Tajikistan : Nurek Hydropower Rehabilitation, Phase I

1. Project Information

Project ID:	P000018	Instrument ID:	L0018A
Member:	Tajikistan	Region:	Central Asia
Sector:	Energy	Sub-sector:	Renewable energy generation-hydropower
Instrument type:	☒Loan:60.00 US Dollar million ☐Guarantee	Lead Co-financier (s):	World Bank
ES category:	B	Borrowing Entity:	Ministry of Finance, Tajikistan
Implementing Entity:	Open Stock Holding Company "Barqi Tojik"		
Project Team Leader:	Emil Zalinyan		
Responsible DG:	Gregory Liu		
Responsible Department:	INF2		
Project Team Members:	Liu Yang, Project Counsel; Yunlong Liu, OSD - Procurement Specialist; Shodi Nazarov, OSD - Financial Management Specialist; Chongwu Sun, OSD - Environment Specialist; Komron Rajabiyon, Back-up PTL; Yuyou Guo, Project admin		
Completed Site Visits by AIIB:	Mar, 2019		
Planned Site Visits by AIIB:	The team is considering a joint mission on the project with the World Bank that will include a site visit in May 2023.		
Current Red Flags Assigned:	1		
Current Monitoring Regime:	Regular Monitoring		
Previous Red Flags Assigned:	1		
Previous Red Flags Assigned Date:	2022/06		

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 AIIB US$60 million (joint co-financing); EaDB US$40 million (parallel co-financing).

Project beneficiaries: The beneficiaries of the Project are all electricity consumers in the country and BT. In particular, the project will preclude loss of electricity supply from Nurek HPP, which accounts for 70 percent of winter generation during the time period of October-March when demand is the highest. Thus, the entire 8.5 million population of the country (including 4.2 million females) will benefit from the project. Moreover, 53,680 legal entities connected to the electricity network will also benefit because the project will help to meet their

demand in a reliable manner. Rehabilitation of Nurek HPP will also allow BT to reduce revenue loss due to equipment failures caused by dilapidation and obsolescence. Those equipment failures lead to electricity under-supply from the power plant, which creates a financial loss for BT. In case of disconnection of Nurek HPP from the power supply network due to failure of equipment or infrastructural components, the power plant does not supply electricity until the technical issues are fixed.

3. Key Dates

Approval:	Jun. 15, 2017	Signing:	Aug. 01, 2017
Effective:	Apr. 30, 2018	Restructured (if any):	
Orig. Closing:	Dec. 31, 2023	Rev. Closing (if any):	

4. Disbursement Summary (USD million)

Contract Awarded:		Cancellation (if any):	0.00
Disbursed:	29.01	Most recent disbursement (amount/date):	747,246.96/Nov. 01, 2022
Undisbursed:	30.99	Disbursement Ratio (%)[1]:	48.35

5. Project Implementation Update

The project implementation is progressing well. Rehabilitation of the first unit (Unit A/4) has been completed, with the unit put into operation by the President of Tajikistan on October 24, 2022. Works on the rehabilitation of the second unit (Unit B/4) and replacement of the autotransformer is progressing well with part of the equipment supplied to the site. The major dam safety activities on rehabilitation of the spillway tunnels and gates, upgrade of monitoring instruments and management system, and preparation of the Emergency Preparedness Plan, Operation and Maintenance Plan, Instrumentation Plan, and installation of a flood forecasting system are ongoing. The Project management consultant supports BT in the implementation management of the project and supervision of the contractors and consultants. The dam safety Panel of Experts and the environmental and social Panel of Experts provide oversight and advise to the implementation of the project.

Monthly progress reports are prepared and have so far been submitted in time by the Client's project implementation support consultant in the first week of every month.

Components	Physical Progress	Environmental & Social Compliance	Procurement
Component 1: Power Plant	$29.01m	No serious compliance issues have been reported.	Component 1.1 Replacement and

[1] Disbursement Ratio is defined as the volume (e.g. the dollar amount) of total disbursed amount as a percentage of the net committed volume.

