Pre-Approval Field Review Report

Nenskra Hydropower Project

European Bank for Reconstruction and Development and Asian Development Bank

Country: Georgia
Risk category: A
Total project cost: US $1.1 billion
Proposed EBRD investments: $214 million loan and $15 million equity investment
Proposed ADB investments: To be determined
EBRD board date: December 13, 2017
ADB board date: To be determined
Site visit: August 14-31, 2017
Report prepared by: Chad Dear

Table of Contents

List of Acronyms

ADB	Asian Development Bank
CBA	Cost-Benefit Analysis
CIA	Cumulative Impact Analysis
EBRD	European Bank for Reconstruction and Development
EIA	Environmental Impact Assessment
ESCO	Electricity System Commercial Operator
ESIA	Environmental and Social Impact Assessment
GoG	Government of Georgia
GSE	Georgian State Electrosystem
GW	Gigawatt
GWh	Gigawatt hours
HPP	Hydropower project
IFC	International Finance Corporation
IPOE	Independent Panel of Experts
JSC	Joint Stock Company
JSCNH	Joint Stock Company Nenskra Hydro
K-water	Korea Water Resources Corporation
MDB	Multilateral Development Bank
MW	Megawatt
NGO	Non-Governmental Organization
PPA	Power Purchase Agreement
USAID	United States Agency for International Development
USG	U.S. Government

Executive Summary

Consistent with Title XIII of the International Financial Institutions Act, the purpose of this review is to provide recommendations to strengthen the environmental and social performance of the proposed Nenskra Hydropower Project (HPP), a 280-megawatt HPP in northwestern Georgia. Prospective lenders include the European Bank for Reconstruction and Development (EBRD) and the Asian Development Bank (ADB), among others.

The review was informed by desk and field research including a literature review, more than 45 interviews with project stakeholders and experts, observations within the project zone of influence, and continuous engagement with EBRD, ADB, and project staff. This review concluded on November 22, 2017, and this report was publicly disclosed soon after to inform U.S. government and public discussion prior to the planned December 13, 2017 EBRD board vote. As of early-December, the project is still undergoing various modifications, so USAID anticipates that information and perhaps findings and recommendations of this report will be overtaken by events after it is publicly disclosed.

The Government of Georgia (GoG) identified the Nenskra HPP as key to furthering their strategic objectives to meet growing domestic energy needs and reduce dependency on imported power and thermal power during the winter. Specific objectives are to produce an annual minimum of 1,196 GWh, including 2.9 GWh per day in the winter months.

Main project components include a 125-meter high, 870-meter long asphalt-face rock-fill dam on the Nenskra River (the tallest of this type of dam in the world) creating a live storage reservoir. Most of the Nakra River will be diverted into the Nenskra reservoir through a 12-kilometer long transfer tunnel. The above-ground powerhouse will be located 15 kilometers downstream from the dam, and water from the reservoir will be conveyed to the powerhouse through a headrace tunnel and penstock.

The project is being developed as a build-operate-transfer scheme by Joint Stock Company (JSC) Nenskra Hydro, whose main shareholders are the state-owned Korea Water Resources Corporation and the GoG-owned investment fund, JSC Partnership Fund. EBRD and ADB assigned the project an "A" (high) risk category. The Environmental and Social Impact Assessment (ESIA) was disclosed in March 2017. The ESIA was revised and disclosed on the EBRD and project websites in late November 2017. The EBRD board vote is planned for December 13, 2017. The timing of the ADB board vote is to be determined.

Findings and Recommendations

Finding 1: In November 2017, the GoG publicly disclosed a significant portion of the project Implementation Agreement and a summary of a cost-benefit analysis concluding that the project is "cost-benefit justified." These disclosures demonstrate progress toward transparency regarding economic feasibility.

Recommendation:

a. EBRD and ADB are encouraged to continue to promote transparency regarding project economic feasibility.

Finding 2: The project analysis of alternatives was constrained by numerous fixed project elements and was not informed by river basin-wide or nationwide strategic environmental and social assessments or least-cost planning analyses.

Recommendation:

a. EBRD and ADB should consider encouraging and/or supporting partner governments to complete and disclose basin-wide and nationwide strategic environmental and social assessments and least-cost planning analyses prior to analyzing alternatives for, selecting, and designing large dam projects.

Finding 3: The specific path of the 220-kV evacuation transmission line, an associated facility of the Nenskra HPP, has not yet been determined and/or publicly disclosed. An ESIA including the Nenskra HPP associated facility transmission line will be completed as part of a separate EBRD project. Disclosure of the ESIA is expected in late 2018, after the planned start of construction of the Nenskra HPP. The project is actively managing what has historically been a strained relationship with a community that may be affected by the transmission line.

Recommendations:

a. EBRD is encouraged to work with the Georgian State Electrosystem to complete the ESIA and environmental and social action plan for the Nenskra HPP associated facility transmission line, including a robust analysis of alternatives and meaningful consultation with all stakeholders, especially potentially project-affected communities.

b. EBRD and ADB should consider encouraging borrowers to assess the environmental and social risks of associated facilities—including assessment of alternatives, cumulative impacts, and avoidance or mitigation measures—together with those of other major project components prior to board vote.

Finding 4: The assessment of operational flows necessary to maintain ecosystem services (i.e., the environmental flow) appears appropriate for this stage of project development.

Recommendation:

a. As committed to in the ESIA, the project should follow through with the planned biological and sediment transport studies and monitoring to refine and enable the adaptive management of environmental flow.

Finding 5: There is a pending complaint submitted by a Georgian civil society organization to the Bern Convention on the Conservation of European Wildlife and Natural Habitats. A key decision regarding the complaint is scheduled to occur in March 2018.

Recommendation:

a. The GoG, lenders, and the project should work in good faith with the Bern Convention institutions, to an extent appropriate to their respective institutional roles and responsibilities, to identify means for the Nenskra HPP and a "sufficient" Georgian Emerald Site network to co-exist and to enable implementation of GoG's international obligations.

Finding 6: This review concurs with the conclusion in the social impact assessment that the lenders' indigenous peoples policies should not be triggered.

Purpose and Scope of Pre-Approval Review

Title XIII of the International Financial Institutions (IFI) Act directs the U.S. Government (USG) to strengthen the environmental and social performance of each multilateral development bank (MDB) in which the USG is a shareholder: World Bank Group, African Development Bank, Asian Development Bank, European Bank for Reconstruction and Development, and Inter-American Development Bank.

