ASIAN INFRASTRUCTURE INVESTMENT BANK

December 4, 2024

Sovereign-Backed Financing

Program Document

P000687 Tajikistan: Rogun Hydropower Development Program

Currency Equivalents
(As at date, November 29, 2024; National Bank of Tajikistan)

Currency Unit – Name (TJS)
TJS1.00 = USD0.0920
USD1.00 = TJS10.8643

Borrower's Fiscal year
January 1 – December 31

Abbreviations

AIIB	Asian Infrastructure Investment Bank
ACG	Arab Coordination Group
ADB	Asian Development Bank
APTZ	Atypical Zone
CDP	Cassa Depositi e Prestiti / The Development Bank of Italy
DFZ	Directorate of the Flooding Zone of Rogun HPP
DSPoE	Dam Safety Panel of Experts
EBRD	European Bank for Reconstruction and Development
EDB	Eurasian Development Bank
EIB	European Investment Bank
ER	Employer's Representative
ESPoE	Environmental and Social Panel of Experts
ESIA	Environmental and Social Impact Assessment
ESMP	Environmental and Social Management Plan
ESS	Environmental and Social Standards
FM	Financial Management
GRM	Grievance Redress Mechanism
GoT	Government of Tajikistan
HPP	Hydropower Plant
IDA	International Development Association
IMF	International Monetary Fund
IsDB	Islamic Development Bank
LRP	Livelihood Restoration Plan
masl	Meters above sea level
MDB	Multilateral Development Bank
MW	Megawatt
PAP	Project Affected People
PMC	Project Management Consultant
PMG	Project Management Group for Energy Facilities Construction under the President of the Republic of Tajikistan
PPM	Project Affected People's Mechanism
PPSF	AIIB Project Preparation Special Fund
OIP	Optimized Overall Implementation Program
OJSC	Open Joint Stock Company

RAP	Resettlement Action Plan
TA	Technical Assistance
TEAS	Techno-Economic Assessment Study
TGEM	Tojikgidroelectromontaj
TJS	Tajikistan Somoni
WB	World Bank
USD	United States Dollars
HLO	High-Level Outlet
OVS	Overflow Spillway
OIP	Overall Implementation Program
DT	Diversion Tunnel

CONTENTS

1. Summary Sheet

Project No.	P000687
Project Name	Rogun Hydropower Development Program
AIIB Member	Tajikistan
Borrower	Republic of Tajikistan
Project Implementation Entities	• Project Management Group for Energy Facilities Construction under the President of the Republic of Tajikistan (PMG) • Rogun HPP Open Joint Stock Company (Rogun OJSC) • Directorate of the Flooding Zone of Rogun HPP (Rogun DFZ)
Sector Subsector	Energy Renewable energy generation - hydropower
Alignment with AIIB's thematic priorities	Green infrastructure; Connectivity and Regional Cooperation
Project Objective	To increase the supply of clean, affordable, and climate resilient hydroelectricity for consumers in Tajikistan and the Central Asia region.
Project Description	A multi-phase program for a total amount equivalent to USD 500 million is being proposed to finance the Rogun Hydropower Development Project (RHDP). The Project involves construction of a hydropower plant, currently in progress, with a designed generation capacity of 3,780 MW, a 335-meter-high embankment dam (the highest in the world upon completion), a reservoir area of 110km^2, and a total reservoir capacity of 13.3km^3. It is located on the Vakhsh River (a tributary of the Amu Darya River), 110 kilometers from the capital Dushanbe, upstream of the Nurek Hydropower Plant. The large reservoir can provide seasonal regulation, which can provide firm energy during the winter season and reliable electricity to meet growing domestic demands at an affordable cost. Furthermore, it has the potential to export clean energy to Central Asian countries, generating significant export revenue for many years to come. Rogun HPP can also act as a balancing plant for Tajikistan and the broader Central Asia region, facilitating easier integration of intermittent renewable energy and contributing to decarbonizing the fossil-fuel-dominated Central Asia power systems. The estimated cost of the completion of Rogun HPP is USD 6.29 billion.
Implementation Period	For the overall Multi-Phase Program: January 2025 – December 2033 For the Phase 1: January 2025 – December 2029

<table>
<tr><td>Expected Loan Closing Date</td><td>June 30, 2030</td></tr>
<tr><td>Proposed Amount of AIIB Financing</td><td>For the overall Multi-Phase Program: equivalent to USD 500 million

For Phase 1 Commitment: equivalent to USD 270 million

The MoF of Tajikistan requested the AIIB loan to be provided in RMB, with a grace period of 10 years and final maturity of 30 years.</td></tr>
<tr><td>Financing Plan</td><td>The indicative financing package includes USD 2.90 billion in grants and debt from MDBs and other donors and USD 3.39 billion of state budget contribution in the form of equity and projected project revenues.

AIIB will support the financing of (i) electromechanical equipment (Components 1 of the Project, Lots 1, 1A & 1B); (ii) right bank structures (Component 1 of the Project, Lot 3A); (iii) the construction and rehabilitation of 55km intra-village gravel road, including road and pedestrian bridges on the left bank of the reservoir (Sub-component 3.2); and (iv) the Lenders' Technical and E&S Advisor (Sub-component 2.4). Taking into consideration the Rogun HPP's preliminary construction schedule and macro-fiscal sustainability concerns of the country, AIIB will also apply a multi-phase program, in line with WB, with a planned schedule of financing commitments.

<table>
<tr><th>in USD million</th><th>Phase 1</th><th>Phase 2</th><th></th></tr>
<tr><td>Component 1. Construction activities</td><td>237.5</td><td>227.5</td><td>465.0</td></tr>
<tr><td>Component 2. Project implementation support</td><td>2.5</td><td>2.5</td><td>5.0</td></tr>
<tr><td>Component 3. RAP and LRP implementation</td><td>30.0</td><td>-</td><td>30.0</td></tr>
<tr><td>Total per phase</td><td>270.0</td><td>230.0</td><td>500.0</td></tr>
</table>

The AIIB financing for the Project will be structured in two phases linked to key construction milestones.

a) Phase 1: achieving by 2029 dam height of at least 1,185 masl and installed capacity of 2,040MW (including 780MW for temporal generating units 5 and 6, and 1,260MW for newly installed permanent generating units 3 and 4). It becomes committed upon loan effectiveness.

b) Phase 2: achieving by 2033 dam height of 1,300 masl and installed capacity of 3,780MW (630MW in all six permanent generating units): It is proposed that Phase 2 begins when either of the triggering conditions listed below is satisfied provided that Tajikistan's macro-economic and fiscal conditions remain sustainable and the project maintains satisfactory E&S performance:</td></tr>
</table>

	1) the committed loan amount for Phase 1 has been fully utilized, or 2) the dam height of at least 1,185 meters above sea level (masl) and installed capacity of 2,040MW (780MW for temporary generating units 5 and 6, and 1,260MW for newly installed permanent generating units 3 and 4) has been achieved. The end target of Phase 2, also the target of whole Multi-Phase Program, will be achieved when the dam height reaches elevation of 1,300 masl and the installed generation capacity is 3,780MW (630MW in all six permanent generating units). The planned year of construction completion is 2033, and the estimated year of full impoundment is 2039, as per the updated Rogun construction schedule in Optimized Overall Implementation Program (OIP).
ES Category (or AIIB equivalent, if using another MDB's ES Policy)	A
ES Category Comments	The Project will have significant, cumulative, and diverse adverse social and environmental impacts. Adverse social risks are associated with significant involuntary resettlement and livelihood restoration, land acquisition, acquisition, and access limitations. Additional social risks at construction phase are associated with worker retrenchment, labor management, including labour and working conditions, OHS, and establishment of safe and effective work camps during construction phase. The Project will also affect community health and safety, associated with labor influx, with attendant risks related to social tensions, gender-based violence, sexual exploitation and abuse/sexual harassment (GBV/SEA/SH), transmission of disease and security issues. The social risks and impacts will be addressed in the updated and newly prepared E&S instruments, namely an up-dated ESIA, RLRF, ESMP, Phase 2 RAP, GAP, LMP, SEP, a Cultural Heritage Survey Plan, a benefit sharing study and other plans and studies, as necessary. Key environmental challenges at construction phase encompass risks associated with landslides and slope stability, inadequate management of solid, liquid and hazardous waste, impacts on natural habitats, which will require a biodiversity management plan, and potential for impacts on cultural heritage features. Issues of particular environmental concern are related to permanent inundation of the reservoir area, changes of landscape, changes in

