Plan in

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place. An international consultancy firm will update the existing plans as also required in the Environmental Social Action Plan (ESAP) for the project. The consultant will complement them with new plans (waste, safety, flood inter alia) to address the points highlighted in the following paragraphs.

The Contractor will prepare and submit to the Promoter for approval a detailed Health & Safety and Environmental Social Management Plan. The Promoter will report on the ESAP implementation and the environmental, social, health and safety performance of the company, including natural hazard and floods monitoring/occurrence.

Dam safety and flood: Dams' break has not been studied in Enguri-Vardnili cascade as per ICOLD standards. The dams at Vardnili HPP 2, 3 and 4 are existing and in operation following the Georgian standards. They are used to divert water into the units and do not retain water. Nevertheless, the Promoter is required to undertake a dam break and flood mapping study for Enguri and Vardnili 1 large reservoirs, aligned on ICOLD recommendations and taking into account the climate resilience assessment outcomes. An independent Panel of Experts will be appointed to the dam safety related aspect of the detailed design and to advise the promoter on critical aspects of the power scheme during the life of the loan.

Biodiversity and ecosystems

Aquatic habitats: The artificial channel between Vardnili 1 and Vardnili 4 forms a rather poor aquatic habitat. The absence of aquatic flora and the uniform riverbed cover (pebbles) do not provide good access to food or spawning/growing sites. This section of the channel also has a frequently fluctuating level, which limits riparian habitats to species that tolerate intermittent flooding. In the section of the channel from Vardnili HPP 4 to the Black Sea, the fauna is more present as the connection forms a nice natural habitat that will be preserved. In this section, the water level is fixed by the Black Sea and will not change due to the project. Several birds that feed on aquatic species (grey herons, *Ardea cinerea*, IUCN LC) were observed. Due to the presence of fish and the rather good quality of riparian habitats, water birds are likely to use the channel lower reach. Coypu (*Myocastor Coypus*, IUCN LC) footprints were observed, but no otter footprint. The project is expected to have marginal impacts on the aquatic habitats provided that the channel is kept operating (not empty) during construction.

Terrestrial habitats: The restoration of the powerhouses will not impact significantly natural terrestrial habitats. There is still agricultural activity in the project area, but the population is very sparse and cultivated surfaces are decreasing. The new 110kV transmission line is expected to run along the existing access road and the channel, to avoid ponds and small wetlands and limiting impact on water related species of conservation (water plants, reptile and dragonfly). The three powerhouses have been left abandoned for several years. They are used by bats for hibernation or during the active seasons. 27 bats species are potentially present in the Project area according to the IUCN. All the bats are protected through the Eurobats convention, and are listed in Annex IV of the Habitats Directive: the rehabilitation project will need to achieve no net loss of specimens and of habitat, which can be achieved through two actions, under the control of an experienced bats specialist:

- Avoidance of works / activities during the hibernation period
- Creation of an artificial roosting/hibernation site for bats

Upon construction of the bats' shelter, bats specialists shall be hired to monitor the implementation of the measures. The construction of the transmission line is likely to require tree cutting, but there are no sensitive tree species in the Project area. Tree cutting will be

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done during August-October to avoid impact on bird/bat nesting, unless otherwise advised by relevant bird/bat specialist.

The rehabilitation of the three powerhouses will generate important quantities of wastes. A specific waste management plan will be prepared.

The seacoast experiences a severe deficit in sediments after the completion of the Enguri dam in 1970s. On the contrary, the Black Sea current has significantly modified the connection of the artificial channel to the sea that will not be restored by the project as it is technically functional. Nevertheless, short and long term sediment management strategies will be required for the Enguri reservoir.

Cumulative Impact Assessment and Climate Risk Assessment. Despite the fact that the project features low ecological interest and risks, the Bank's E&S consultant has identified several studies that must result into improving the environmental and safety status of the whole Enguri-Vardnili cascade. The Promoter shall thus conduct an Enguri basin level cumulative impact assessment, combined with a climate resilience assessment. Although the project is not directly exposed to climate change risk due to the nature of its run-of-river operation, Enguri hydro scheme has recently experienced unusually dry year operation that requires the implementation of a Climate Change Risk Assessment, as part of the project risk assessment.

The assessment of Enguri-Vardnili hydropower scheme operation will also encompass the need for Enguri ecological flow regime and fish passage, aiming at ensuring biodiversity, livelihoods and socio-economic gains. This will be supported by (i) a technical assessment of the possibility to turbine the released flow before it is discharged in Enguri River, (ii) a review of the ecosystem services that would be supported by such ecological flow, and (iii) an economic assessment of the costs and benefits of such ecological flow regime, taking into account all relevant externalities.

Finally, under Georgia's association agreement with the EU, Georgia has committed to implement the EU 2000/60 Water Framework Directive by 2026. This includes the creation of river basin agencies and water management plans. A technical assistance financed by the project will support the latter for Enguri basin, one of the most important in Georgia.

Cultural heritage: The Promoter has a chance find procedure in place. The likelihood for chance finds is only for the transmission line construction. In the unlikely event that earthworks uncover archaeological artefacts, the chance find procedure will be implemented, as required in the ESAP, such that constructive activities are temporarily halted whilst a qualified archaeologist is consulted.

EIB Carbon Footprint Exercise

The hydropower scheme consists of Vardnili 2, 3 & 4 plants and associated facilities. Based on the hydropower scheme's average generation figure of 333 GWh per annum corresponding to a total installed capacity of 123MW, the emissions savings are estimated at 114,000 tonnes of CO2 equivalent per year.

For the annual accounting purposes of the EIB Carbon Footprint, the project emissions will be prorated according to the EIB lending amount signed in that year, as a proportion of project cost'.