Toward this end, Section 1303(a)(1) and (3) directs the U.S. Agency for International Development (USAID) – in consultation with the U.S. Departments of the Treasury and State and other U.S. federal agencies – to lead reviews of selected MDB projects. USAID selects projects for review based on their potential to have adverse impacts on the environment, natural resources, public health, and indigenous peoples. The purpose of these reviews is to provide recommendations to strengthen the environmental and social performance of projects, including mitigation measures and project alternatives. USAID discusses its findings and recommendations with other U.S. federal agencies and the MDB(s) supporting the project. If not classified, the information collected during the review is made available to the public.

This pre-approval field review focused on the proposed Nenskra Hydropower Project (HPP), a 280-megawatt (MW) HPP located in the Nenskra and Nakra Valleys in the Enguri River basin in the Samegrelo-Zemo Svaneti Region of northwestern Georgia. In consultation with U.S. federal agencies, the USAID MDB Team selected the Nenskra HPP to review based on the possible adverse environmental and social impacts and because the approach to environmental and social management in this project may influence approaches to subsequent HPPs in Georgia. Prospective lenders include the European Bank for Reconstruction and Development (EBRD) and the Asian Development Bank (ADB), among others.

Methods

The review involved a variety of data and information gathering techniques including: 1) identification and review of project documents, MDB policies, civil society organization reports, documents from related MDB and bilateral development projects, technical literature, and academic literature; 2) interviews with selected experts; 3) semi-structured and open-ended interviews with stakeholders (see below); 4) observation of formal public consultations; 5) biophysical and social observations in the project zone of influence; and 6) continuous engagement with EBRD, ADB, and project staff. Reviewers verified information through multiple sources whenever possible.

During the August 2017 field visit, reviewers conducted more than 45 individual interviews. Interviewees included: 1) prospective lenders and project proponents, such as staff from the EBRD, ADB, and Joint Stock Company Nenskra Hydro (JSCNH) and their contractors; 2) various representatives from the Government of Georgia (GoG) at national, municipal and local levels; 3) interested or affected organizations, such as civil society organizations and private businesses; and 4) potentially project-affected people, such as individuals, households and leadership from communities in the Nenskra and Nakra Valleys. Reviewers used well-established non-probability sampling techniques including purposeful, snowball, deviant case, and convenience sampling.[1] Sampling aimed at understanding a diversity of stakeholder perspectives and to identify themes among these perspectives.

The August 2017 field review included visits to: 1) the municipal capital of Mestia; 2) the project site (including locations of the proposed Nenskra dam, headrace tunnel, Nakra intake,[2] power facility, associated roads, and possible locations for the evacuation transmission line); 3) forests and pastures in the project zone; 4) communities of potentially project-affected people downstream of the proposed dam and intake sites; and 5) the project information centers in the Nenskra and Nakra Valleys. Reviewers also observed a three-day (August 22-24, 2017) public consultation and open house event hosted by JSCNH and including potential lenders and a variety of project stakeholders.

Public consultation in Nenskra Valley, August 22, 2017.

This review concluded on November 22, 2017, and this report was publicly disclosed soon after to inform U.S. government and public discussion prior to the planned December 13, 2017 EBRD board vote. As of early-December, the project is still undergoing various modifications, so USAID anticipates that information and perhaps findings and recommendations of this report will be overtaken by events after it is publicly disclosed.

[1] Purposeful sampling explores cases that fit particular criteria, using various methods. Snowball sampling explores cases using referrals from one or a few cases, then referrals from those cases, and so forth. Deviant case sampling explores cases that substantially differ from the dominant pattern. Convenience sampling explores any case in any manner that is convenient. Neuman, L.W. (2016) *Social Science Research Methods: Qualitative and Quantitative Approaches*. Seventh Edition. Pearson. Essex, England.

[2] The field review team explored the Nakra Valley just downstream of the proposed location of the Nakra intake; however, a large boulder field and limited time prevented the team from going to the actual Nakra intake site.

Technical specialists from the U.S. Departments of the Treasury and State provided analytical support to the USAID field review.

Background

The Nenskra Hydropower Project

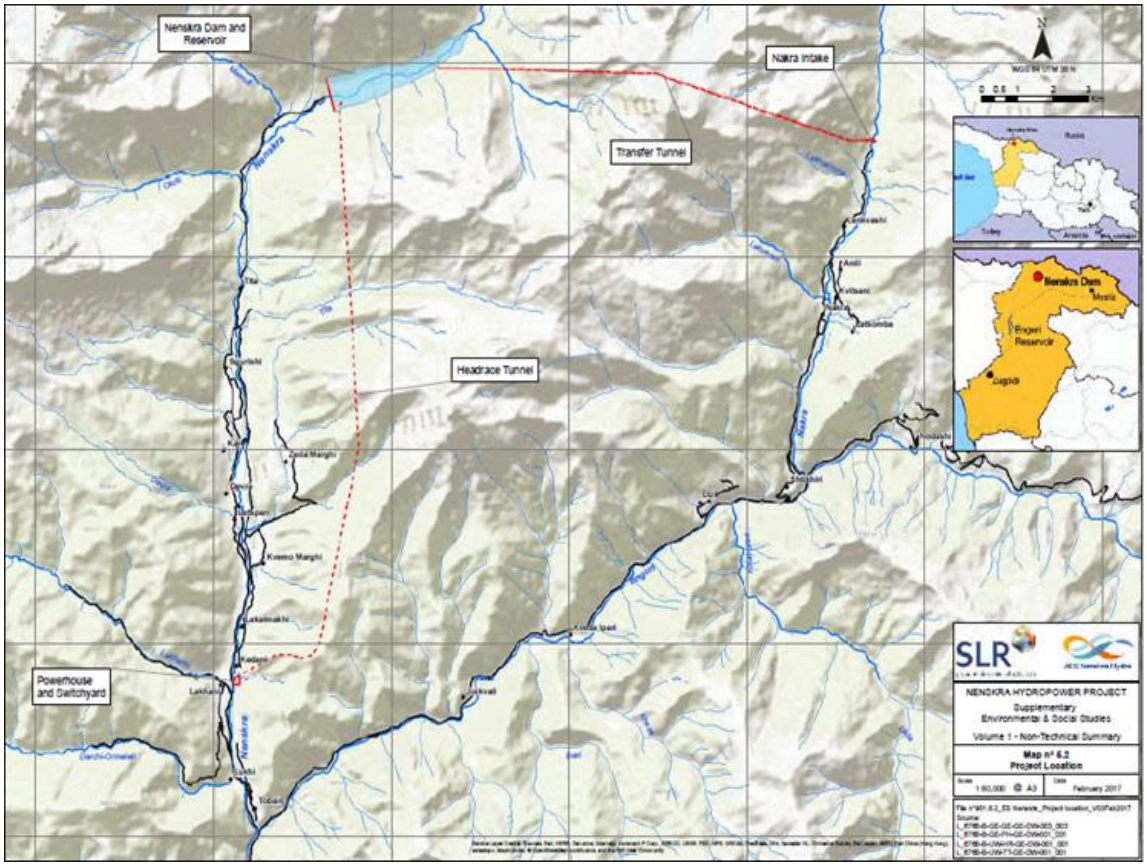
The proposed 280-MW Nenskra HPP is located in the Nenskra and Nakra valleys in the northwestern part of Georgia in the Samegrelo-Zemo Svaneti Region. The Nenskra and Nakra Rivers emerge from the Caucuses south of Russia and east of the Administrative Boundary Line with Abkhazia. The rivers are tributaries of the Enguri River, a 132-mile-long river emptying into the Black Sea and the location of Enguri dam (completed in 1987).