	hydrology and impacts on river flow, quality and morphology, terrestrial and aquatic ecosystems, pollution and waste disposal, vibrations from blasting of tunnels and from heavy machinery, dust pollution, etc. The Project is also expected to be significantly exposed to physical climate risks, including but not limited to access to water resources, landslides, and extreme weather events triggered by climate change. E&S risks would be exacerbated by E&S capacity and competency constraints in almost all the Project implementing entities, and in relation to construction risks, an engrained culture of performing to very low standards. Environmental and social risks will be addressed by the development of adequate and proportional instruments in collaboration and in compliance with the E&S policies of the lead Co-lenders, particularly the WB for E&S safeguards, while European climate regulations and directives as applied by EIB will be used for climate impacts assessment and physical climate risk assessment. These instruments will be supported by changes in organizational structures and contractual obligations.
Risk (Low/Medium/High)	High
Conditions of Effectiveness	The loan effectiveness conditions will consist of the following: • the World Bank's Financing Agreement has been executed on behalf of the World Bank and the Borrower, and all conditions precedent to its effectiveness have been fulfilled; and • the Project Co-lenders' Agreement has been executed on behalf of the Bank and the World Bank, and all conditions precedent to its effectiveness (except for the effectiveness of this Loan Agreement) have been satisfied.
Conditions for Disbursement	For expenditures in respect of Lots 1, 1A, and 1B, and Lot3 under Component 1, unless and until: (i) Rogun PMG's FM Manual has been adopted in a manner acceptable to the Bank; and until each of the ESIA, ESMP, Phase 2 Resettlement Action Plan (RAP 2) and Phase 2 Livelihood Restoration Plan (LRP 2), satisfactory in form and substance to the Bank, has been adopted and disclosed by the Borrower; (ii) the Cultural Heritage Management Plan and the Biodiversity Management Plan have been adopted and disclosed by Rogun PMG in accordance with the

	requirements of the ESCP and in form and substance acceptable to the Bank. For expenditures in respect of left bank road under Sub-component 3.2, unless and until: (i) the Sub-component 3.2 ESMP, satisfactory in form and substance to the Bank, has been approved by the Bank, and adopted and disclosed by the Borrower, and all actions required thereunder prior to carrying out Component 3 have been implemented in accordance with the provisions of the Sub-component 3.2 ESMP; (ii) (ii) DFZ's FM Manual, acceptable to the Bank, has been adopted in a manner acceptable to the Bank; and (iii) DFZ shall have hired an additional environmental and social specialist and a roads and bridges expert in accordance with the terms of reference acceptable to the Bank.
Policy Assurance	The Vice President, Policy and Strategy, confirms an overall assurance that AIIB is in compliance with the policies applicable to the Program.
Economic Capital (ECap) Consumption (USDm)	USD 107.42 million (39.86%)
President	Liqun Jin
Vice President	Konstantin Limitovskiy
Acting Director General	Konstantin Limitovskiy
Team Leader	Emil Zalinyan, Senior Investment Officer
Back-up Team Leader	Jingjing Zhao, Investment Officer
Team Members	Mark Barnard, Senior Environment Specialist Gulru Azamova, Senior Social Development Specialist Chitambala John Sikazwe, Senior Procurement Specialist Alberto Alcubilla Arribas, Senior Investment Solution Specialist Shodi Nazarov, Financial Management Specialist Christopher Damandl, Senior Project Counsel Julius Thaler, Alternate Counsel
Credit Officer	Young Bong Cho

2. Context

2.1 **Country and Macroeconomic Overview:** Tajikistan is a landlocked country in Central Asia (CA) with a population of over 10 million. It is a lower-middle-income country with an income per capita of USD 1,270 (around USD 5,660 in purchasing power parity), relying on remittance to support domestic demand. Over the past two decades, Tajikistan's economy has experienced significant progress and remain favorable post-pandemic performance. Real GDP expanded by 8 percent in 2022 and another 8.3 percent in 2023. The average consumer price inflation rate declined from 6.6 percent in 2022 to 3.7 percent in 2023[1]. Tajikistan also reduced its overall fiscal deficit and volume of public debt from 2020 to 2023. Fiscal deficit declined from over 3 percent in 2020 to around 1 percent on average in 2021-2023. The volume of public debt declined from 50.3 percent of GDP in 2020 to about 30 percent estimated for 2023, due to economic growth and the appreciation of the Tajik somoni (TJS). Though showing signs of improvement, the country is still facing considerable external uncertainties and risk of debt distress due to the expected repayment of the Eurobond in 2025-2027. To strengthen the macroeconomic policy framework and foster inclusive growth, the Government of Tajikistan (GoT) negotiated a new Policy Coordination Instrument (PCI) with IMF. In February 2024, IMF approved the 22-month PCI Program, which comprise three pillars including improving fiscal resilience, modernizing monetary, exchange rate and financial policies, and enhancing governance, transparency and other structural reforms.

2.2 **Sector Overview:** Tajikistan's power sector is characterized by a heavy reliance on hydropower, with approximately 93 percent (2022)[2] of its electricity generated from hydroelectric sources. The country's hydropower potential is substantial, estimated at 527 billion kWh per year, significantly surpassing the current electricity consumption of Central Asia[3]. This potential is largely unexploited, with about 95 percent of economically viable hydropower still untapped.

The electricity generation capacity currently stands at approximately 6,100 megawatts (MW), of which approximately 88 percent is derived from hydropower sources, while the remaining 12 percent is generated through thermal power. The Nurek Hydropower Plant (HPP), with a capacity of 3,000 MW and a seasonal reservoir, is the largest generating facility, accounting for approximately 50 percent of the total electricity supply. The Rogun HPP, which presently operates at 400 MW, is projected to reach an installed capacity of 3,780 MW upon the completion of ongoing construction. This facility is anticipated to play a critical role in meeting both domestic and regional electricity demands.

2.3 **Addressing Key Development Challenges and Program Contributions:** Despite its potential, the country's energy sector faces significant challenges:

- *Unreliable energy supply*. The hydropower-dependent power system of Tajikistan results in seasonal generation volatility, with surpluses of electricity in summer and shortages in winter when demand for electricity is the highest, driven by heating needs. This has historically left parts of the population, particularly in rural areas, with limited electricity access during colder

[1] Data source: National Statistics: Macroeconomic indicators - Agency on statistics under the President of the Republic of Tajikistan
[2] IRENA, Energy Profile, Tajikistan
[3] https://energy.carecprogram.org/wp-content/uploads/2023/11/Tajikistans-Investment-Opportunities-in-Hydropower.pdf

months. The large reservoir associated with Rogun HPP will provide essential seasonal regulation of water flows, addressing the variability in electricity generation linked to hydropower and seasonal river fluctuations. Rogun HPP will help stabilize the electricity supply year-round and meet the increasing domestic demand, particularly during winter.

- *Aging Infrastructure*. Additional risks to energy security come from an aging infrastructure and a large number of generation facilities reaching the end of their lifespans. To maintain existing capacity, approximately 80 percent of Tajikistan's HPPs will need to be rehabilitated by 2030[4]. The reliability of the electricity supply is also impacted by the obsolescence and under-maintenance of the transmission and distribution networks, which increase the frequency of asset failures. The government is working mainly with the IFIs to secure projects and funding for these large-scale rehabilitations. Preliminary rehabilitation work on the Nurek HPP[5], as well as on the Kayrakum HPP, is ongoing.

