

SBF Project Implementation Monitoring Report

Tajikistan: Nurek Hydropower Rehabilitation Project Phase I

1. Project Information

Project ID:	000018	Investment Number:	L0018A
Member:	Tajikistan	Region:	Central asia
Sector:	Energy	Sub-sector:	Large hydropower generation
AIB Financing Type:	Loan: 60 USD million	Co-financier(s):	WB-led (IDA)
E&S category:	B	Borrower:	Republic of Tajikistan
Red Flags Assigned:	1	Monitoring Regime:	Regular Monitoring
Implementing Agency:	Barki Tojik (BT), Open Joint Stock Holding Company		
Project Team Leader:	Emil Zalinyan		
Project Team Members:	Chongwu Sun, Senior Environment Consultant; Somnath Basu, Principal Social Development Specialist; Yunlong Liu, Procurement Specialist; Liu Yang, Counsel - Investment Operations; Shonell Robinson, FM Specialist; Shodi Nazarov, FM Consultant; Haiyan Wang, Senior Finance Officer.		
Completed Site Visits by AIB:	Mar, 2019		
Planned Site Visits by AIB:	subject to COVID19 development		

2. Project Summary and Objectives

The objectives of the Project are to rehabilitate and restore the generating capacity of three units of the Nurek hydropower plant, improve their efficiency, and strengthen the safety of the Nurek dam.

Components: 1) Power Plant Rehabilitation Component, 2) Dam Safety Component.

Total Project Cost (Phase I): US\$350 million

Financing plan: IDA US\$225.7 million and AIB US\$60 million (joint co-financing); EaDB US\$40 million (parallel co-financing).

3. Key Dates

Approval:	Jun. 15, 2017	Signing:	Aug. 1, 2017
Effective:	Apr. 30, 2018	Restructured (if any):	
Orig. Closing:	Dec. 31, 2023	Rev. Closing (if any):	

4. Disbursement Summary (million)

Currency:	USD		
a) Committed:	60	b) Cancellation (if any):	
c) Disbursed:	19.3	d) Most recent disbursement: (amount / date)	1.3, Apr. 2, 2021
e) Undisbursed:	40.7	f) Disbursement Ratio(%) ¹ :	32.2

¹ Disbursement Ratio is defined as the volume (i.e. the dollar amount) of total disbursed amount as a percentage of the net committed volume, i.e., $f = c / (a - b)$

5. Project Implementation Update

The overall implementation progress has been impacted by the following factors: (a) slow progress of some contracts due to inability of contractors to supply the equipment or mobilize on site due to COVID-19 constraints in contractors' and the main equipment suppliers' countries; and (b) delay with reaching a contractual solution on rehabilitation of inlet valves as part of the contract for the rehabilitation of generating units and other electrical equipment with Andritz. This delay is primarily caused by unreasonable contract change orders submitted by Andritz with a request for unjustified increases in the contract price.

Component 1. Rehabilitation of the three generating units, the key infrastructural components of the plant, and replacement of autotransformers.

The contractor (Andritz) is carrying out rehabilitation of Unit 1. Specifically, the works related to the installation of the generator are ongoing. The condition assessment of the generator embedded parts is ongoing. The Contractor completed the non-destructive tests to evaluate the condition of the inlet valve rotor and

body of Unit 1 and proposed rehabilitation options, which, based on review by BT, Panel of Experts (POE), and the Bank team, would require further technical and economic justification. What needs to be done for the rehabilitation of the Unit 1 inlet valve at the technical level is currently the most critical issue. The decision on rehabilitation of the remaining inlet valves will depend on the decision reached for rehabilitation of the first inlet valve and the related costs.

The contractor (Sinohydro) for the rehabilitation of the hydromechanical equipment at Nurek HPP mobilized some staff at the site after a long delay caused by COVID-19 constraints and started the contractual activities. Specifically, the preparation of site facilities is underway. The design documents for new equipment were submitted for BT's review and approval.

Component 2. Enhancement of Dam Safety.