The Nenskra HPP is one of four proposed HPPs identified by the Georgian Ministry of Energy[3] as having the storage capacity to help regulate power generation to meet growing domestic energy needs and reduce dependency on imported power and thermal power during the winter, a strategic objective of the GoG. The specific objectives of the Nenskra HPP, as quoted directly from project documents,[4] are:

- The generation of a mandatory supply in the winter months (December, January and February) of 2.9 GWh per day, equivalent to a capacity of 120 MW during these three months; and
- The production of a total amount of energy over the year equal to or exceed[ing] 1,196 GWh which are the "Take or Pay Quantity" of the Power Purchase Agreement established between JSCNH and [the Georgian Electricity System Commercial Operator] ESCO.

Main project components include a 125-meter high, 870-meter long asphalt-face, rock-fill dam on the Nenskra River creating a 176 million-cubic-meter live-storage reservoir occupying 267 hectares (at full supply). Most of the Nakra River will be diverted into the Nenskra reservoir[5] through a 12-kilometer-long transfer tunnel. The above-ground powerhouse will be located on the left side of the Nenskra River 15 kilometers downstream from the dam, and the water from the reservoir will be conveyed to the powerhouse through a 15-kilometer headrace and 1.8-kilometer penstock. Associated facilities include a 220-kV transmission line that will connect the powerhouse to a substation; the upgrading of some existing access roads and creation of new access roads; and construction of operators' villages and temporary installations including worker camps and spoil disposal areas.

[3] The other proposed HPPs include the proposed Khudoni HPP (702 MW), the proposed Namakhvani HPPs cascade (433 MW), and the proposed Oni HPPs cascade (177 MW).
[4] JSC Nenskra Hydro. (February 2017) *Nenskra Hydropower Project Supplementary Environmental and Social Studies. Volume 2: Project Definition*. p.7
[5] The reduction in average monthly flows immediately downstream from the Nakra diversion range from 50 percent in February to 95 percent in June. See: JSC Nenskra Hydro. (February 2017) *Nenskra Hydropower Project Supplementary Environmental and Social Studies. Volume 5: Hydrology and Water Quality Impact Assessment*.



Nenskra HPP schematic, including major project components. Printed with permission of SLR Consulting.

The project is being developed by JSC Nenskra Hydro (JSCNH), whose main shareholders are the state-owned Korea Water Resources Corporation (K-Water) and the GoG-owned investment fund, JSC Partnership Fund. The project is a build-operate-transfer scheme with ownership estimated to be transferred to GoG in 2056.

Soviet planners initially conceptualized a cascade of HPPs in the Enguri River basin as early as the 1950s. Only the Enguri and associated Vardnili HPPs, the source of 40 percent of electricity consumption in Georgia,[6] were completed before the Soviet collapse.[7] A pre-feasibility study of the Nenskra HPP was initiated in the 1980's, but was not immediately followed by additional studies.[8]

According to Georgian Ministry of Energy officials, the Nenskra HPP was revived by the GoG in 2009 after concerns regarding power imports were heightened by the 2008 conflict between Russia and Georgia. Between 2010 and 2012, a new pre-feasibility study on the Nenskra HPP was conducted, followed immediately by a feasibility study and initial design, all by the

[6] EBRD. (September 27, 2017) *Georgia: Enguri Hydro Power Plant Rehabilitation Project – Climate Resilience Upgrade*. Document for Board consideration. BDS17-051

[7] For details regarding challenges related to the Enguri HPP, see Sabonis-Helf, T. (2017) *The Future of Hydropower in the Country of Georgia*. Hydroworld. http://www.hydroworld.com/articles/hr/print/volume-36/issue-7/articles/the-future-of-hydropower-in-the-country-of-georgia.html

[8] JSC Nenskra Hydro. (February 2017) *Nenskra Hydropower Project Supplementary Environmental and Social Studies. Volume 2: Project Definition*. p.6

engineering company Stucky. A Georgian consulting firm, Gamma Consulting Limited, conducted an environmental impact assessment (EIA) between 2011 and 2012. The GoG launched an international public bidding process in November 2011. The process failed in March 2012, when only a single, non-compliant bid was received. In September 2012, K-Water submitted a spontaneous proposal largely based on the structure contained in the failed public bidding process. In 2014, the GoG engaged IFC Advisory Services to support a negotiated transaction with K-Water. IFC helped structure the JSC Nenskra Hydro public-private partnership. In August 2015, the GoG, the Georgian Electricity System Commercial Operator (ESCO), the Georgian State Electrosystem (GSE) and JSC Nenskra Hydro signed an Implementation Agreement.[9] This agreement is the key legal document that allows JSC Nenskra Hydro to design, finance, construct, operate and maintain the Nenskra HPP on a build-operate-transfer basis.[10] In 2015, Salini-Impregilo was jointly selected by K-Water and the GoG, through a competitive process, as the project's engineering, procurement, construction (EPC) contractor. Salini-Impregilo initiated detailed design and project early works in August 2015.