- *Financial Viability*. Tajikistan's electricity sector has been in financial distress due to: (a) below-cost-recovery tariffs; (b) unsustainable and increasing debt levels; (c) inadequate metering and billing; (d) operational inefficiencies with losses exceeding 20 percent; and (e) depreciation of the local currency relative to the US dollar. The Government of Tajikistan has been implementing significant reforms in the electricity sector to improve its financial viability. Key initiatives include unbundling the vertically integrated Barqi Tojik into separate transmission and distribution entities, establishing an escrow account for cash flow management, and restructuring debts to alleviate financial burdens. Furthermore, the government aims to reduce electricity losses from the current average of 23 percent through advanced metering projects and enhance corporate governance by introducing independent members to supervisory boards. The Government of Tajikistan has also committed to achieving cost recovery in the electricity sector by 2027. The electricity generated by Rogun HPP will support this goal by providing a long-term source of low-cost electricity. By increasing the share of hydropower in the energy mix, Rogun will help reduce the reliance on thermal power plants, which are more expensive to operate. This shift will lower overall operational costs for the electricity sector, improving its financial health.

- *Regional connectivity*. Difficulties with regional cooperation are another factor that has compromised Tajikistan's energy security over the past two decades. Today, the Government of Tajikistan is building essential transmission assets for the expansion of regional electricity connectivity that are vital to the Project's success. Several high-voltage transmission lines have been constructed, with three more expected to be completed by 2026, allowing for the safe evacuation of 3,780 MW of capacity upon the Project's completion. Approximately 70 percent of the electricity generated by Rogun is expected to be exported, primarily to neighboring countries like Uzbekistan and Kazakhstan. This export capability will not only provide revenue for Tajikistan but also enhance regional electricity security by allowing for better integration and balancing of electricity supply across Central Asia. In 2018, after a nine-year hiatus, Tajikistan resumed

[4] IEA report, Tajikistan 2022
[5] Financed by WB, AIIB, and EaDB.

electricity exports to Uzbekistan. In 2024, Tajikistan completed the first stage of resynchronization with the Central Asia Power System (CAPS). Additionally, the completion of the Central Asia South Asia Electricity Transmission and Trade Project (CASA-1000)[6] could facilitate electricity exports to Pakistan.

3. Rationale

3.1 **Program Objective.** To increase the supply of clean, affordable, and climate resilient hydroelectricity for consumers in Tajikistan and the Central Asia region.

3.2 **Expected Beneficiaries.** The Program has the potential to generate numerous benefits to Tajikistan and the wider Central Asia region. Its beneficiaries include the entire population of Tajikistan and electricity consumers in Rogun HPP's export markets.

a) **For electricity consumers in Tajikistan,** the Program will provide reliable electricity to meet growing domestic electricity demand at affordable costs. The Program will contribute to the ongoing efforts of the Government to ensure an adequate and reliable electricity supply for households and industries, especially the firm energy that it can supply during winter months when electricity demand is the highest. Moreover, reliable electricity brings transformative benefits to women and girls, enhancing health, education, safety, and economic opportunities. It reduces indoor pollution, supports extended study hours, enables income-generating activities, and improves maternal health services. Access to lighting also lowers risks of gender-based violence and enhances digital access, fostering inclusion and empowerment.

b) **For the Vakhsh River basin,** the large reservoir of Rogun HPP, with its design to attenuate extreme floods, could enhance the climate resilience of the entire Vakhsh cascade, which accounts for 96 percent of Tajikistan's hydropower capacity. Additionally, it will trap upstream sediment, thereby extending the service life of downstream hydropower plants like Nurek HPP.

c) **For the Central Asian region,** the Rogun HPP can offer seasonal regulation and deliver stable, clean energy at competitive prices during both peak and off-peak hours, helping maintain affordable electricity tariffs for consumers. It can also provide reserves and balancing services to the Central Asia Power System (CAPS), facilitating the uptake and grid integration of intermittent renewables like solar and wind and supporting the decarbonization of countries in the region that still rely heavily on fossil fuels for electricity generation.

d) **Job creation and community development are also key considerations for the Program.** At the end of 2023, the project employed 14,877 people in major construction works. About 95 percentage of these positions were filled by Tajikistan nationals[7]. The Project is set to significantly enhance job creation through direct, indirect, and long-term employment opportunities. During the most active period of construction from 2025 to 2028, it is expected to generate approximately 25,000 to 30,000 direct jobs, primarily for local specialized workers. Additionally, the project will likely create 30,000 to

[6] The Central Asia South Asia Electricity Transmission and Trade Project (CASA-1000) supports electricity trade between Central Asia (Tajikistan and Kyrgyzstan) with South Asia (in particular, Afghanistan and Pakistan).
[7] The Project's Labor Management Procedures, February 2024

38,000 indirect jobs in related sectors, promoting local economic growth. Once operational, the HPP will provide ongoing employment in facility management and operation. The project also includes a Benefit Sharing Program to support local communities and aims to foster capacity building and training for local workers, emphasizing gender equality in the energy sector.

3.3 **Expected Results.** The Program will add 3,780 MW of renewable energy capacity into Tajikistan and central Asian power systems, increasing the supply of clean, affordable, and climate-resilient hydropower for consumers in both domestic and regional markets. It will contribute to the decarbonization of Tajikistan and the whole region. The expected results and key indicators, which will be measured across all program phases, include:

a) Renewable energy capacity enabled (baseline: 0.40 GW; end target 3.78 GW);
b) Project electricity exports to Central Asia region (baseline: 0; end target: 8.1 TWh);
c) Net GHG emissions reduction per year (baseline: 0 MtCO2/year; end target 3.50 MtCO2/year).
d) People with enhanced resilience to climate risks (baseline: 0; end target 9.75 million);

3.4 **Strategic Fit for AIIB.** The Project is aligned with two of the AIIB's thematic priorities, namely (i) Green Infrastructure, by promoting clean hydropower, enabling integration of intermittent renewable energy sources, and contributing to the reduction of carbon dioxide (CO_2) emissions through decreased fossil-fuel-based generation in countries importing electricity from Rogun HPP; and (ii) Connectivity and Regional Cooperation, by enhancing energy access, ensuring security of domestic energy supply, and expanding the electricity market in Central Asia and beyond.

The Project closely aligns with AIIB's Energy Sector Strategy and its Guiding Principles, namely:

a) Principle 1: promote energy access and security by improving the reliability of electricity supply and enabling access to renewable energy;
b) Principle 3: reduce the carbon intensity of energy supply;
c) Principle 6: promote regional cooperation and connectivity.

The Program is highly aligned with the 2030 National Development Strategy (NDS-2030) of Tajikistan, which outlines strategic goals in the energy sector aimed at enhancing energy security, fostering sustainable economic growth, and improving living standards. Key objectives include ensuring a reliable energy supply, transforming hydropower into a budget-forming sector vital for poverty reduction, and promoting the development of renewable energy sources. The strategy emphasizes energy efficiency, diversification of energy sources to mitigate seasonal fluctuations, and reducing electricity losses. Specific targets set for hydropower include reaching a design capacity of 10 gigawatts, inclusive of Rogun HPP, exporting 10 billion kilowatt-hours annually, ensuring at least 10 percent of energy capacity comes from non-hydropower sources, and improving integrated water resources management to optimize hydropower generation.

The Project is also aligned with the 2030 National Strategy for Adaptation to Climate Change of Tajikistan (NSACC 2030), which attaches great importance to developing resilient hydropower infrastructure that can withstand the impacts of climate change,

such as altered precipitation patterns and increased frequency of extreme weather events. The strategy calls for investments in modernizing and expanding hydropower facilities to enhance efficiency and reduce vulnerability to climate impacts.