The contractor (TGEM) for dam monitoring instrumentation, geodetic instrumentation and geotechnical investigations is making good progress. Drilling of seven out of nine exploratory boreholes was completed. Installation of seven new piezometers was completed. The photographs and video logs of boreholes are being finalized to be sent to a laboratory in Russia for analysis.

Preparation of the bidding documents for miscellaneous civil works for the improvement of dam safety will commence once the geotechnical investigations are completed to inform the scope of dam safety works, which would, among other things, include rehabilitation of spillway tunnels.

Component s	Physical Progress	Environmental & Social Compliance	Procurement
Component 1: Power Plant Rehabilitation (design, model testing and installation of turbines) (US\$45 M)	\$19.3m	On March 30, 2021, the project implementation support consultant Stucky with the environment specialists of the PIU conducted a site inspection. No major non-conformities were observed on all construction sites. All contractors have approved Waste Management plans for hazardous and non-hazardous waste, including asbestos-containing waste, and in general, follow them. The medical point of contractors is well equipped with first-aid means, beds, and sanitary facilities. There are nurses working on a permanent basis	<p>Component 1.1 Replacement and refurbishment of mechanical, electrical, and electromechanical equipment.</p> <p>Subcomponent – Electrical equipment. Power Plant Equipment Contract was awarded to ANDRITZ HYDRO GMBH (Germany and Austria)/ANDRITZ HYDRO CORPORATION (USA) and signed on July 21, 2018. The signed contract price for Phase I is EUR120,938,466.</p> <p>The rehabilitation of the Generating Unit 1 is underway. Specifically, the works related to the installation of the generator are ongoing. The condition assessment of the generator embedded parts is ongoing. The Contractor completed the non-destructive tests to evaluate the condition of the inlet valve rotor and body of Unit 1 and proposed rehabilitation options, which, based on review by BT, Panel of Experts (POE), and the Bank team, would require further technical and economic justification. What needs to be done for the rehabilitation of the Unit 1 inlet valve at the technical level is currently the most critical issue. The decision on rehabilitation of the remaining inlet valves will depend on the decision reached for rehabilitation of the first inlet valve and the related costs.</p> <p>Subcomponent – Hydromechanical equipment. The contract was awarded to Sinohydro (China) and signed in March 2020. The contractor (Sinohydro) mobilized some staff at the site after a long delay caused by COVID-19 constraints and started the contractual activities. Specifically, the preparation of site facilities is underway. The design documents for new equipment were submitted for BT's review and approval.</p> <p>Component 1.2. Replacement of six autotransformers: 100% financed by the Eurasian Development Bank. The contract was awarded to Tojikgidroelektromontaj and currently is under preparation. The implementation is progressing as per schedule.</p>
Component 2: Dam Safety (civil works) (US\$15 M)	0	No issue	<p>Dam Safety Component consists of the following parts:</p> <p>1) Dam monitoring instrumentation, geodetic instrumentation and geotechnical investigations. The bidding documents were issued in May 2019. Tojikgidroelektromontaj and Barqi Tojik signed the contract on 10/03/2020. The contractor (TGEM) is making good progress. Drilling of seven out of nine exploratory boreholes was completed. Installation of seven new piezometers was completed. The photographs and video logs of boreholes are being finalized to be sent to a laboratory in Russia for analysis.</p> <p>2) Miscellaneous civil works for the improvement of dam safety (rehabilitation of spillway tunnels, spillway outlet works, slope stability of the left bank, replacement of Nurek Bridge, etc). Preparation of the bidding documents for miscellaneous civil works for the improvement of dam safety will commence once the geotechnical investigations are completed to inform the scope of dam safety works, which would, among other things, include rehabilitation of spillway tunnels.</p>

Financial Management:

On April 23, 2021, AIIB received the project audit report for the year ended on Dec 31, 2020. The auditor concluded that the special purpose financial statements were prepared, in all material respect, with International Public Sector Accounting Standard and World Bank's Financial Management Sector Board's "Guidelines: Annual Financial Reporting and Auditing for World Bank Financed Activities". The audit report also stated that the BT management complied with the requirements of the Financing Agreement. The Entity financial statement audit report for 2020 is due by June 30, 2021.