Gamma Consulting conducted a second EIA in 2014-2015 for submission to the GoG Environmental Authorities in April 2015. Public consultation meetings were held in the project-affected area in June 2015. The GoG required a number of changes to the EIA report. The final EIA was submitted to the Ministry of Environment and Natural Resources Protection in August 2015. In October 2015, GoG environmental authorities issued a conditional environmental permit for the project.[11]

The GoG approached numerous international financial institutions to finance the project. Among them are two in which the U.S. Government is a shareholder—EBRD and ADB.[12] As EBRD and ADB began their due diligence on the project, both assigned the project an "A" (high) risk category, because of the likely significant environmental and social impacts which are typical with an HPP of this nature. To ensure compliance with their environmental and social policies, the lenders recommended that a number of additional environmental and social studies be undertaken to supplement the existing 2015 EIA report.[13] The first version of the ten-volume set of supplementary environmental and social studies are dated February 2017 and English and Georgian versions were posted on the JSCNH, EBRD, and ADB websites and made available in Tbilisi and in the project area in March 2017. JSCNH revised the supplementary studies and English versions of the revised studies were disclosed on the EBRD and project websites in late November 2017. (henceforth, these studies will be referred to as the February 2017 ESIA and the November 2017 ESIA).[14]

---

[9] A significant portion of the Implementation Agreement was publicly disclosed by the GoG in early November 2017. See: http://www.energy.gov.ge/projects/pdf/pages/Nenskra%20HPP%201764%20eng.pdf

[10] JSC Nenskra Hydro. (February 2017) *Nenskra Hydropower Project Supplementary Environmental and Social Studies. Volume 2: Project Definition*.

[11] JSC Nenskra Hydro. (February 2017) *Nenskra Hydropower Project Supplementary Environmental and Social Studies. Volume 2: Project Definition* and *Annex 2: Environmental Permit.*

[12] Other IFIs considering investment include the European Investment Bank, the Italian Export Credit Agency, the Korean Development Bank, and the Asian Infrastructure Investment Bank.

[13] For Nenskra Hydropower Project Supplementary Environmental and Social Studies, see: http://nenskra.ge/en/reports/

[14] ADB had not posted the revised ESIA on their website by late November 2017.

The EBRD board vote is currently scheduled for December 13, 2017. ADB initially scheduled a board vote for December 14, 2017; however, as of November 22, 2017, the date of the ADB board vote is to be determined.

Energy Security and Economic Considerations

Georgia has no overall power supply shortage and has a robust distribution grid. Georgia's current total available installed generation capacity of 3.79 gigawatts (GW) is comprised of 2.88 GW (76 percent) hydropower and 910 MW (24 percent) thermal power.[15] During traditionally lower demand periods in summer,[16] Georgia's hydropower production exceeds domestic demand and is export-oriented. During higher demand periods in winter, when less water is available for hydropower plants, hydropower production is reduced. The country is dependent on thermal power in winter which is generated primarily using reduced-rate natural gas from Azerbaijan.[17] In recent years, Georgia has been more reliant on winter power imports from Russia and Turkey. Domestic annual energy consumption has grown roughly in line with GDP in recent years[18] (an average annual rate of about four percent).

Development of Nenskra HPP is part of a strategic GoG objective to increase the country power generation capacity while reducing the dependency on fossil fuel-fired thermal power plants and imported power from neighboring countries. The Nenskra HPP would partially accomplish this through the project's specific objectives to produce an annual minimum of 1,196 GWh including generation of a mandatory supply of 2.9GWh per day in the winter months. However, to meet these specific objectives requires a large storage reservoir. This makes for a more complex project design that includes a 125-meter-tall, asphalt-face, rock-filled dam (the tallest of this type of dam in the world), inter-basin transfer, and 27 kilometers of tunnels. The estimated total project cost is more than US $1 billion for an installed capacity of 280 MW.[19] This is a significantly higher cost per MW of installed capacity compared to the proposed Khudoni HPP (a large-storage-capacity HPP with an estimated cost of $780 million and an estimated installed capacity of 702 MW[20]) and large run-of-river HPPs in Georgia.[21]

---

[15] EBRD. (September 27, 2017) *Georgia: Enguri Hydro Power Plant Rehabilitation Project – Climate Resilience Upgrade*. Document for Board consideration. BDS17-051

[16] Historically, demand for electricity has been higher in winter due to heating. Recently, however, increasing use of air conditioning by the hospitality sector is resulting in summer electricity demand levels nearly as high as winter demand (See Sabonis-Helf, T. 2017).

[17] The reduced rate is linked to a transit fee arrangement for Georgia's role linking Azerbaijan's Shah Deniz gas field to Turkey. The transit fee may increase with the completion of phase 2 of the Shah Deniz pipeline.

[18] For a discussion of the relationship between energy consumption rates and GDP in Georgia, see: http://www.ebrd.com/where-we-are/georgia/overview.html

[19] Selection of the Nenskra HPP was apparently not informed by a least-cost planning analysis, as is good international industry practice. This issue is discussed in the finding and recommendations regarding analysis of alternatives (#2).

[20] For additional comparison, Nenskra HPP's estimated annual production is 1,200 GWh and Khudoni HPP's estimate annual production is 1,500 GWh. See: Georgian State Electrosystem (December 2016). *Ten-Year Network Development Plan of Georgia for 2017-2017*.

[21] Examples of large run-of-river HPPs include the recently completed Shuakhevi run-of-river HPP which has an installed capacity of 186 MW and an estimated cost of $420 million. Also, the Dariali run-of-river HPP, currently under construction, has an installed capacity of 108MW and an estimated cost of US $123 million (see:

The specific objectives of the project also state that an amount equal to or exceeding the 1,196 GWh annual production will be the "Take or Pay Quantity" of the 36-year power purchase agreement (PPA) between JSCNH and ESCO. If developed, the Nenskra HPP will be the first large private hydro project in Georgia to operationalize a PPA. GoG officials explained that, given the cost and complex design of the Nenskra HPP, a PPA was necessary to attract an international investor.

Findings and Recommendations

<u>Finding 1</u>: In November 2017, the GoG publicly disclosed a significant portion of the project Implementation Agreement and a summary of a cost-benefit analysis concluding that the project is "cost-benefit justified." These disclosures demonstrate progress toward transparency regarding economic feasibility.