3.5 **Paris Agreement Alignment (PAA) and Climate Finance.** In line with the AIIB methodology for assessing the alignment with the mitigation and adaptation goals of the Paris Climate Agreement, the Program is assessed as Paris Aligned. In line with the joint multilateral development bank (MDB) methodology for tracking adaptation finance, it is estimated that USD 465 million of the Program cost contributes to support mitigation while USD 232.5 million of the Program cost contributes to support adaptation. For phase 1 only, USD 237.5 million contributes to support mitigation while USD 118.75 million contributes to support adaptation.

The Program is not inconsistent with the sectoral or national priorities for climate resilience and climate mitigation outlined in the country's Nationally Determined Contributions (NDC).

The Program has the potential to save 89 million tCO2e over 2024-2054 based on the project team's calculations.

3.6 **Value addition by AIIB**. AIIB's involvement in project preparation through WB-AIIB financed technical assistance, which was put in place in 2023, has been crucial in (1) promoting the highest international environmental and social standards, (2) improving the quality of project preparation and the implementation capacity of Rogun PMG through the engagement of dam safety, E&S experts, and financial advisors. Specifically, the achievements of the technical assistance included i) appointment of dams safety and E&S panels of experts; ii) update of the E&S instruments of the Project, iii) design of a benefit sharing program; iv) development of the Optimized Overall Implementation Plan (OIP) and a macroeconomically sustainable financial plan; v) audit of quality control (QC) and quality assurance (QA) systems of the project; and vi) independent assessment of diversion tunnels and preparation of additional dam safety studies. Details on the technical assistance are provided in the Annex 3.

3.7 **Value addition to AIIB**. Rogun is a landmark project for the country and the whole region. Financing this Project alongside other development partners will strengthen AIIB's reputation as a top green bank, supporting significant renewable energy projects. Additionally, the Bank will continue to build its institutional capacity and expertise in hydropower throughout the Project implementation. This Project will also complement AIIB's ongoing investment in Tajikistan's energy sector, specifically the rehabilitation of Nurek HPP, located downstream of Rogun HPP.

3.8 **Lessons learnt**. Preparation of the Project benefited from the lessons learned from AIIB and other MDB's experience in hydropower projects in other countries, such as Nurek Hydropower Development Project in Tajikistan, Development of Pumped Storage Hydropower in Java-Bali System of Indonesia, Dasu Hydropower Project and Balakot Hydropower Development Project in Pakistan. The following lessons learned have been used for design and implementation arrangements of the proposed Program.

a) **Solid dam design and construction.** Building large hydropower projects comes with significant risks, such as construction and dam safety risks, as well as irreversible changes to the environment. It is essential to ensure that the required technical, geological, and geotechnical studies are completed and very robust without

any information and data gaps that may stop or delay the Project during implementation. The GoT carried out the TEAS (2011-2014) with the support of the World Bank, which was reviewed and found by the World Bank and other parties to be of excellent quality. The GoT also hired a world-class international DSPOE, financed by the World Bank and AIIB, to support the Government with a critical review of the construction works carried out prior to the Bank's engagement.

b) **Strengthened E&S measures.** Support from external experts is needed to implement the complex RAPs, ESMP, and other ES plans. Under this Project, an independent Environmental and Social Panel of Experts has been appointed to provide quality control in the implementation of the E&S plans, and a project management consultant will be recruited to help monitor contractors' compliance with the requirements of the ESMPs, occupational health and safety plans, and other E&S requirements.

c) **High-level strategic support of complex and high-risk hydropower projects.** The lessons learned from the implementation of high-risk transformative hydropower projects in developing countries suggest that securing very senior-level GoT commitment to the agreed-upon development approach is critical, together with a direct communication channel with decision-makers. In the case of the Rogun HPP, the project implementing entity (Rogun PMG) directly reports to the President of Tajikistan, which also allows to reach prompt resolution on pending issues. In addition, Project implementation monitoring has been closely followed by the Prime Minister to address inter-agency coordination issues.

d) **Availability of a macroeconomically sustainable project financing plan.** Based on past experiences, it's crucial for infrastructure projects, including hydropower, with high capital costs to have a financing plan in place before construction begins. Projects that lack such plans have experienced significant delays and technical risks. Moreover, some projects have resulted in public debt and macroeconomic issues. Therefore, the WB-AIIB financed technical assistance to the Project provided critical support with preparation of a macroeconomically sustainable construction schedule and the financing plan.

e) **Donor coordination.** Establishing a strong mechanism for donor coordination led by the World Bank helped ensure regular sharing of information, provide consistent technical advice and guidance to the GoT, and minimize transaction costs for the GoT.

4. Program Description

The proposed Program aims to support the development of the Rogun Hydropower Plant (HPP), which is currently in the construction phase. The Rogun HPP is a hydroelectric power plant with a planned capacity of 3,780 MW and a rock-filled dam that is designed to reach 335 meters in height, making it the tallest dam in the world upon completion. The Project is located 110 km from the capital city of Dushanbe and is situated on the Vakhsh River, a tributary of the Amu Darya River, and upstream of the existing Nurek HPP. It will feature a large reservoir with a capacity of 13.3km^3 that provides seasonal regulation and reliable electricity throughout the winter season to meet the growing domestic demands at an affordable cost. The Project also allows for the export of clean energy to Central Asian countries and would represent a significant

source of export revenues for many years to come. As a potential balancing plant for Tajikistan and the broader Central Asia region, it can facilitate easier integration of intermittent renewable energy and contribute to decarbonizing the fossil-fuel-dominated Central Asia power systems.

The proposed Program includes the completion of the main dam and its associated structures, such as the roller compacted concrete (RCC) pad, grout curtains, and diversion tunnels, which are vital for managing flood risks and sedimentation. The Program also involves the construction of the permanent power intakes (PPI), spillways, and the plunge pool, along with the necessary excavation and stabilization works on both the left and right banks.

The Program is developed with specific milestones set for various reservoir impounding levels with a focus on maximizing the energy output during construction while adhering to dame safety and E&S standards. According to the latest draft of the Overall Implementation Programme (Revision H), the construction completion of the Rogun HPP is expected to be achieved by 2033, with the reservoir impoundment reaching its full supply level at 1,290 meters above sea level by 2039.

The completion of the Program is estimated at USD 6.29 billion, which includes the following contingencies (i) physical contingencies of 21.2 percent (approximately USD865 million); (ii) 18.2 percent for price adjustments (application of price adjustment formula to existing contracts, approximately USD 744 million); and (iii) 14.4 percent contingency for future price adjustment (estimated price adjustments for the remainder of contract duration).

Table 1. Overall Program Cost and Financing Plan (USD million)

	Estimated financing need	State budget	Project Revenues	IDA grants	AIIB loan	ADB Grants and Loans	IsDB and Arabian Funds	EIB loan	CDP Loans
Component 1: Construction activities									
Lot 1	560			280	280				
Lot 1A & 1B	120			60	60				
Lot 2	2,480	1,310	1,170						
Lot 3	280	280							
Lot 3A	1,380			55	125	500		550	150
Lot 4 early works	230	230							
Lot 4	550						550		
Control room	15		15						
Component 2: Project implementation support									
Project Management Consultant	170			170					
Employer costs (salaries, offices, design engineer etc.)	130	65	65						
Technical Assistance (POEs, studies etc.)	30			30					

	Estimated financing need	State budget	Project Revenues	IDA grants	AIIB loan	ADB Grants and Loans	IsDB and Arabian Funds	EIB loan	CDP Loans
Lenders' technical and E&S advisor	5				5				
Component 3: RAP and LRP implementation									
RAP & LRP	300	255		45					
Left-bank roads	30				30				
Component 4: Hydrometeorological activities									
Hydro meteorological equipment and TA	10			10					
Total	**6,290**	**2,140**	**1,250**	**650**	**500**	**500**	**550**	**550**	**150**

The financing package of the Program includes USD 2.1 billion from the state budget, USD 1.25 billion in project revenues, and USD 2.9 billion in grants and loans from development partners. The GoT intends to keep average budget spending on Rogun within a sustainable envelope (excluding loans) of about 3-3.5 percent of GDP annually so that the Government can meet social spending requirements. Project revenues are based on expected estimates of export tariffs and volumes.