6. Status of the Grievance Redress Mechanism (GRM)

The GRM system at BT is fully functional. It allows generating the data on the percentage of registered grievances received and responded to within stipulated service standards. BT and its regional branches register all the grievances received from various individuals and other stakeholders. To date, 36 questions/issues/complaints have been received and resolved/addressed.

7. Results Monitoring

The overall implementation progress of the Project is Moderately Satisfactory given: (a) slow progress of some contracts due to inability of contractors to supply the equipment or mobilize on site due to COVID-19 constraints in contractors' and the main equipment suppliers' countries; and (b) delay with reaching a contractual solution on rehabilitation of inlet valves as part of the contract for the rehabilitation of generating units and other electrical equipment with Andritz. The Project schedule is being closely monitored and will be restructured in due course in case the achievement of the project objective is not realistic by the closing date. The progress on implementation is being monitored by BT, the Nurek HPP PIU, and Stucky – the project management consultant (PMC) of BT.

Baseline Year: Dec. 31, 2017 End Target Year: Dec. 31, 2023

Project Objective Indicators #1

Indicator #1: Generation capacity of energy constructed or rehabilitated under the Project (MW)

Year	Target	Actual	Others, if any
Dec. 31, 2018	0	0	
Dec. 31, 2019	0	0	
Dec. 31, 2020	0	0	
Dec. 31, 2021	335	n/a	
Dec. 31, 2022	670	n/a	
Dec. 31, 2023	1,005	n/a	

Project Objective Indicators #2

Indicator #2: Estimated annual electricity generation of three units included in the scope of the Project (GWh)

Year	Target	Actual	Others, if any
Dec. 31, 2018	At least 3,750GWh	3,750	
Dec. 31, 2019	At least 3,750GWh	3,716GWh	The decrease was due to unfavorable hydrology year
Dec. 31, 2020	At least 2,500GWh	3,510GWh	
Dec. 31, 2021	At least 2,511GWh	n/a	
Dec. 31, 2022	At least 2,522GWh	n/a	
Dec. 31, 2023	At least 3,783GWh	n/a	

Project Objective Indicators #3

Indicator #3: Estimated increase of winter electricity generation of rehabilitated units due to efficiency improvements

Year	Target	Actual	Others, if any
Dec. 31, 2018	0	0	
Dec. 31, 2019	0	0	
Dec. 31, 2020	0	0	
Dec. 31, 2021	at least 11GWh	n/a	

Dec. 31, 2022	at least 22GWh	n/a	
Dec. 31, 2023	at least 33GWh	n/a	

Project Objective Indicators #4

Indicator #4: Improved dam safety against hydrological and geological risks

Year	Target	Actual	Others, if any
Dec. 31, 2018	No	No	
Dec. 31, 2019	No	No	
Dec. 31, 2020	No	No	
Dec. 31, 2021	No	n/a	
Dec. 31, 2022	Yes	n/a	
Dec. 31, 2023	Yes	n/a	

Project Objective Indicators #5

Indicator #5: People provided with improved electricity service

Year	Target	Actual	Others, if any
Dec. 31, 2018	0	0	
Dec. 31, 2019	0	0	
Dec. 31, 2020	0	0	
Dec. 31, 2021	8,276,000	n/a	
Dec. 31, 2022	8,276,000	n/a	
Dec. 31, 2023	8,276,000	n/a	

Project Objective Indicators #6

Female beneficiaries

Year	Target	Actual	Others, if any
Dec. 31, 2018	0%	0%	
Dec. 31, 2019	0%	0%	
Dec. 31, 2020	0%	0%	
Dec. 31, 2021	49.3%	n/a	
Dec. 31, 2022	49.3%	n/a	
Dec. 31, 2023	49.3%	n/a	

Intermediate Result Indicators #1

Indicator #1: Cumulative number of generating units rehabilitated

Year	Target	Actual	Others, if any
Dec. 31, 2018	Contract for rehabilitation is signed and effective	Since physical project implementation has not started yet and some contracts are still under procurement stage, no result has been generated.	
Dec. 31, 2019	Turbine hydraulic model test is completed	Contract signed, model testing started.	