At the time of USAID's field review of the Nenskra HPP in August 2017, there was very little publicly disclosed economic information on the project. Numerous and diverse stakeholders interviewed for this review explained that their skepticism of the Nenskra HPP stemmed largely from the lack of transparency surrounding the economics of the project. Without public disclosure of economic information on the project, some stakeholders described a concern that the government objective to reduce dependency on imported power may have taken precedence over optimization of cost and profitability.

In early November 2017, the GoG disclosed a significant portion of the project Implementation Agreement.[22] The portions of the Implementation Agreement that are publicly available are in English. Also in early November 2017, the GoG disclosed an English language IFC-contracted report titled "Economic Cost-Benefit Analysis of Nenskra Hydropower Project: Summary Report" concluding that "the project is cost-benefit justified."[23] These two documents contain key financial information, such as the tariff under the power purchase agreement. The prior lack of disclosure of the tariff was a specific concern of the numerous and diverse stakeholders who raised concerns about the transparency of the Nenskra HPP with the USAID field review team in August 2017.

---

http://www.ebrd.com/work-with-us/projects/psd/dariali-hpp.html). These less expensive run-of-river HPPs in Georgia, however, are unable to meet the specific winter generation objectives of the Nenskra HPP because they do not have a large storage capacity.

[22] See publicly disclosed portions of Implementation Agreement: http://www.energy.gov.ge/projects/pdf/pages/Nenskra%20HPP%201764%20eng.pdf

[23] "The negotiated tariff in the power purchase agreement (PPA) in real terms in 2019 is US$79.75/MWh, which is US$5.48/MWh less than estimates of the long run marginal cost of power in Georgia in 2019 prices. The tariff is also lower than the price Georgia pays to import power in winter months from neighbors, including Russia." Castalia (July 2017). Economic Cost-Benefit Analysis of Nenskra Hydropower Project: Summary Report. Report to IFC. http://www.energy.gov.ge/projects/pdf/pages/Nenskras%20Hidroelektrosadguris%20Proektis%20Ekonomikuri%20Sargeblianobis%20Analizi%201787%20geo.pdf

Disclosure of these documents demonstrates progress toward transparency regarding economic feasibility that can build support for the project. Greater transparency would involve disclosure of the calculations supporting the conclusions of the cost-benefit analysis.

Recommendation:

a. EBRD and ADB are encouraged to continue to promote transparency regarding project economic feasibility.

<u>Finding 2</u>: The project analysis of alternatives was constrained by numerous fixed project elements and was not informed by river basin-wide or nationwide strategic environmental and social assessments or least-cost planning analyses.

Good practice for large dam projects involves a sequence of analyses and participatory planning efforts such that river basin-wide and/or nationwide strategic assessments—such as a strategic, sectoral, or regional environmental and social assessments and least-cost planning analyses—are completed prior to and inform analyses of alternatives, project selection, and design.[24] Such assessments are commonly led by governments and may involve bi-lateral or multilateral donor support.

EBRD's and ADB's formal engagement with the Nenskra HPP began in late 2015, decades after the Nenskra HPP was conceived and first studied in the late Soviet era and soon after the project Implementation Agreement was signed in August 2015. Among other things, the Implementation Agreement fixed the location (Nenskra and Nakra Valleys), technology (hydropower with reservoir storage and inter-basin transfer), and design (asphalt-face rock-fill dam) of the project. Considering these fixed project elements, the introduction to the analysis of alternatives in the February 2017 ESIA[25] explains the objective of the analysis.

> The objective of the [analysis of alternatives for the Nenskra HPP] is not to justify, a *posteriori*, why the proposed Nenskra HPP is the least-impact alternative to achieve the power production objectives required by the Government. There are other considerations such as politic[al] preference (e.g., reducing dependence on import of electricity and fossil fuels necessary for operation of thermal power plants) which have–and will–prevail-(ed).[26]

Further, the February 2017 analysis of alternatives states:

> The selection of alternatives at [the] strategic level by the Government of Georgia was not based on (i) a Sectoral Environmental Assessment to distinguish among alternative strategies and investment programs within the power sector,

[24] World Commission on Dams (2000). *Dams and Development: A New Framework for Decision-Making. The Report of the World Commission on Dams.* Earthscan. London.

[25] An analysis of alternatives was also included in the EIA submitted to secure the conditional government environmental permit in October 2015. This analysis of alternatives also appears to have been constrained by the fixed elements of the project.

[26] JSC Nenskra Hydro. (February 2017) *Nenskra Hydropower Project Supplementary Environmental and Social Studies. Volume 2: Project Definition*. p.6.

> or (ii) a Regional Environmental Assessment to compare alternative development scenarios. The analysis of alternatives to the Nenskra HPP was therefore not buil[t] on a formal sectoral or a regional environmental assessment.[27]

While the analysis of alternatives was constrained by numerous fixed project elements and was not informed by a strategic, sectoral or regional environmental and social assessment, the February 2017 ESIA does include a basin-wide cumulative impacts analysis (CIA). As EBRD staff explained, this is considered to be good practice and is consistent with the lenders' environmental and social policies and with other projects in the region.

The goal of the CIA is "to identify environmental and social impacts and risks associated with the Nenskra Project that, in the context of existing, planned, and reasonable predictable developments, may generate cumulative impacts that could jeopardize the overall long-term environmental, social and economic sustainability of the Project and the Enguri watershed."[28] The CIA identifies numerous existing and proposed HPPs in the Enguri basin as well as external activities such as forestry, mining and tourism as having the potential to generate cumulative impacts with the Nenskra HPP. The CIA concludes that limited to no significant or discernible cumulative impacts are predicted on terrestrial ecosystems and biodiversity, river fish, construction impacts (e.g., traffic, noise, dust), exposure to technological risk, and microclimate. Cumulative impacts to reservoir-triggered seismicity could not be ruled out; these continue to be assessed. Cumulative impacts to social aspects (e.g., relating to land acquisition) could not be fully assessed at the time the CIA was completed.[29] The CIA also clearly states that cumulative environmental assessment "should not be confused with Strategic Environmental Assessment."[30]

There are numerous recent or forthcoming river basin-wide or nationwide assessments and planning processes that did not inform the Nenskra HPP analysis of alternatives, but that could inform future project selection and design. Selected examples include:

- Under the EU-Georgia Association Agreement signed in June 2014, Georgia has initiated actions to meet the minimum standards of the European Union Water Framework Directive, including integrated water management policies and spatial planning measures.