According to the IMF Policy Coordination Instrument (PCI) approved on February 28, 2024, a joint World Bank/IMF Debt Sustainability Analysis (DSA) was conducted to assess the impacts of completing Rogun HPP on the country's debt sustainability. Rogun HPP will be the country's priority and largest infrastructure investment in the decade to come. On the one hand, it will drive up the country's budget expenditure and external borrowing during the construction period; on the other hand, it is expected to improve the reliability of electricity supply, generate export revenue, and support the GoT's plan for accelerated industrialization. Results of the DSA indicate that Tajikistan's debt remains sustainable when undertaking Rogun-related investments, although external and overall risks of debt distress remain at high levels. For the importance of Rogun HPP to the country and the whole region, IMF granted an exception to the zero NCB limit for Tajikistan, applying exclusively to new non-concessional debt contracted for the Rogun HPP, which is capped at USD1,800 million. This IMF exemption on non-concessional borrowing for Rogun HPP helped largely increase the headroom for IFI participation and close the financing gap. Additionally, the World Bank estimated that the grant element[8] of the overall financing package, including grants and loans, exceeds the concessionality threshold of 35 percent.

4.1 **The phasing of Program financing**. The AIIB financing for the Program will follow the MPP approach and be structured in the following two phases around key construction milestones:

[8] The grant element is calculated as the difference between the loan's nominal value (face value) and the sum of the discounted future debt-service payments (present value), expressed as a percentage of the loan's face value.

a) **Phase 1**: achieving **by 2029** dam height of at least 1,185 masl and installed capacity of 2,040MW (including 780MW for temporal generating units 5 and 6, and 1,260MW for newly installed permanent generating units 3 and 4).

b) **Phase 2**: achieving **by 2033** dam height of 1,300 masl and installed capacity of 3,780MW (630MW in all six permanent generating units).

Table 2. AIIB financing by phase (USD million)

	Phase 1	**Phase 2**	**Total per component**
Component 1. Construction activities	237.5	227.5	465.0
Component 2. Project implementation support	2.5	2.5	5.0
Component 3. RAP and LRP implementation	30.0	-	30.0
Total per phase	**270.0**	**230.0**	**500.0**

4.2 **Rational for Multi-Phase Program (MPP).** In line with the lead co-financier WB, AIIB will take a multi-phase programmatic approach. The benefits of applying MPP for the proposed investment include:

a) *Risk-based adaptive management*. Considering the Project scale, duration and complexity, multi-phase programmatic approach enables to progressively evaluate the implementation progress and the Client's performance, make necessary adjustments, and adapt to changing circumstances. Leveraging lessons learned from the earlier phase will enhance risk management, allowing the identification and mitigation of risks early, thereby increasing the viability of the subsequent phases. Additionally, the programmatic approach supports robust monitoring and evaluation frameworks, incorporating specific performance metrics to effectively track outcomes and inform the decision on subsequent phases.

b) *Improved Financial Management*. The MPP responds to the GoT's need for long-term support while enabling the GoT manage fiscal sustainability in the long run. Over the past years, the GoT has supported the development of Rogun HPP through a short term and piecemeal approach to financing. Multiyear and systematic programming is vital for developing complex infrastructure projects in a sustainable manner. The MPP allows the current political and financial constraints to be better managed through improved dialogue among the GoT, IFIs and stakeholders in the CA region.

4.3 **Phase 1 description**. Phase 1 of the Program, hereinafter the Project, will have four main components:

Component 1: Construction activities

- *Electromechanical (Lots 1, 1A, and 1B)*. Activities include (i) design and supply of replacement runners for Generating Units 5 and 6 and design, supply, and installation of electro-mechanical equipment for Generating Units 3 and 4 with a combined installed capacity of approximately 1,260 MW, including turbines, generators, frequency governor, excitation system, electrical systems, unit-related monitoring system, cooling water system, compressed air system for the governor, fire detection and suppression systems; and (ii) installation of replacement runners for Generating Units 5 and 6 and other turbine rehabilitation works and control system integration.

- *Main dam (Lot 2)*, which includes construction of the dam for Rogun HPP with a height of 1,185 masl, including treatment of the salt wedge and grouting of the foundation and abutments (Lot 2).

- *Right Bank structures* which include:

    - *Early works – Lot 3*. Includes (a) site investigations and slope stabilization for atypical zone and the plunge pool; (b) site investigations for high level outlet structures 1 and for overflow spillways; (c) construction activities on: (i) access roads, tunnels, and bridges; (ii) Diversion Tunnel 4, including flip bucket and hydraulic steel structures; and (iii) construction of right bank grouting galleries from level 1 to level 4 and grouting for the right bank grout curtain from level 1 to level 3; and related design works.

    - *Main activities – Lot 3A*. This will include (a) high level outlet structures 1 and 2; (b) overflow spillways; (c) hydraulic steel structures for high level outlet structures 1 and 2 and overflow spillways; (d) plunge pool; and (e) right bank grouting galleries from level 5 to 6 and grouting for the right bank grout curtain from levels 4 to 6.

- *Left Bank structures,* which include*:*
    - *Lot 4 early works* includes excavation and stabilization of the left bank slope, excavations for the headrace tunnels and shafts, urgent first-stage concreting in the powerhouse and transformer caverns, grouting galleries from levels 1 to 4, and grouting works from levels 1 to 3.

    - *Lot 4 main activities* include construction and concreting of permanent intakes of the powerhouse complex and associated upstream waterways, headrace tunnels, gate shafts, penstocks, hydromechanical equipment, remaining powerhouse and transformer hall civil works, BOP auxiliary systems, concreting of installations for the generating units, and the tailrace tunnels.

    - *Control room*. Equipment for the central control room, and monitoring control and equipment for Units 1-6.

Component 2: Project implementation support

- *Sub-component 2.1 Project Management Consultant*: The PMC contract, financed by IDA, will support Rogun OJSC and PMG with the following: management of transition of PMC responsibilities from current Employers Representative (ER) to the new PMC, regular updates to the OIP, preparation and subsequent updating of construction supervision and quality assurance (CQSA) plan, preparation and subsequent upgrading of the instrumentation plan, preparation and subsequent upgrading of operations and maintenance plan and EPP, contract management, review of contractors' implementation programs, monitoring of contractors' compliance with the requirements of E&S instruments, site supervision and quality control, review and approval of payment certificates, and management services by providing core leadership positions to build the capacity of Rogun PMG

- *Sub-component 2.2 Employer costs* include (a) design engineer costs for Lots 3 and 4 (including early works); and (b) salaries of staff and rental of office space for Rogun

OJSC, Rogun PMG, and DFZ that are necessary for the overall management and supervision of the Project.

- *Sub-component 2.3 Implementation support*. This sub-component will support the implementation of Project activities, including, inter alia: (a) retention of DSPOE and ESPOE; (b) strengthening of technical, fiduciary, environmental and social, monitoring and evaluation and communications capacity, including Rogun OJSC's capacity to monitor BSP's implementation; (c) strengthening corporate governance; (d) Project audits and audits of the Project Implementing Entities' Financial Statements; (e) implementation of the Gender Action Plan and grievance redress mechanism; (f) carrying of technical and economic studies and advisory services that may be required during Project implementation and as may be agreed in writing with the Association; (g) technical assistance to strengthen the capacity of Rogun OJSC to administer the PPAs; (h) ESMP implementation costs; (i) independent third-party monitoring of the implementation of the RAP and LRP; and (j) Operating Costs.