Social Assessment

Involuntary Resettlement and Livelihood Restoration: The project area is not densely populated. There is no population leaving in the immediate vicinity of the powerhouse. No resettlement has been identified in the feasibility study. The land for the restoration of the plants is fully secured. The routing of the new 110 kV line is not defined yet. Its construction is likely to require land acquisition and tree cutting. Given the low density of human activities in the area and the rather compact nature of 110 kV lines (compared to larger 220 or 400 kV lines), involuntary economic or physical resettlement should be avoided. The new line may be built along the canal road. The vicinity of the canal is not cultivated, and an access road is already existing.

Labour and Working Conditions: Based on comparable projects in the region, the project will require a peak workforce of about 300 workers depending on the implementation timeline. To ensure maximum local benefits are achieved through the construction phase, and to minimise the influx of workers from outside the region, the Project will aim to recruit 100% of the unskilled workers from the region. The power plants' buildings are in their present condition dangerous, with a lot of holes and trip hazards. Channel sedimentation due to banks' instability and presence of landmines are issues known from previous rehabilitation phases. The above risks are addressed in the Environmental and Social Action Plan.

Grievance Redress Mechanism: the project will benefit from the mechanism already in place for the previous phases of Enguri-Vardnili cascade rehabilitation and that have been deemed acceptable.

Public Consultation and Stakeholder Engagement

As the project's environmental and social impacts are expected to be marginal, site-specific, and readily identified, they can be addressed through effective mitigation measures. An authority led public consultation is not expected to be required, if the screening decision determines no EIA is required by the Competent Authority. Nevertheless, a stakeholder engagement plan and a community development plan will be prepared and a conflict sensitivity assessment will be carried out as part of the environmental and social action plan with the objective of achieving appropriate stakeholder engagement and a fair benefit sharing with the local community.

Other Environmental and Social Aspects

Promoter capacity: The project is being implemented by the Georgian state utility, Enghuresi Ltd. Enghuresi has operated the Enguri and Vardnili hydro scheme since 1970's and has already implemented 4 major rehabilitation phases of the Enguri-Vardnili cascade following international standards. The promoter is experienced with Bank's requirements. Nevertheless, as a lesson learned from the previous phase of the Enguri-Vardnili cascade rehabilitation undertaken by the Promoter, the Bank will finance third party assistance for monitoring the implementation of the ESAP commitments and strengthening promoter's management capability.

Gender Inclusion: No detailed gender assessment of the Promoter and its activities is available. Given that hydropower schemes offer little employment opportunities (they use little temporary workforce and do not have a significant staff turnover), the human resource aspect of a gender assessment is not deemed relevant. However, the Enguri basin wide assessment required by the Bank will benefit from the integration of a gender component, in order to assess gender related risks and issues in the present and future management of the

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hydropower cascade, in line with the EIB Group Strategy on Gender Equality and Women's Economic Empowerment.

Conclusions and Recommendations

With the below conditions and the implementation of the Environmental & Social Action Plan, the Project is considered acceptable for EIB financing in Environmental & Social terms.

A comprehensive monitoring programme, will be put in place to ensure that the studies and assessments as well as the implementation of the Environmental & Social Action Plan and agreed to by the Promoter are in line with the Bank's Environmental & Social Standards and requirements.

Undertakings:

1. The Promoter shall obtain and maintain all necessary environmental, social and health & safety permits and authorizations required for the Project construction and operation in line with the national legislation and in alignment to relevant EU Directives.
2. The Promoter shall implement an Environmental and Social Action Plan (ESAP) agreeable to the Lenders and including inter alia, but not limited to the following actions: i) channel operating (not empty) during construction, ii) tree cutting period avoid impact on bird/bat nesting, iii) tree replanting, iv) bats' habitat mitigation measures.
3. The Promoter shall ensure that the Environmental, Social, Health and Safety management team is adequately staffed with appropriately qualified and experienced staff to meet the Environmental & Social requirements of the project.
4. The Promoter shall ensure that the construction contractors have the resources and staff in place in a timely manner so as to be able to implement its obligations under the Environmental & Social Action Plan.
5. The Promoter shall implement the findings from the Conflict Sensitivity assessment completed within 1 year from loan signing.
6. The Promoter shall prepare a Community Development Plan within 3 years from loan signing, keep it up to date and implement it during the loan life.
7. The Promoter shall prepare an Enguri-Vardnili operation modernisation study as defined in the Environmental and Social Action Plan including, but not limited to:
 - a. within 2 years from loan signing date
 - i. Climate change risk assessment of Enguri-Vardnili hydropower scheme as per International Hydropower Association (IHA) guidance
 - ii. Short and long term sediment management strategies for Enguri reservoir.
 - iii. Cumulative physical impacts of Enguri-Vardnili hydropower scheme and other hydropower developments in Enguri basin .
 - b. within 2 years from loan signing date: assessment of Enguri-Vardnili hydropower scheme operation on environmental and social receptors, based on the assessment of physical impacts as defined in the Environmental & Social Action Plan.

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- c. within 4 years from loan signing date: audit of Enguri-Vardnili hydropower scheme against ICOLD recommendations. Dam break and flood mapping study for Enguri and Vardnili 1-4, aligned on ICOLD recommendations and taking into account the climate resilience assessment outcomes.
 - d. by 2026: compliance with EU 2000/60 Water Framework Directive for Enguri basin. River Basin Management Plan for Enguri basin.
8. The Promoter shall maintain and update regularly, at least once every 10 years, a climate change risk report and a dam safety report in line with international best practice (ICOLD, IHA) and national legislation, with a view to mitigate the risks related to Engurhesi assets' operations.