- The World Bank and the Government of Georgia, through the Transmission Grid Strengthening Project,[31] is currently completing a Strategic Environmental and Social

[27] *Ibid* p. 7.
[28] JSC Nenskra Hydro. (February 2017) *Nenskra Hydropower Project Supplementary Environmental and Social Studies. Volume 10: Cumulative Impact Assessment*.
[29] JSCNH revised the CIA and EBRD publicly disclosed the document on November 20, 2017, as this USAID review was concluding. This USAID report therefore does not account for new information in the revised CIA.
[30] JSC Nenskra Hydro. (February 2017) *Nenskra Hydropower Project Supplementary Environmental and Social Studies. Volume 10: Cumulative Impact Assessment*. p.3.
[31] World Bank (April 18, 2014) *Project Appraisal Document on a Proposed Loan in the amount of US $60 million to Georgia for a Transmission Grid Strengthening Project*. PAD911

Assessment of Development Scenarios of the Power Sector.[32] The assessment will be publicly disclosed on completion, estimated in early 2018.

- Under the same Transmission Grid Strengthening Project, the World Bank and the Government of Georgia also completed a least-cost planning analysis of energy production options necessary to meet growing domestic demand in 2016 and are conducting a similar analysis in 2017. These analyses include, among other findings, cost implications for Georgian electricity rate payers. The 2016 analysis is complete but has not been publicly disclosed and the 2017 analysis is not yet complete.

- The recently approved EBRD Enguri Hydro Power Plant Rehabilitation Project – Climate Resilience Upgrade, includes support for the establishment of the "Enguri Hydrology Initiative" for river basin coordination and data sharing among public and private sector hydro power operators.

Recommendation:

a. EBRD and ADB should consider encouraging and/or supporting partner governments to complete and disclose basin-wide and nationwide strategic environmental and social assessments and least-cost planning analyses prior to analyzing alternatives for, selecting, and designing large dam projects.

Finding 3: The specific path of the 220-kV evacuation transmission line, an associated facility of the Nenskra HPP, has not yet been determined and/or publicly disclosed. An ESIA including the Nenskra HPP associated facility transmission line will be completed as part of a separate EBRD project. Disclosure of the ESIA is expected in late 2018, after the planned start of construction of the Nenskra HPP. The project is actively managing what has historically been a strained relationship with a community that may be affected by the transmission line.

The February 2017 ESIA Supplementary Studies explain that the 220-kV transmission line that will connect the project's powerhouse to a planned new substation and tie-in to the national grid will be designed, built and operated by the Georgian State Electrosystem (GSE). The transmission line is considered an associated facility and was not included in the scope of the February 2017 ESIA, including the land acquisition and livelihood restoration plan. The February 2017 ESIA states that JSCNH will require GSE to undertake an ESIA and land acquisition processes for the transmission line in alignment with lender environmental and social policies, once the transmission line route is defined.[33]

As EBRD staff explained, GSE is currently in dialogue with EBRD regarding proposals to expand and strengthen the national grid, including connection with the Nenskra powerhouse. Route selection, environmental and social due diligence and construction of the transmission line considered to be an associated facility of the Nenskra HPP will be part of a separate project to

[32] See Terms of Reference for World Bank Strategic Environmental and Social Assessment: http://www.energy.gov.ge/projects/pdf/news/Terms%20of%20reference%20946%20eng.pdf

[33] The 2017 ESIA states that the transmission line route will be defined in the second half of 2017. As of early-December 2017, the route had not been publicly identified.

be structured to meet EBRD's and IFC's safeguards.[34] EBRD is planning to present the project to their board in late 2018. As of early-December 2017, the ESIA for the separate grid expansion project is under preparation by GSE and their consultants. The ESIA will be disclosed after the planned start of construction of the Nenskra HPP.

The planned location of the Nenskra HPP powerhouse (and the connection point for an evacuation transmission line) is on the left bank of the Nenskra River immediately adjacent to the Lakhami hamlet (47 households; 237 population). One or more possible routes for the transmission line may impact Lakhami households.

Among the people in the Nenskra and Nakra Valleys, Lakhami residents have been perhaps the most vocal opponents of the Nenskra HPP. As an example, multiple sources stated that Lakhami residents represented the majority of the approximately 25 people who conducted a staged protest walk-out from the August 2017 public consultation session. In conversations with reviewers in August 2017, individual Lakhami residents expressed several concerns: the lack of information about possible transmission line paths; the potential land acquisition and related economic and physical displacement for the transmission line; their perceptions of GSE's past performance in conducting land acquisition for other transmission lines; their exposure to perceived health risks associated with living under transmission lines;[35] and their perceptions of the lack of meaningful consultation with them by the project.

EBRD and JSCNH recognized that the relationship between the project and residents of Lakhami has historically been difficult and explained that the legacy of the strained relationship began before EBRD, ADB or JSCNH became involved in the project. EBRD and JSCNH cited as a contributing factor the initial project determination to not consider Lakhami as a project-affected community. This determination was made largely because the majority of Lakhami residents, who live on the right bank of the Nenskra River, would not be affected by land acquisition for Nenskra HPP. In early November 2017, EBRD reported that Lakhami is now considered a project-affected community due to impacts from dust, noise, and other impacts, but is not subject to land acquisition.

In early November 2017, EBRD and JSCNH reported that the relationship between the project and Lakhami has improved now that expectations are being managed appropriately and in line with the various lenders' requirements. EBRD further explained that Lakhami will continue to be consulted as a project affected community as part of both the Nenskra and GSE transmission line projects. U.S. Government technical analysts conducting this review were not able to follow up with Lakhami residents after late August 2017 to verify the reported improved relationships.

Recommendations:

a. EBRD is encouraged to work with the Georgian State Electrosystem to complete the ESIA and environmental and social action plan for the Nenskra HPP associated facility

[34] EBRD is preparing the project as a potential co-financing investment with KfW, which applies IFC's Performance Standards.

[35] An existing 500kV transmission line is located on the slope immediately above the Lakhami hamlet.

transmission line, including a robust analysis of alternatives and meaningful consultation with all stakeholders, especially potentially project-affected communities.

b. EBRD and ADB should consider encouraging borrowers to assess the environmental and social risks of associated facilities—including assessment of alternatives, cumulative impacts, and avoidance or mitigation measures—together with those of other major project components prior to board vote.