- *Sub-component 2.4. Lenders' Technical and E&S advisor*. Lenders' Technical and E&S Advisor (LTA) will have a permanent presence on-site during construction and play a crucial role in overseeing the project's technical integrity and operational efficiency throughout its lifecycle. LTA would monitor and report directly to the Bank on a range of critical tasks aimed at ensuring the project's successful implementation and compliance with technical, environmental, and social standards. Key responsibilities include monitoring construction quality and progress through site visits, reviewing and approving change orders, assessing compliance with agreed upon on-site Environmental & Social (E&S) and Occupational Health and Safety (OHS) measures, per the requirements of the Project ESHS, ESCP, and identifying any deviations in project schedules and costs. The LTA would also review punch lists and completion lists, participate in performance tests, and prepare various reports on construction and operational status. Additionally, the LTA would provide recommendations for corrective actions, assist in reviewing the operation and maintenance budget, and ensure that the project adheres to the terms and conditions of the financing.

Component 3: Implementation of Resettlement Action Pan (RAP) and Livelihood Restoration Plan (LRP)

- *Sub-component 3.1.* This sub-component will finance the costs related to relocation compensation and apprenticeship stipends under the RAP and LRP. The total budget for resettlement and livelihood restoration activities is estimated at approximately USD 287.5 million. The project financing plan allocates USD 300 million specifically for the implementation of RAP and LRP. This allocation consists of USD 255 million from the state budget and USD 45 million from the International Development Association (IDA).

- *Sub-component 3.2.* This sub-component will finance the construction and rehabilitation of 55km intra-village gravel road, including road and pedestrian bridges on the left bank of the reservoir that are needed to provide Project-affected people with uninterrupted transport connections after reservoir filling. According to DFZ, there are 15 villages in the Nurobod district with a population of 8,412 and one in the Saidon village of the Sicharagh Jamao of Rogun city of 487 residents, about 8,900

in total, residing on the left bank of the reservoir will be affected by severance. Without mitigation, the village connection of left bank communities to Rogun city, the Nurobod district, and other regions of Tajikistan will be severed, and these settlements will become isolated. Additionally, the inability to cross over to the right bank to access work and basic services, especially health services, and longer travel times to access markets and larger urban centers will adversely affect livelihoods and quality of life for these left-bank communities.

Component 4: Hydro meteorological activities. This will include the following sub-components**:**

- *Sub-component 4.1 Hydromet investments* purchase and installation of hydro meteorological instrumentation and technical assistance to build key monitoring capacity in the Vakhsh River basin to support the operation of Rogun HPP and mitigate future climate risks, including: (a) small construction works for installation of the required equipment for in-situ stations; and (b) development of an operational monitoring and forecasting system integrating in-situ observations with satellite monitoring of seasonal snow cover extent and other variables.

- *Sub-component 4.2 Technical assistance for improved water use* including (a) develop the Reservoir Management Rules for the Main Reservoirs in the Vakhsh River basin, including the interim Reservoir Management Rules for the period of Rogun Reservoir construction, reservoir filling and operation; and (b) build the capacity of the BWO Amudarya Tajikistan Branch, reporting to the MEWR and BWO Amudarya's headquarters, and to carry out tasks mandated by the ICWC for information management and water accounting.

- *Sub-component 4.3 Monitoring water use*: Purchase and installation of equipment, including sensors and telemetry equipment, for the modernization, including retrofitting, of selected hydroposts located in the Vakhsh River basin to support the continuous transmission of real-time water level data from the upgraded hydroposts to BWO Amudarya Tajikistan Branch and to the National Water Information System.

AIIB will provide joint co-financing with the World Bank for electromechanical equipment (Lot 1, 1A&1B) and the right bank structures (Lot 3A) under Component 1. AIIB will also provide parallel co-financing of USD 30 million under Sub-component 3.2 for the construction and rehabilitation of 55km inter-village roads and bridges on the left bank of the reservoir and USD 5 million under Sub-component 2.4 for the Lender's Technical and E&S Advisor (LTA). World Bank and ADB have also expressed interest in co-financing the LTA in the future.

4.4 **Project (Phase 1) objective**. To increase the supply of clean, affordable, and climate-resilient hydroelectricity for consumers in Tajikistan and the Central Asia region.

4.5 **Project outcome indicators**. The key outcome indicators of the proposed Project (i.e., Phase 1 of the MPP), include:

- Renewable energy capacity enabled (baseline: 0.40 GW; end target 2.04 GW);
- Project electricity exports to Central Asia region (baseline: 0; end target: 2.5 TWh);
- Net GHG emissions reduction per year (baseline: 0 MtCO2/year; end target 1.75 MtCO2/year).

- People with enhanced resilience to climate risks (baseline: 0; end target 9.75 million)

4.6 **Implementation Arrangements and Readiness.**

4.7 **Implementation period.** The Project (i.e. Phase 1) implementation period will be January 2025 -December 2029.

4.8 **Institutional arrangements.** There will be three Project Implementing Entities (PIEs) in the Project:

a) Project Management Group for Energy Facilities Construction under the President of the Republic of Tajikistan (Rogun PMG);
b) Rogun HPP Open Joint Stock Company (Rogun OJSC);
c) Directorate of the Flooding Zone of Rogun HPP (Rogun DFZ).

Rogun OJSC, through the Rogun PMG, will be the main PIE, responsible for the implementation of the Project for components 1, 2 and 4; and the DFZ will be responsible for the implementation of component 3. A subsidiary agreement for components 1, 2 and 4 will be signed between MOF and Rogun OJSC, and Rogun OJSC will enter an implementation arrangement with Rogun PMG to delegate the execution of the fiduciary role to Rogun PMG including procurement, financial management for components 1, 2, 3.1, and 4 under the project, including implementation support activities for the benefit of DFZ. DFZ will also enter an implementation arrangement with Rogun PMG to delegate the execution of procurement for sub-component 3.2 to Rogun PMG, including certain implementation support activities for the benefit of DFZ.

As set in its founding charter, *Rogun PMG's* primary responsibility is to coordinate the activities with various ministries, departments and international financial organizations in the implementation of the state policy of the Government related to issues concerning the construction of energy facilities and their upgrade in accordance with the programs of socio-economic development of the Republic of Tajikistan. Rogun PMG operates as a consultative and coordinating body and is accountable to the President of the Republic of Tajikistan. Rogun PMG has limited experience in Project execution gained from implementing the technical assistance supported by the World Bank and AIIB. This experience includes preparation of bidding documents for works and goods contracts, evaluation of bids, contract negotiations, and contract management, as well as projects funded by the state budget including preparation of bidding documents for works and goods contracts, evaluation of bids, contract negotiations, and contract management. PMG staff consists of 44 people. The technical assistance has supported several activities to enhance the required in-house capacity of the Rogun PMG through hiring additional experts on technical aspects of hydropower, procurement, contract management, FM, and E&S, as well as training. To strengthen its capacity, the Rogun PMG has also hired a project coordinator, procurement specialist, financial management specialist, senior environmental and social advisor with international experience, local environmental and social specialist, monitoring and evaluation specialist, and a translator.

Rogun OJSC will be a co-signatory on contracts and will be the owner of the assets to be financed through the Project. Rogun OJSC will be responsible for the construction and operation of the Rogun HPP. Rogun PMG and OJSC will be involved in reviewing

and approving the contractual, technical, environmental and social recommendations and advice to be provided by the contractors and consultants hired by Rogun PMG. Rogun OJSC and Rogun PMG will be supported by a project management consultant to be hired under Component 2 of the Project. Rogun OJSC will also bear commercial liability under the power purchase agreements. Rogun OJSC was established in accordance with the Decree of the Government of the Republic of Tajikistan dated August 31, 2007, No. 454. The Government of the Republic of Tajikistan holds 97% of the shares of the Company. The remaining 3% belong to various domestic legal entities and individuals.

The DFZ will function as the Resettlement Unit and will be primarily responsible for RAP and LRP implementation under Component 3.1 and the construction of left bank roads and bridges under Component 3.2 in coordination with other relevant ministries and agencies, as well as reviewing the relevant documents, reports, and outputs to be produced by the consultants to be hired by Rogun PMG. The Directorate is authorized to use loans and grants from international financial institutions and other international organizations. Rogun DFZ was established based on Decree No. 546 of the Government of the Republic of Tajikistan dated October 27, 2010, which separated it from the Rogun HPP JSC as an independently acting state institution.