Rehabilitation (design, model testing and installation of turbines) (US$45 M)			refurbishment of mechanical, electrical, and electromechanical equipment. 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. Subcomponent – Hydromechanical equipment. The contract was awarded to Sinohydro (China) and signed in March 2020. 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.
Component 2: Dam Safety (civil works) (US$15 M)	0	No issue	Dam Safety Component consists of the following parts: 1) Dam monitoring instrumentation, geodetic instrumentation and geotechnical investigations. Tojikgidroelektromontaj (TGEM) and Barqi Tojik signed the contract on 10/03/2020. 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.). The finalization of the scope of miscellaneous civil works mentioned above will depend on the results of

			additional investigations that are being carried out by TGEM. Detail design and preparation of bidding document for miscellaneous civil works is expected from Mar – Dec 2023.

Financial Management:

The Project audit report for FY2021 was sent to AIIB on September 8, 2022.

6. Status of the Grievance Redress Mechanism (GRM)

A grievance redress commission (GRC) including representatives at central and local levels, nominated by Nurek HPP, Stucky, site PIU, local authority, jamoat Dukoni and jamoat Puli Sangin, is fully functional. Contractor Andritz / TajikSGEM has relevant complaint forms in place for workers to apply. HSE specialist of TGEM-TT and TGEM also has complaints logbooks. To date, 36 questions/issues/complaints have been received and resolved/addressed.

Due to COVID-19, no public consultations have been held to share information on the status of works and collect feedback from stakeholders for the Project since 2019. During the World Bank mission in Nov 2022, it was agreed that as part of the annual public consultations, BT would conduct a survey in 2023 to determine the baseline and the percentage of citizens who believe that the Project has established effective engagement processes.

During the supervision mission of the World Bank, it was also noted that the project needs to strengthen the GRM at the power plant site/local level. No signage indicating the GRM's existence was found at the site. The workers need to be informed of the GRM available to them and the contact information of the persons they can report their grievances to be prominently displayed at the project site.

7. Results Monitoring (please refer to the full RMF, which can be found on the last page of this PIMR)

Detailed implementation progress by indicator is presented below.

Remarks:

Regardless of delays in the project's physical progress, no data collection delays are foreseen.

Project Objective Indicators	Indicator level	Unit of Measure	Cumulative Target Values																					Frequency	Responsibility	Comments
			Baseline		2016		2017		2018		2019		2020		2021		2022		2023		End Target					
			Year	Value	Target	Actual	Target	Actual	Target	Actual	Target	Actual	Target	Actual	Target	Actual	Target	Actual	Target	Actual	Year	Target	Actual			
Generation capacity of energy constructed or rehabilitated under the Project	Project	MW	2016						0	0	0	0	0	0	335	0	670	375	1005			1005		Annual	BT	Rehabilitation of generating unit 1 is completed.
Estimated annual electricity generation of three units included in the scope of the Project	Project	GWh	2016						At least 3,750GWh	3750	At least 3,750GWh	3716	At least 2,500GWh	3510	At least 2,511GWh	2996	At least 2,522GWh	2996	At least 3,783GWh			At least 3,783GWh		Annual	BT	
Estimated increase of winter electricity generation of rehabilitated units due to efficiency improvements	Project	GWh	2016						0	0	0	0	0	0	at least 11GWh	0	at least 22GWh	11	at least 33GWh			at least 33GWh		Annual	BT	Capacity of unit 1 is increased and its efficiency is improved.
Improved dam safety against hydrological and geological risks	Project	Text	2016						No	No	No	No	No	No	No	No	Yes	Yes	Yes			Yes		Anuual	BT	Dam safety activities are prgressing well, particularly with respect to rehabilitation of dam instrumentation and geotechnical investigations and rehabilitation of weirs and inverted pendulum at the intake tower.
People provided with improved electricity service	Project	Number	2016						0	0	0	0	0	0	8,276,000	0	8,276,000	8,617,000	8,276,000			8,276,000		Annual	BT	

Female beneficiaries	Project	% Sub-Type Supplemental	2016						0	0	0	0	0	0	49.3%	0	49.3%	49.3%	49.3%			49.3%		Annual	BT	