Finding 4: **The assessment of operational flows necessary to maintain ecosystem services (i.e., the environmental flow) appears appropriate for this stage of project development.**

The 2017 ESIA states that GoG prescribed a minimum flow release from the Nenskra Dam of about five percent of the mean annual flow, which is less than the commonly used scoping estimate of 10 percent. Environmental flow (a.k.a, ecological flow), however, is not a single number but rather is a management regime for a water body that maintains ecosystems and their services (The Nature Conservancy, A Practical Guide to Environmental Flows for Policy and Planning, 2012).

The 2017 ESIA and reviewer observations and interviews indicate that the proposed environmental flow regime and other mitigation measures appear likely to adequately protect the rivers' support of species and provision of services. Reviewers observed that the river reaches within the project area have been modified by grazing and logging, with little remaining natural habitat in or immediately adjacent to the rivers. The supplementary biodiversity studies in the 2017 ESIA indicate that the project's reservoir and access roads are unlikely to have significant impacts on or fragment the habitat of the endangered species ranging in the area of influence. While Georgian law prohibits the preferred sampling method (electrofishing), the 2017 ESIA used netting and interviews that confirmed the findings of previous biodiversity surveys. These showed that the fish species of potential concern, brown trout (*Salmo trutta*), is not endangered and interviewees indicated that fishing is recreational rather than a significant food source. The flow of the Nenskra River will be reduced most significantly in the two kilometer reach below the dam, but this reach has modest biodiversity value and tributaries will increase the flow downstream of this point. Interviewees expressed a desire that sufficient flows be released in both rivers to maintain transport of sediment and landslide debris.

JSCNH has demonstrated intent to adaptively manage the designs and operation of the project to minimize impacts to the riverine habitat and maintain sediment transport. They have conducted flow and biological studies leading to a redesign of the Nenskra Dam outlet to allow for greater flow than the minimum flow prescribed by the GoG. They have conducted sediment transport studies leading to a redesign of the Nakra weir to include gates to permit sediment flushing as well as a fish pass to permit fish migration. While the Nenskra dam will block fish migration to spawning sites above the dam, JSCNH will enhance fish habitat below the dam to maintain the recreational fishery. We would note that successful protection of ecosystems and ecosystem services will require following through with plans to improve the baseline fishery data and to monitor key species and sediment transport, which will enable adaptive management of the environmental flow regime.

Recommendation:

a. As committed to in the ESIA, JSCNH should follow through with the planned biological and sediment transport studies and monitoring to refine and enable the adaptive management of environmental flow.

<u>Finding 5</u>: There is a pending complaint submitted by a Georgian civil society organization to the Bern Convention on the Conservation of European Wildlife and Natural Habitats. A key decision regarding the complaint is scheduled to occur in March 2018.

The Secretariat of the Bern Convention on the Conservation of European Wildlife and Natural Habitats[36] received a complaint in October 2016 from the Georgian-based civil society organization 'Association Green Alternative' alleging a breach of the Bern Convention by the GoG. The alleged breach relates to GoG changes to the boundaries of previously proposed Emerald Network[37] "candidate sites" in Georgia. These changes impacted the "Svaneti" candidate site which previously included the Nenskra HPP project zone. The proposed new boundaries divide the Svaneti candidate site into two sites (Svaneti 1 and 2), significantly reduce the combined size of the candidate sites compared to the previous single site, and exclude the project zone of the Nenskra HPP. The Bern Convention allows changes to candidate sites and stipulates procedures for making changes. The complainant argues that the GoG disregarded previous, scientifically informed, Bern Convention procedures to evaluate the "sufficiency" of the proposed Georgian Emerald Network sites.[38]

The complaint was verified by the Secretariat, which then requested and received additional information from the GoG. In the March 2017 meeting of the Bureau of the Standing Committee to the Convention, the Bureau decided to re-open discussion of the sufficiency of the candidate Georgian Emerald Network sites through a previously planned scientific seminar held in Tbilisi, Georgia, November 8-9, 2017.[39] This decision was reinforced in the Bureau's September 2017 meeting.[40] Based on the available science on species and habitats, scientists participating in the seminar assessed the consequences of the altered boundaries on the

[36] Georgia ratified the Bern Convention in November 2009. Their membership was entered into force in March 2010.

[37] "Developed under the Bern Convention, the Emerald Network is a group of selected natural areas, created to protect habitats that host crucial and threatened biodiversity in Europe through coordinated and sustainable management" (https://www.coe.int/en/web/bern-convention).

[38] The Bern Convention uses "sufficiency assessments" as a tool to assess the representation of animal species, habitats and plant species in proposed and candidate Emerald Network sites. For information regarding the Bern Convention, its institutions, the Emerald Network, and Emerald Site evaluation processes, see: https://www.coe.int/en/web/bern-convention. For information regarding the Bern Convention complaints process, see: https://rm.coe.int/1680746b75

[39] See draft agenda for the "Second Emerald Network Biogeographical Seminar for Armenia, Azerbaijan and Georgia, 8-9 November 2017": https://www.coe.int/fr/web/bern-convention/-/emerald-network-evaluation-semin-1

[40] The report for the September 2017 Bureau meeting states: "The Bureau decided that there is a strong need to receive further clarification on the exact species and habitats present in the area, and on how the exclusion of some parts of the candidate site will impact the overall sufficiency of the Emerald Network." See: Convention on the Conservation of European Wildlife and natural habitats, Standing Committee. (October 3, 2017). *Meeting of the Bureau Report. Strasbourg, 18-19 September 2017*. p.11.

proposed Georgian Emerald Network sites and potential mitigation measures to maintain the sufficiency of the proposed Georgian Emerald Network.[41] Informed by the conclusions of the scientific seminar, field visit, and additional information from the GoG regarding the Emerald Network site planning and stakeholder engagement processes, the Bureau plans to make a determination on the complaint at its March 2018 meeting.[42] There are numerous possible outcomes of the March 2018 Bureau meeting, including scenarios in which the Nenskra HPP and a sufficient Georgian Emerald Network could co-exist.