4.9 **Procurement arrangements**. For AIIB parallel co-financed contracts, the project will adhere to AIIB's Procurement Policy (June 26, 2024), as well as the Directive on Procurement Instructions to Recipients (PIR) dated July 26, 2024 (Section 2 Procurement by Public Entities). For all other contracts where the World Bank Group will be the lead co-financier, the project will adhere to World Bank Procurement Regulations for IPF Borrowers dated September 2023. Procurement activities under Rogun PMG are guided by the developed regulations, instructions, the Public Procurement Law of the Republic of Tajikistan, and the Rules for International Tender for Construction of Rogun Project. Rogun PMG has significant experience in implementing projects funded by the state budget including preparation of bidding documents for works and goods contracts, evaluation of bids, contract negotiations, and contract management. However, Rogun PMG does not have experience in the implementation of projects financed by IFIs. To strengthen the capacity of the Rogun PMG in the implementation of projects financed by development partners, the following specialists have been hired under the WB-AIIB co-financed technical assistance: project coordinator, procurement specialist, senior financial management specialist, disbursement specialist, senior environmental and social advisor with international experience, local environmental and social specialist, monitoring and evaluation specialist, and two translators. Rogun PMG will be further strengthening its implementation capacity and initiated hiring of additional engineers to be assigned to main construction contracts, international procurement advisor, IT specialist, communication specialist, as well as financial management consultant and social consultant at DFZ. Suitable training will also be conducted for the PMG to further strengthen the capacity in IFI procurement rules and policies.

4.10 **Complaint management and dispute resolution** will follow the requirements of the World Bank Procurement Regulations for IPF Borrowers dated September 2023 (for Lots 1, Lot 1A, Lot 3A), and AIIBs Directive on Procurement Instructions for

Recipients dated July 2024 (for AIIB parallel co-financed contracts). A suitable Operations manual will be developed for the project.

The World Bank and AIIB will also extend the procurement related implementation support to Rogun PMG, which would include: (i) advice on various procurement-related issues and guidance on the Procurement Framework to be applicable to the project financed activities; (ii) support in reviewing the bidding documents, Request for Proposals, amendments, evaluation reports and other procurement-related documents, where necessary; (iii) monitoring of procurement progress against the procurement plan; and (iv) post review of contracts. Rogun PMG drafted a Project Procurement Strategy for Delivery Strategy (PPSD) / Project Delivery Strategy (PDS), including a Procurement Plan (PP) outlining procurement arrangements, contract packaging, amounts, procurement methods, and timelines, which will serve as the foundation for the Project procurement activities. Any updates to the PPSD/ PDS and PP will be submitted to the financiers for review and no objection.

4.11 **Financial Management**. PMG and DFZ will be responsible for maintaining the Project's financial management system under components financed by AIIB. The WB has conducted an FM assessment focusing on a review of funds flow, staffing, accounting policies and procedures, financial reporting and monitoring, and audits. AIIB is satisfied with the WB's FM assessment capacity and process. AIIB's assessment and results are mainly based on the WB's findings.

The WB will provide FM and disbursement-related services as a lead co-financier per the WB-AIIB Co-Financing Agreement (CFA)'s standard terms. Such services will include sharing the results of periodic financial report reviews, annual audits of project financial statements, review of withdrawal applications, and any other FM-related activities.

4.12 **Monitoring and Evaluation (M&E)**. Rogun PMG will be responsible for monitoring and evaluating the Results Monitoring Framework (RMF) Indicators during implementation. DFZ will provide progress reports on the implementation of Component 3.1 to Rogun PMG. The Rogun PMG will be responsible for submitting to the Bank (i) semi-annual implementation progress reports on the RMF; and (ii) monthly reports (prepared by the PMC, DFZ and contractors) to report on progress of key activities. Rogun PMG will rely on outputs from the consultancy services to measure all Project Objectives Indicators and Intermediate Result Indicators. Technical Assistance from WB (Component 4) and other lenders will provide financing and support for Rogun PMG to collect data and carry out M&E functions. Such M&E arrangements and requirements are aligned with WB and other IFIs.

4.13 **AIIB's Implementation Support**. Given the complexity of this Project, the Bank will carry out semi-annual supervision missions, including site visits to monitor and support implementation in all aspects in close coordination with the World Bank, the lead co-financier. To maximize the efficiency of project supervision and enhance the implementation support efforts of financiers, AIIB will engage an independent Lenders Technical Advisor (LTA) that will have a permanent presence on-site during construction and play a crucial role in overseeing the project's technical integrity and operational efficiency throughout its lifecycle. LTA would monitor and report directly to the Bank on

a range of critical tasks aimed at ensuring the project's successful implementation and compliance with technical, environmental, and social standards. Key responsibilities include monitoring construction quality and progress through site visits, reviewing and approving change orders, assessing compliance with agreed upon on-site Environmental & Social (E&S) and Occupational Health and Safety (OHS) measures, per the requirements of the Project ESHS, ESCP, and identifying any deviations in project schedules and costs. The LTA would also review punch lists and completion lists, participate in performance tests, and prepare various reports on construction and operational status. Additionally, the LTA would provide recommendations for corrective actions, assist in reviewing the operation and maintenance budget, and ensure that the project adheres to the terms and conditions of the financing. World Bank and ADB have also expressed interest in co-financing the LTA in the future to enhance the donor coordination during project implementation supervision.

5. Project Assessment

A. Technical

5.1 **Project Design.** The design of Rogun HPP is based on robust studies that have been subject to thorough technical review. The TEAS (2011-14) provides the base design for Rogun HPP and the basis on which the GoT re-started construction activities in 2016.

The DSPOE undertook six missions to date which have included a detailed design review that confirmed the overall design robustness of the HPP. Several key activities are underway through the TA, under review of the DSPOE, which may inform additional design changes, including on remedial measures that may be required to address the shortcomings that may be identified after completion of condition assessment for DT-1, DT-2, and DT-3.

The key activities being considered under the Overall Implementation Programme (OIP) are design updates, updated key impounding stages, actual progress of the works to date, forecasted time for completion of critical activities, tendering scenarios, etc. Considerable work has already been done in developing the OIP and finalization is linked to completion of related ongoing studies. The tentative dates for key milestones are provided in Annex 2.

There is sufficient existing transmission capacity to allow for safe evacuation of generation from the Project. There are two existing 500 kV overhead transmission lines (OHL) allowing for supply of 2,200 MW of the project electricity to the grid. This OHL connects to Dushanbe substation with possibility of 1,000 MW supply to Sughd region in the North with subsequent exports to Uzbekistan and another 1,000 MW to Regar substation. There are two additional 220 kV lines completed on September 9, 2024, which added another 600 MW transmission capacity to the Project. Moreover, the GoT has started development of a new 500 kV OHL from Rogun HPP to Sangtuda substation.

5.2 **Operational Sustainability.** The operational sustainability of the Project will be secured through addressing key technical, environment and social, financing and commercial issues of the Rogun HPP project.

Experienced DSPOE professionals will provide essential technical guidance during the implementation of the Rogun HPP, offering timely advice on geotechnical, geological, hydraulic, electro-mechanical, and other construction-related issues to ensure robust solutions until project completion.

Similarly, the ESPOE will deliver sound technical advice during the update of E&S documents and project implementation, ensuring that these documents comply with the GoT and the requirements of financiers. They will also assist Rogun with contractors' compliance, issue resolution, resettlement, and other relevant concerns throughout the project.

A strong PMC is crucial for on-site supervision to manage project complexity and interface risks. The PMC will oversee planning and coordination of implementation activities, effectively managing interface risks between contractors, enforcing Quality Assurance and Quality Control (QA/QC) procedures, and ensuring compliance with Environmental and Social Framework (ESF) standards, including Operational Health and Safety (OHS) practices.