Project Intermediate Indicators	Indicator level	Unit of Measure	Cumulative Target Values																					Frequency	Responsibility	Comments
			Baseline		2016		2017		2018		2019		2020		2021		2022		2023		End Target					
			Year	Value	Target	Actual	Target	Actual	Target	Actual	Target	Actual	Target	Actual	Target	Actual	Target	Actual	Target	Actual	Year	Target	Actual			
Cumulative number of generating units rehabilitated	Project	Number	2016						Contract for rehabilitation is signed and effective	Physical project implementation has not started, and some contracts are still under procurement	Turbine hydraulic model test is completed	Contract signed, model testing started.	Design for generating units is completed and manufacturing commenced	Completed	1	Rehabilitation on generating unit 1 is still in progress.	2	1	3			3		Semi-annual	BT	Unit 1 is completely rehabilitated and put into operation on October 2022.
Cumulative number of auto-transformers replaced	Project	Number	2016						Bidding document is issued and evaluation of bids is completed	n/a	Contract for replacement of autotransformers is signed and effective	n/a	The supply of autotransformers is underway	0	Installation of autotransformers is underway	Preparation of design documents continued. Delays encountered due to civil issues.	6	0	6			6		Semi-annual	BT	Due to the soil subsidence and settlements observed in the switchyard area requiring additional investigations to design appropriate mitigation measures. The investigations are completed and BT has decided on the mitigation measure and approach.

Enhanced hydrologic al safety	Projec t	Text	20 16						Once in 10,000 years flood	Once in 10,000 years flood	Once in 10,000 years flood	Once in 10,00 0 years flood	Once in 10,000 years flood	Once in 10,000 years flood	Once in 10,000 years flood	Once in 10,000 years flood	Once in 10,000 years flood	Once in 10,000 years flood	Once in 100,000 years flood			Once in 100,000 years flood		Annual	BT	
Upgrade of the dam monitoring instrument ation completed	Projec t	Text	20 16						Bidding docume nt is issued	n/a	Contract for upgrade of dam instrument ation is signed and effective	n/a	The supply and installation of the dam monitoring instrument ation commence d	The contract is under implement ation	The dam monitoring instrument ation is partly operational	Foreseen completi on is postpone d as it was required to update design fo geodetic network	The dam monitoring instrument ation is fully operationa l	Substant ially complet ed				The dam monitoring instrument ation is fully operationa l		Semi-annual	BT	
Civil, electrical and mechanica l works for improvem ent of the dam safety completed	Projec t	Text	20 16						Bidding docume nt is issued	n/a	Contract for procureme nt of the dam safety improveme nt works is signed and effective	n/a	The dam safety improveme nt works are in progress	The bidding document s to be finalized in Oct 2021 once geotechnic al investigati ons are completed .	The dam safety improveme nt works are in progress	The bidding documen ts to be finalized in March 2022 once geotechn ical investigat ions are complete d.	Rehabilitat ion of the spillway tunnel, gates and hoisting system is completed	The bidding docume nts will be finalized in Oct-Dec 2023				Rehabilitat ion of the spillway tunnel, gates and hoisting system is completed		Semi-annual	BT	The bidding documen ts will be finalized in Oct-Dec 2023 once the addition al geotechn ical investiga tion are complete d.
Update of Emergency Preparedn ess Plan (EPP) and preparatio n of O&M plans completed	Projec t	Text	20 16						Draft updated EPP and O&M plans are reviewed by BT and other relevant state agencies	n/a	Draft updated EPP and O&M plans are reviewed by BT and other relevant state agencies	n/a	Final updated EPP and O&M plans are effective and implement ed	Ongoing	Final updated EPP and O&M plans are effective and implement ed	Ongoing	Final updated EPP and O&M plans are effective and implement ed	Ongoing	Final updated EPP and O&M plans are effective and impleme nted			Final updated EPP and O&M plans are effective and implement ed		Semi-annual	BT	Inceptio n report was approve d. Upon completi on of PFMA worksho p, the draft of PFMA report was received and circulate d among the engaged counterp arts for review and feedback .
Percent of registered Project-related	Projec t	%	20 16						100%	100%	100%	100%	100%	100%	100%	100%	100%	100%	100%			100%		Semi-annual	BT	

grievances (disaggregated by gender) responded to within stipulated service standards for response times																										