EBRD staff explained that the bank was aware in 2015 of the possibility that the Nenskra HPP may be part a candidate Emerald Site and adopted a "precautionary approach" by assuming the project was to be located inside a protected area. The precautionary approach involved completing a critical habitat assessment and an "appropriate assessment,"[43] both of which concluded that there is no residual impact on the conservation objectives of the previously defined Candidate Emerald Site.

Implementation of the Bern Convention and coordination with the Convention's institutions is the responsibility of the GoG. EBRD and ADB are not party to or signatory to the Bern Convention. Further, EBRD and ADB should not influence or take actions that could be perceived to influence the Bern Convention complaints review process or the legitimacy of the Bern Convention institutions.

Recommendation:

a. The GoG, lenders, and the project should work in good faith with the Bern Convention institutions, to an extent appropriate to their respective institutional roles and responsibilities, to identify means for the Nenskra HPP and a "sufficient" Georgian Emerald Site network to co-exist and to enable implementation of GoG's international obligations.

<u>Finding 6</u>: This review concurs with the conclusion in the social impact assessment that the lenders' indigenous peoples policies should not be triggered.

EBRD deemed its Performance Requirement 7 (PR 7) on Indigenous Peoples (IP) not to be applicable at the outset of the project in 2015. This was consistent with other EBRD projects in Georgia, none of which have ever triggered PR 7. In 2016, a group of potentially project-affected people and civil society organizations publicly demanded that the multilateral development banks considering investment in the Nenskra HPP apply their indigenous peoples

[41] USAID did not participate in or observe the scientific seminar.

[42] The March 2018 Bureau decision may be added to the agenda of the Standing Committee which would likely convene in late November or December 2018.

[43] EBRD's Performance Requirement 6 on Biodiversity Conservation and Sustainable Management of Living Natural Resources describes an "appropriate assessment" as "the consideration of the impact on the integrity of the site of the project or plan, either alone or in combination with other projects or plans, with respect to the site's structure and function and its conservation objectives. In addition, where there are adverse impacts, an assessment of the potential mitigation of those impacts." http://www.ebrd.com/who-we-are/our-values/environmental-and-social-policy/performance-requirements.html

policies to the Svan people, who are the dominant inhabitants of the Nenskra and Nakra River Valleys in the project zone. The consultants conducting the Nenskra HPP Supplementary Environmental and Social Studies, along with an anthropologist from the Institute of History and Ethnography of Iv. Javakhishvili State University of Tbilisi, subsequently reviewed the five criteria used by EBRD[44] to determine the applicability of the lenders' indigenous peoples policies.[45] Findings were included in the February 2017 Social Impact Assessment (SIA) and state that two of the five EBRD criteria do not apply.[46] The section concludes that:

> …although Svans do possess, to a certain extent, some of the characteristics of "Indigenous Peoples," overall the affected Svan communities do not fully meet the Lenders' definition of "Indigenous Peoples" and therefore the Lenders "Indigenous Peoples" policies are not triggered.

The February 2017 Independent Panel of Experts (IPOE) report included the following statement related to the applicability of the lenders' indigenous peoples policies and the quality of the pertinent section of the SIA.

> The IPOE has reviewed sections of the SIA relevant to the possible applicability of lenders' Indigenous Groups policies. The IPOE concurs with the view taken in the ESIA package that these policies do not apply to the Svan group, in spite of certain criteria in lenders policies being partially applicable. Discussions took place with the Project ESIA consultant to strengthen the related discussion in the SIA and IPOE comments are in the process of being included in a further iteration of the SIA.[47]

On November 20, 2017, EBRD disclosed a revised SIA that updated and replaced the February 2017 ESIA.[48] EBRD explained that the revised SIA underwent a three-level review, including by EBRD social experts and the social expert on the IPOE. The November 2017 SIA finds that, of

---

[44] PR 7 uses the term "indigenous peoples" in "a technical sense to refer to a social and cultural group, distinct from dominant groups within national societies possessing all of the following [five] characteristics in varying degrees: 1) self-identification as members of a distinct indigenous ethnic or cultural group and recognition of this identity by others; 2) collective attachment to geographically distinct habitats, traditional lands or ancestral territories in the project area and to the natural resources in these habitats and territories; 3) descent from populations who have traditionally pursued non-wage (and often nomadic/transhumant) subsistence strategies and whose status was regulated by their own customs or traditions or by special laws or regulations; 4) customary cultural, economic, social or political institutions that are separate from those of the dominant society or culture; and 5) a distinct language or dialect, often different from the official language or dialect of the country or region" (EBRD Performance Requirement 7 Paragraph 3).

[45] A footnote in the February 2017 ESIA explains that "the definition of Indigenous Peoples used in this SIA is quoted from EBRD's Performance Requirement 7 'Indigenous Peoples'. Although slightly different in wording, policies used by other lenders involved in the project (i.e., policies of the ADB, EIB and IFC) are similar in substance and spirit."

[46] Specifically, criteria three and four as listed in footnote 43 above.

[47] Gill, R. et al. (27 February 2017). Independent Panel of Experts: Safety of Nenskra Hydropower Project – Georgia. Stage II report. p.48 (http://nenskra.ge/inc/uploads/2017/04/IPOE-Report-27-Feb-2017.pdf)

[48] The November 2017 SIA assessed both EBRD and ADB criteria to determine applicability of their respective indigenous peoples policies.

the five relevant criteria,[49] one criterion applies, two criteria partially apply, and two criteria do not apply. There are bulleted criteria-specific justifications in the body of the SIA. The arguments grounding the conclusion are provided in a thematically-structured annex.[50] Similar to the February 2017 SIA, the section concludes that:

> …although Svans do show to a certain degree some of the characteristics of "Indigenous Peoples," mainly in reason of the geographic isolation of Upper Svaneti, the affected Svan communities are not considered to meet the potential Lenders' definition of "Indigenous Peoples," and therefore the potential Lenders "Indigenous Peoples" policies are not triggered.[51]

This review concurs with the conclusion in the social impact assessment that the lenders' indigenous peoples policies should not be triggered.

[49] ADB and EBRD share four criteria. EBRD has an additional unique fifth criterion.
[50] Themes in the annex include language, administrative status, livelihoods, ethnic identity and vulnerability criteria, and potential impacts on culture and customs.
[51] JSC Nenskra Hydro. (November 2017) *Nenskra Hydropower Project Supplementary Environmental and Social Studies. Volume 3: Social Impact Assessment.*