

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:	<input checked="" type="checkbox"/> Loan:60.00 US Dollar million <input type="checkbox"/> Guarantee	Lead Co-financier(s):	World Bank
ES category:	B	Borrowing Entity:	Ministry of Finance, Tajikistan
Implementing Entity:			
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 site visit jointly with the World Bank team towards the end of 2023.		
Current Red Flags Assigned:	1		
Current Monitoring Regime:	Regular Monitoring		
Previous Red Flags Assigned:	1		
Previous Red Flags Assigned Date:	2022/12		

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:	31.84	Most recent disbursement (amount/date):	0.95/Jan. 13, 2023
Undisbursed:	28.16	Disbursement Ratio (%) ¹ :	53.07

5. Project Implementation Update

Rehabilitation of the first generation unit (Unit A/1) was completed in June 2022 and inaugurated by the President of Tajikistan on October 24, 2022. The new unit at 375MW has a 10 percent higher capacity and is expected to generate 1380 GWh per year, 135 GWh more than the original unit. The rehabilitation extends the economic life of the unit by 35 years. The rehabilitation of the second unit (Unit B/4) started on August 12, 2022. Manufacturing and transportation of major parts for the second and third units have been completed. The major dam safety activities related to the rehabilitation of the spillway tunnels and gates and the upgrade of monitoring instruments and the management 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 advice on the implementation of the project. The project faced several challenges during implementation (COVID-19 impacts causing delays in mobilizing experts and disrupting the manufacturing and transportation of equipment; the Ukraine conflict resulting in an increase in the transportation and equipment cost and delays in the transportation of equipment; and the discovery of unexpected technical issues and defects, etc.). However, the project results remain achievable with the extension of the project closing date, which is December 31, 2023.

Monthly progress reports are prepared and have so far been submitted in time by the

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.

Client's project implementation support consultant in the first week of every month.

Components	Physical Progress	Environmental & Social Compliance	Procurement
Component 1: Power Plant Rehabilitation (design, model testing and installation of turbines) (US\$45 M)	\$30.36m	No serious compliance issues have been reported.	<p>Component 1.1 Replacement and refurbishment of mechanical, electrical, and electromechanical equipment. The contract was awarded to ANDRITZ HYDRO GMBH (Germany and Austria)/ANDRITZ HYDRO CORPORATION (USA) and signed on July 21, 2018.</p> <p>Component 1.2. Replacement of six autotransformers: 100% financed by the Eurasian Development Bank. The contract was awarded to Tojigidroelektromontaj.</p>
Component 2: Dam Safety (civil works) (US\$15 M)	\$1.48m	No issue	<p>Dam Safety Component consists of the following parts:</p> <p>1) Dam monitoring instrumentation, geodetic instrumentation and geotechnical investigations. Tojigidroelektromontaj (TGEM) and Barqi Tojik signed the contract on 10/03/2020.</p> <p>2) Hydromechanical equipment. The contract was awarded to Sinohydro (China) and signed in March 2020.</p> <p>3) 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</p>

			<p>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.</p>
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Financial Management:

The Financial Management (FM) arrangements at the PRG BT, including planning and budgeting, accounting, financial reporting, funds flow, and staffing, are Moderately Satisfactory. While quarterly interim financial reports are generally submitted on time and are acceptable to the Bank, the project audited financial statements for 2021 were delayed, and the entity audit financial statements were exceedingly delayed due to the BT restructuring process and the delayed hiring of auditors. The due date for project and entity audited financial statements for FY2022 is June 30, 2023. The project audit for FY2021 has an unqualified (clean) opinion, and no issues were raised in the management letter (ML). Both audit report and ML were found to be acceptable to the Bank.

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.

During the joint supervision mission with the World Bank on May 1-5, 2023, Nurek Project Realization Group (PRG) at BT, the project implementing entity, confirmed that consultations had been held and GRM was established; however, they have not received any complaints since the last World Bank mission. In the previous mission, it was reported that 36 questions/issues/complaints had been received and resolved/addressed by the GRM, but currently, no complaints have been received except for five complaints from workers that were resolved by the contractor.

The mission 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	375					1005	Annual	BT	As of May 2023. Project closing date will be extended to October 2025.
Estimated annual electricity generation of three units included in the scope of the Project	Project	GWh	2016						At least 3,750G Wh	3750	At least 3,750G Wh	3716	At least 2,500G Wh	3510	At least 2,511G Wh	2996	At least 2,522G Wh	2996	At least 3,783G Wh	3761					At least 3,783G Wh	Annual	BT	As of May 2023. Project closing date will be extended to October 2025.
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	11					at least 33GWh	Annual	BT	As of May 2023. Project closing date will be extended to October 2025.
Improved dam safety against hydrological and geological risks	Project	Text	2016						No	No	No	No	No	No	No	No	Yes	Yes	Yes	Yes					Yes	Annual	BT	As of May 2023
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	9395000					8,276,000	Annual	BT	As of May 2023
Female beneficiaries	Project	% Sub-Type Supplemental	2016						0	0	0	0	0	0	49.3%	0	49.3%	49.3%	49.3%	49.63%					49.3%	Annual	BT	As of May 2023

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	20	16								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	1		3		Semi-annual	BT	As of May 2023. Project closing date will be extended to October 2025.
Cumulative number of autotransformers replaced	Project	Number	20	16								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		6	0	6	0		6		Semi-annual	BT	As of May 2023, manufacturing and supply of most equipment is completed, including supply of 6 autotransformers. Extension of EADB loan closing date is being discussed.
Enhanced hydrological safety	Project	Text	20	16								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 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 10,000 years flood	Once in 100,000 years flood	Once in 10,000 years flood	Once in 100,000 years flood	Annual	BT	As of May 2023. Project closing date will be extended to October 2025.	
Upgrade of the dam monitoring instrumentation completed	Project	Text	20	16								Bidding document is issued	n/a	Contract for upgrade of dam instrumentation is signed and effective	n/a	The supply and installation of the dam monitoring instrumentation commenced	The contract is under implementation	The dam monitoring instrumentation is partly operational	Foreseen completion is postponed as it was required to update design for geodetic network	The dam monitoring instrumentation is fully operational	Substantially completed		Substantially completed			The dam monitoring instrumentation is fully operational	Semi-annual	BT	As of May 2023. Project closing date will be extended to October 2025.	

Civil, electrical and mechanical works for improvement of the dam safety completed	Project	Text	2016						Bidding document is issued	n/a	Contract for procurement of the dam safety improvement works is signed and effective	n/a	The dam safety improvement works are in progress	The bidding documents to be finalized in Oct 2021 once geotechnical investigations are completed.	The dam safety improvement works are in progress	The bidding documents to be finalized in March 2022 once geotechnical investigations are completed.	Rehabilitation of the spillway tunnel, gates and hoisting system is completed	The bidding documents will be finalized in Oct-Dec 2023	Delayed: bidding documents will be finalized by June 2024	Rehabilitation of the spillway tunnel, gates and hoisting system is completed	Semi-annual	BT
Update of Emergency Preparedness Plan (EPP) and preparation of O&M plans completed	Project	Text	2016					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 implemented	Ongoing	Final updated EPP and O&M plans are effective and implemented	Ongoing	Final updated EPP and O&M plans are effective and implemented	Ongoing	Final updated EPP and O&M plans are effective and implemented	Ongoing	Final updated EPP and O&M plans are effective and implemented	Semi-annual	BT
Percent of registered Project-related grievances (disaggregated by gender) responded to within stipulated service standards for response times	Project	%	2016					100%	100%	100%	100%	100%	100%	100%	100%	100%	100%	100%	100%	100%	Semi-annual	BT