Dec. 31, 2020	Design for generating units is completed and manufacturing commenced	Completed	
Dec. 31, 2021	1	n/a	
Dec. 31, 2022	2	n/a	
Dec. 31, 2023	3	n/a	

Intermediate Result Indicators #2

Indicator #2: Cumulative number of auto-transformers replaced

Year	Target	Actual	Others, if any
Dec. 31, 2018	Bidding document is issued and evaluation of bids is completed	n/a	
Dec. 31, 2019	Contract for replacement of autotransformers is signed and effective	n/a	
Dec. 31, 2020	The supply of autotransformers is underway	0	
Dec. 31, 2021	Installation of autotransformers is underway	n/a	
Dec. 31, 2022	6	n/a	
Dec. 31, 2023	6	n/a	

Intermediate Result Indicators #3

Indicator #3: Enhanced hydrological safety

Year	Target	Actual	Others, if any
Dec. 31, 2018	Once in 10,000 years flood	Once in 10,000 years flood	
Dec. 31, 2019	Once in 10,000 years flood	Once in 10,000 years flood	
Dec. 31, 2020	Once in 10,000 years flood	Once in 10,000 years flood	
Dec. 31, 2021	Once in 10,000 years flood	n/a	
Dec. 31, 2022	Once in 10,000 years flood	n/a	
Dec. 31, 2023	Once in 10,000 years flood	n/a	

Intermediate Result Indicators #4

Indicator #4: Upgrade of the dam monitoring instrumentation completed

Year	Target	Actual	Others, if any
Dec. 31, 2018	Bidding document is issued	n/a	
Dec. 31, 2019	Contract for upgrade of dam instrumentation is signed and effective	n/a	
Dec. 31, 2020	The supply and installation of the dam monitoring instrumentation commenced	The contract is under implementation	
Dec. 31, 2021	The dam monitoring instrumentation is partly operational	n/a	
Dec. 31, 2022	The dam monitoring instrumentation is fully operational	n/a	

Intermediate Result Indicators #5

Indicator #5: Civil, electrical and mechanical works for improvement of the dam safety completed

Year	Target	Actual	Others, if any
Dec. 31, 2018	Bidding document is issued	n/a	
Dec. 31, 2019	Contract for procurement of the dam safety improvement works is signed and effective	n/a	
Dec. 31, 2020	The dam safety improvement works are in progress	The bidding documents to be finalized in Oct 2021 once geotechnical investigations are completed. The delay is caused by delays in exploratory drilling works on left bank caused by COVID-19.	
Dec. 31, 2021	The dam safety improvement works are in progress	n/a	
Dec. 31, 2022	Rehabilitation of the spillway tunnel, gates and hoisting system is completed	n/a	

Intermediate Result Indicators #6

Indicator #6: Update of Emergency Preparedness Plan (EPP) and preparation of O&M plans completed

Year	Target	Actual	Others, if any
Dec. 31, 2018	Draft updated EPP and O&M plans are reviewed by BT and other relevant state agencies	n/a	
Dec. 31, 2019	Draft updated EPP and O&M plans are reviewed by BT and other relevant state agencies	n/a	
Dec. 31, 2020	Final updated EPP and O&M plans are effective and implemented	Until adoption of Vakhsh Cascade level EPP, the Project would continue relying on existing Nurek EPP. The decision to prepare Cascade level EPP was found justified, consistent with the World Bank's ESF, and thus the update of Nurek EPP was discontinued. The preparation of Vakhsh Cascade level EPP would commence in August 2021. The interim result indicator would be updated accordingly. The O&M and instrumentation plans would be finalized once the technical specifications of all supplied equipment are made available to BT.	

Intermediate Result Indicators #7

Indicator #7: Percent of registered Project-related grievances (disaggregated by gender) responded to within stipulated service standards for response times

Year	Target	Actual	Others, if any
Dec. 31, 2018	100%	100%	
Dec. 31, 2019	100%	100%	
Dec. 31, 2020	100%	100%	
Dec. 31, 2021	100%	n/a	

Dec. 31, 2022	100%	n/a	
Dec. 31, 2023	100%	n/a	

Remarks: