



# Project Information Document (PID)

Appraisal Stage | Date Prepared/Updated: 24-May-2020 | Report No: PIDA29454

**BASIC INFORMATION****A. Basic Project Data**

Country Tajikistan	Project ID P173804	Project Name Nurek Hydropower Rehabilitation Project Phase 2	Parent Project ID (if any)
Region EUROPE AND CENTRAL ASIA	Estimated Appraisal Date 22-May-2020	Estimated Board Date 29-Jun-2020	Practice Area (Lead) Energy & Extractives
Financing Instrument Investment Project Financing	Borrower(s) Ministry of Finance, Ministry of Energy and Water Resources	Implementing Agency Barqi Tojik	

## Proposed Development Objective(s)

The project development objectives are to rehabilitate and increase the generating capacity of six power generating units of Nurek hydropower plant and improve their efficiency.

## Components

Component 1: Rehabilitation of six generating units and other key infrastructure, and purchase of machinery required for maintenance of the power plant

Component 2: Technical assistance

**PROJECT FINANCING DATA (US\$, Millions)****SUMMARY**

<b>Total Project Cost</b>	191.90
<b>Total Financing</b>	50.00
<b>of which IBRD/IDA</b>	50.00
<b>Financing Gap</b>	141.90

**DETAILS****World Bank Group Financing**

International Development Association (IDA)	50.00
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IDA Grant	50.00
Environmental and Social Risk Classification	
Substantial	
Decision	
The review did authorize the team to appraise and negotiate	

## B. Introduction and Context

### Country Context

- Tajikistan is a landlocked country located in southeast Central Asia. It has a population of 8.5 million and a Gross National Income per capita of US\$1,010 (2018).**<sup>1</sup> In 2016-2019, Tajikistan’s real Gross Domestic Product (GDP) exhibited healthy growth rates. According to official statistics, GDP growth was 6.9 percent in 2016 and accelerated to 7.5 percent in 2019, supported by robust year-on-year growth in industry (14 percent), agriculture (7 percent), and retail trade (9 percent). On the demand side, consumption and net exports drove growth, while investment fell by 7 percent. Growth was largely supported by heightened public investment in infrastructure projects.
- The current account deficit narrowed in 2019 due to larger growth in exports and slow increase of imports.** A jump in exports and a recovery in remittances helped narrow the current account deficit to an estimated 4.3 percent of GDP in 2019. Merchandise imports increased by 6.3 percent in U.S. dollar terms. Export earnings rose by 9.4 percent in 2019, supported by higher shipments abroad of precious metals and electricity.
- The fiscal stance remained cautious in 2019.** The fiscal deficit of 2.7 percent of GDP was little unchanged from 2018. Cuts in non-energy capital spending accompanied with lower-than-projected revenue collection helped to contain the deficit. Meanwhile, delays in rolling out the Targeted Social Assistance (TSA) program to an additional 28 regions and slow progress in deciding to increase the TSA’s budget by 10 percent put this important anti-poverty measure on hold. Spending on the Rogun Hydropower Plant (HPP) comprised the largest share of public investment in 2019, facilitating the launch of the second of the six turbines in 2019.
- Poverty rate reduced.** The poverty rate - using Tajikistan’s official poverty line - fell to 27.4 percent in 2018, reflecting acceleration of economic growth and recovery in inflows of remittance. The rural poverty rate declined markedly from 36.1 percent in 2014 to 30.2 in 2018, reflecting rising household consumption. The rate of extreme poverty also fell steadily from 18 percent in 2013 to 12 percent in 2018.
- COVID-19 poses significant economic and social challenges for 2020-2022.** The outbreak of the COVID-19 disease has resulted in a substantially worse macro-fiscal framework. GDP growth is expected to fall to 1.7 percent in 2020 or lower, reflecting the implications of the COVID-19 outbreak and the slowdown in Russia and China. These implications include the sharp decline of trade and lower commodity prices, a likely large

<sup>1</sup> In current US\$, Atlas Method, World Development Indicators, The World Bank. Source: <https://data.worldbank.org/indicator/NY.GNP.PCAP.CD?locations=TJ>



drop in remittances, and worsened prospects for transport and tourism industries. Growth will likely remain weak at about 3.5 percent in 2021-2022 supported by public investments.

6. **The fiscal situation is expected to deteriorate.** The fiscal deficit is expected to widen to more than 5 percent of GDP in 2020 as a result of lower revenues and increased spending on health, social transfers. The revenue shortfall will mirror the high share of value added tax (VAT) and trade taxes in total tax revenue and Tajikistan's greater reliance on imports originating from China. The expected increase in public spending in 2020 is likely to reflect social support to mitigate the loss of household incomes. After a one-off surge in the fiscal deficit in 2021, the deficit needs to be reduced in the subsequent years to ensure debt sustainability.

7. **The current account deficit will most likely widen in 2020-2022.** The current account deficit is forecast to widen to above 5 percent of 2020 of GDP due to the contraction in remittances and the larger trade deficit as a result of declining export of metallic minerals, the largest export commodity of Tajikistan. Inflow of foreign direct investment (FDI) is likely to decline. The current account deficit is expected to remain elevated in 2021-22 as global trade conditions are projected to remain depressed throughout the medium-term.

8. **The deterioration of macroeconomic fundamentals may impact the banking sector.** The banking sector is expected to experience a deterioration of the loan portfolio in 2020 and an increase in the NPL ratio. The latter is expected to be affected by the balance-sheet mismatches as a result of Somoni depreciation. The NBT will need to enhance its regulatory role to restore the banking sector's stability.

9. **The Government has undertaken a number of steps to address the structural issues in the economy and mitigate the social impacts from COVID-19.** Specifically, the Government initiated: (a) implementation of the Program for Financial Recovery of BT for 2019-2025 aimed at improving financial viability of BT and increasing reliability of electricity supply; (b) further roll-out of the Targeted Social Assistance (TSA) Program to cover the entire country; and (c) activities aimed at exploring options for raising private financing for Rogun HPP considering that entirely public financing to complete the project may not be feasible especially considering the impacts from COVID-19

#### Sectoral and Institutional Context

10. **The power sector is comprised of the vertically integrated energy company, BT, three independent power producers (IPPs), and a concession in Gorno-Badakhshan Autonomous Oblast (GBAO) combining power generation and distribution.** BT is a state-owned company. It owns and operates most of the electricity generating plants and is also responsible for electricity transmission, dispatch, and distribution services to around 9 million people in all regions of the country except for GBAO. Two of the IPPs – Sangtuda-1 and Sangtuda-2 hydropower plants (HPPs) – were constructed with investments from Russian and Iranian state-owned companies and supply electricity to BT under 20-year Power Purchase Agreements (PPAs). The third IPP – Rogun HPP – is under construction and supplies electricity to BT under a PPA. Pamir Energy Company (PEC) generates and supplies electricity to around 245,000 people in GBAO under a 25-year concession agreement.

11. **Electricity supply mix is dominated by hydropower.** The total installed generation capacity of Tajikistan is 6,856 MW and HPPs account for 90 percent. The 3,000 MW Nurek HPP, with a seasonal reservoir, is the largest generating plant. It generates 50 percent of the total annual energy requirements and is also the balancing plant in the system. It should be noted that available operational capacity is lower considering that several HPPs and some of the CHPs, such as Dushanbe-1 and Yavan, have technical issues.

#### Main Challenges in the Power Sector



12. The power system is currently facing the key challenges below, which need to be addressed to ensure adequate and reliable electricity supply, and financially sustainable power sector.

13. **Challenge #1: Financial distress of BT.** BT has been in financial distress due to: (a) below cost-recovery tariffs; (b) unsustainable and increasing debt levels; (c) low collection rates for billed electricity; (d) operational inefficiencies; (e) lack of opportunities for realization of full export potential; and (g) depreciation of TJS vs US\$. This has led to significant deterioration of financial standing of BT. Specifically, BT has a sizeable cash deficit because tariffs are below cost recovery levels and there are operational inefficiencies. The significant increase in cash costs, which were not fully passed through to end-user tariffs, coupled with operational inefficiencies, resulted in a significant cash deficit<sup>2</sup>, which is estimated at TJS11.7 billion (US\$1.2 billion) as of 2018. This cash deficit can only be eliminated in case the Government implements gradual tariff increases coupled with financial measures and operational efficiency improvements by BT.

14. **Challenge #2: Reduction of electricity supply reliability due to dilapidation of electricity generation, transmission and distribution (T&D) assets.** The financial distress of BT impacted the reliability of electricity supply, which deteriorated due to obsolescence and under-maintenance of main power generating plants and T&D networks. Specifically, only 77 percent of the generation capacity of Nurek HPP is operational because generating units require refurbishment given the age and technical condition. The need for rehabilitation was established based on the technical assessment of the condition of the generating units and other infrastructural components of the power plant. The poor technical condition of the plant is due to obsolescence of equipment and lack of major capital repairs since its commissioning. The same major issues are relevant for the 600 MW Baipaza HPP, which requires rehabilitation.

15. **Challenge #3. 43,126 people (0.5 percent of population) in GBAO and Khatlon regions do not have access to electricity service.** In parts of Khatlon, bordering Afghanistan, there are 74 settlements with total population of 31,460 without access to electricity. Those settlements could not be connected to the grid due to severe financial difficulties of BT. In GBAO, 61 settlements with total population of 11,666 are not connected to electricity service. Those settlements are in remote mountainous areas in the region, which is also the service area of PEC, where access has historically been a challenge. Most of the settlements are scattered over a vast territory in the eastern part of GBAO, while a few of the settlements are in the western part, close to existing PEC grid. Before Tajikistan's independence, those areas were primarily supplied with diesel-based portable generator sets. This approach became prohibitively expensive given the increase in unit costs of diesel-based electricity generation once the generous fuel subsidies provided under the Soviet Union disappeared.

### C. Proposed Development Objective

16. The project development objectives are to rehabilitate and increase the generating capacity of six power generating units of Nurek hydropower plant and improve their efficiency.

#### Key Results

- Indicator One (CRI): Generation capacity of energy constructed or rehabilitated under the project (MW). This indicator measures the capacity of hydropower constructed or rehabilitated under the project.

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<sup>2</sup> Difference between cash sales and accrual-based costs related to core business activities: cost of electricity from IPPs; O&M; liabilities related to repayment of outstanding principal amounts of debt; interest costs; accumulated payables to IPPs, and taxes.



- Indicator Two (Custom): Estimated total annual electricity generation of six units included in the scope of the project (GWh). This indicator measures the amount of electricity supplied by the six units of Nurek HPP, which were rehabilitated under the project, to the power transmission network. The Project Phase 1 Indicator was: “Estimated increase of winter electricity generation of rehabilitated units due to efficiency,” which was revised considering that now Nurek HPP can also generate more in summer due to substantial expansion of exports due to various factors.
- Indicator Three (Custom): Estimated increase of total annual electricity generation of six rehabilitated units due to efficiency improvements (GWh). This indicator measures the increase in total generation of rehabilitated units due to average efficiency increase of 2.74 percent based on the specifications in the signed contract.
- Indicator Four (CRI): People provided with new or improved electricity service (Number). The indicator measures the number of people that have received improved electricity service due to the project.

**D. Project Description**

17. **Component 1: Rehabilitation of six generating units and related penstocks, and strengthening of Nurek HPP capacity to operate and maintain the power plant (US\$188.5 million, including US\$46.6 million from IDA and US\$141.9 million financing gap).** This component will consist of two sub-components.

18. **Sub-component 1.1: Rehabilitation of six generating units and related penstocks (US\$177.8 million, including US\$35.9 million from IDA and US\$141.9 million financing gap).** This sub-component will finance: (a) rehabilitation of six power generating units, including generators, turbines, main inlet valves, and transformers, and supply of spare parts to ensure sustainable operation of rehabilitated units; and (b) rehabilitation of penstocks related to six units to be rehabilitated.

19. **Sub-component 1.2: Rehabilitation of Nurek bridge, the powerhouse, and other buildings/structures at Nurek HPP site and strengthening of Nurek HPP capacity to operate and maintain the power plant (US\$10.7 million, which will be fully financed by IDA).** This sub-component will finance: (a) rehabilitation of Nurek bridge; (b) rehabilitation of the powerhouse and some other buildings/structures at Nurek HPP that may require rehabilitation; and (c) purchase of machinery, including excavators, forklift trucks, truck cranes, required for maintenance of the power plant.

20. The rehabilitation of Nurek bridge, the powerhouse and other buildings/structures at Nurek HPP would also contribute to mitigation of COVID-19 impacts on the local economy by boosting capital spending and creating local jobs. The share of local components in such civil works is quite high because most of the construction materials are locally produced and local labor force would be employed. The preliminary estimates suggest that only rehabilitation of Nurek bridge can generate about 1,000 person-month of construction related jobs.

21. **Component 2: Technical assistance (US\$3.4 million, which will be fully financed by IDA).** This component will support implementation of the project and strengthen the institutional capacity of BT.

Legal Operational Policies	Triggered?
Projects on International Waterways OP 7.50	Yes



Projects in Disputed Areas OP 7.60

No

### Summary of Assessment of Environmental and Social Risks and Impacts

22. **Environmental impacts.** The main environmental impacts and risks as identified in the updated ESIA for Phase 2 of the project are: (a) asbestos in the equipment to be refurbished; (b) disposal of hazardous waste, (c) health and safety risks (electrocution) for the workers and personnel engaged in dismantling, installation and testing of equipment (e.g. turbines and auto-transformers) in a limited work space, and (d) water contamination due to potential leakage from construction material including waste. The environmental and social management and monitoring plan in the updated ESIA includes appropriate and adequate measures to mitigate the identified potential impacts and risks. The only impacts on reservoir or downstream water quality would be from spills of hazardous materials or the release of sanitary waste. The risk of such potential impacts is minor if hazardous materials and waste are managed properly and sanitary water is controlled and treated. The Environmental and Social Management Plan (ESMP) for Nurek bridge rehabilitation screened the environmental risks and impacts during the construction of bridge. These could include traffic disruption, excessive noise and dust levels, water contamination and road safety.

23. **Social impacts.** The Project will have overall positive impacts with continued employment as well as low-cost electricity supplied to commercial, industrial, and residential consumers, which is a material positive impact considering that Nurek HPP accounts for about 50 percent of domestic electricity supply. The Phase 2 may have negative social impacts considering the scale of the Project and potential Occupational, Health, and Safety (OHS) risks, including use of heavy equipment/machines, work in confined areas/height, exposure to asbestos. The rehabilitation works within the power plant will be confined to existing structures while bridge rehabilitation, which is primarily used to access Nurek plant facilities, will be rehabilitated in a way that allows continued use.

24. The contractor selected under the Phase 1 for rehabilitation of the generating units has already developed procedures and included those in the OHS Plan (for construction) and the Nurek Safety and Health Plan (for operations) to minimize the risks. If the Plan is properly implemented, risks would be reduced. Safety measures will be put in place to protect both workers and communities throughout Project implementation with additional measures to ensure safety during operation. Power plant rehabilitation works will be conducted within a confined area, which will have minimal or no impact on communities.

25. Traffic risk will be controlled by the contractor's preparation and implementation of a Traffic Management Plan. As noted, this will include requirements that routes through Nurek City be planned to avoid sensitive areas such as hospitals and schools, and that traffic avoid rush hours. With these controls, the potential impacts are considered to be moderate. The project will have a generally positive effect on the economy of Nurek City.

## E. Implementation

### Institutional and Implementation Arrangements

26. BT will be responsible for implementation of the Phase 2 of the Project. The proposed Project's implementation arrangements were developed considering the experience of BT with implementation of IFI-financed projects, including the Energy Emergency Recovery Project and its Additional Financing (World Bank), the Energy Loss Reduction Project and its Additional Financing (World Bank), ongoing Project on Reduction of



Electricity Losses in Sughd Region (EBRD) as well as the ongoing Qairokkum Hydropower Rehabilitation Project financed (EBRD). The implementation arrangements are reflected in the Project Operational Manual (POM), prepared during Phase 1, which will also be used for implementation of Phase 2.

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**APPROVAL**

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