Through long-term PPAs, the Project will secure stable and predictable export revenues for Rogun HPP to achieve operational sustainability as standalone, without relying on government budget to sustain its operation**.** Uzbekistan and Kazakhstan are the primary markets for electricity exports since Tajikistan rejoined CAPS. There are established grid connections and two-way power trading between Uzbekistan and Tajikistan to manage daily, monthly, and seasonal power imbalances. Kazakhstan will import electricity generated by the Rogun HPP through Uzbekistan's grid. Additionally, once CASA-1000 begins commercial operations, Tajikistan will have a more structured approach to exporting electricity to Pakistan and Afghanistan.

In domestic market, the GoT has been implementing a reform agenda to improve the financial viability of the electricity sector, which will benefit Rogun, such as (i) the Tariff Reform that aim to achieve cost recovery of electricity sector and progressive increase end-user tariffs since 2017 to be cost reflective; (ii) Electricity Market Reforms that unbundled the BT and launched an escrow account mechanism to improve the predictability and transparency in distribution of revenues to sector companies, such as Rogun OJSC; (iii) Electricity Sector Debt Restructuring; (iv) Reduction of Electricity Losses; and (v) Improvement of electricity payment discipline by the largest consumer (TALCO). These executed reforms and deeper reforms that GoT committed to WB and lenders target to improve the financial viability of the electricity sector, which is also crucial to for the financial viability of Rogun HPP and secure the domestic revenue stream for its operational sustainability.

B. Economic and Financial Analysis

5.3 **Project Economic Analysis.** The economic analysis has been carried out for the whole Program, by estimating the net economic benefits of the project by comparing the costs and benefits under "With Project Completion" and "Without Project Completion" scenarios. Besides Tajikistan, the Central Asia power system for the purposes of this analysis included Uzbekistan and Kazakhstan as the main importers of the electricity generated by Rogun HPP. The economic analysis was carried out using 2023 US dollar-denominated economic costs and prices and includes physical contingencies, but excludes the financing costs, taxes, subsidies (e.g. below cost-recovery price of

electricity), and price contingencies. Main economic costs and benefits of the project completion include:

- **Costs:** (a) capital cost; (b) PMC; (c) land acquisition and implementation of ESMP; (d) construction of left bank roads, e) incremental variable and fixed O&M.
- **Benefits:** (a) avoided costs of the project decommissioning; (b) avoided capital costs of new generation and transmission projects to replace supply and provide similar network stability services from the Project; (c) increased export volumes and revenues; (d) protection of Vakhsh cascade against the PMF; and (e) reduced CO2 emissions. The construction of low-volume roads on the left bank, as part of sub-component 3.2, will also provide basic road access for local communities to the main road networks on the right bank, thereby supporting socio-economic activities. However, quantifying these benefits has proven challenging due to a lack of adequate input data. Currently, the detailed design is being developed by the State Unitary Enterprise "Design Institute for Transport Infrastructure."

The economic NPV is above USD 1 billion, and EIRR is above the economic discount rate of 8 percent. The results of the switching value analysis suggest that substantial variation of main variables would be required to make the Project economically non-viable. The Project's economic viability is most sensitive to changes in the volume of exports. The net emissions reduction is estimated at 89 million tCO2e over 2024-2054. The total global benefit from the reduction of those emissions over the same period and for the overall Central Asia region, valued at the shadow cost of carbon, is estimated at 7.3 billion and USD 14.5 billion at low and high shadow prices of carbon, respectively (US CPI adjusted - 2023 USD).

The Project would also generate significant development benefits in the form of a long-term reliable supply of low-cost electricity for development of Tajikistan's economy. It would also enable the expansion of exports of clean electricity to the broader CA region, which still largely depends on gas and coal-fired generation. Therefore, the Project would generate CO2 reduction benefits, which cannot be easily captured by private financiers due to the absence of a global market for carbon emission rights. Nevertheless, the Government, with support from the Bank, is exploring the options for sale of carbon credits in voluntary markets.

5.4 **Project Financial Analysis.** Financial Analysis at the Project level over an analysis period of 40 years indicates the Project is financially viable.

- **Main financial costs of the project.** The project financial costs will include i) the project construction completion cost, ii) the PMC costs, iii) O&M costs for Rogun HPP and left bank road, iv) implementation costs of RAP, LRP and other ES requirements, and v) the allocations to the benefit sharing mechanism and the debt service costs. Electricity losses in line are also considered.
- **Main financial benefits of the project.** The main financial benefits of the Project are the revenues from the domestic sale of electricity and exports. Revenue projections are estimated in consideration of i) electricity generation under different water inflows under 50th Percentile (P50), 70th Percentile (P70) and 90th Percentile (P90) based on OIP projection; ii) electricity tariffs in domestic market and the export tariffs secured by PPAs or MoUs.

Results of Financial Analysis indicated the Project is financially viable. In the base case, the Financial internal rate of return (FIRR) for the Project is 8.21 percent compared to the Weighted Average Cost of Capital (WACC) of 5.13 percent, and the Net Present Value of the Project is USD 2917.59 million.

Sensitivity Analysis. Sensitivity analyses were conducted to test the robustness of the Project in combination of adverse scenarios: (i) hydrology risk causing reduced water flow and decreased power generation - P70 and P90 cases; (ii) cost escalation that leading to CAPEX increase by 20% or even 40%; (iii) electricity sales risk that leading to a decrease of electricity sale by 20% or even 40%; (iv) domestic price indexation risk that reducing the indexation rate by 2% or even 4%; (v) increase of O&M costs by 20% or even 40%. In all of these cases, the FIRRs are positive, though in some extreme cases less than the WACC, indicating the Project is self-sustainable and resilient against multiple evolving risks. The results also indicate the Project is more vulnerable to revenue-side risks rather than cost-side risks. The financial performance of the Project would be improved by enhancing cost control and contract management to avoid delay, also by promoting the development and deeper integration of domestic and regional markets.

5.5 **Rogun OJSC's historical financial performance.** Revenue of the Company has been steadily growing since the commissioning of Units 5 and 6. In 2021-2023, the company averaged TJS325 million (around USD30 million) per year in total revenues from the sale of electricity internally into Tajikistan's electric grid. For the past three years EBITDA margins were positive with a very lean operating cost structure. The largest contributors to operational costs were salaries, with other costs including electricity, professional services, and materials. Those costs, however, have so far been minimal, which is consistent with the nature of Rogun OJSC as a special purpose entity specifically created to manage the construction and operation of the Rogun HPP, without any other business operations. EBIT margins were also positive in high double digits. In conclusion, the financial statements of Rogun OJSC reflect the typical profile of a large-scale public infrastructure project like the Rogun HPP.

5.6 **Financial Projections for Rogun OJSC.** Rogun OJSC's large capital expenditure program will be financed through its cash flow from operations, grants and debt financing, and state budget contributions. As the construction of the Project progresses, Rogun OJSC revenues are expected to rise gradually, from USD 45 million in 2024 to USD 447 million in 2033. In 2024 – 2033, the Project is expected to generate operating cash flows in excess of USD1.0 billion that will be utilized to finance a portion of the USD6.29 billion in remaining capital expenditures. Over the same period, the state budget contributions from the Government for direct financing of certain lots are expected to reach USD2.14 billion. The balance of the financing needed, about USD 2.9 billion, will come in the form of grants and loans.

C. Fiduciary and Governance

5.7 **Procurement.** The Borrower and the Project Implementation Entities are Public Entities as defined in AIIBs Procurement Policy (June 2024). The proceeds of the AIIB loan will be used to jointly co-finance:

a. Lot 1 contract - *Supply of turbines and electro-mechanical equipment* (EUR 471 million, already contracted to Voith Hydro Austria).

b. Lot 1A and 1B - *Powerhouse equipment and replacement of Units 5 and 6* (USD 120 million and not yet procured),

c. Lot 3A- *Right bank structures* (USD 1.4 billion and not yet procured).

AIIB will also parallel co-finance (i) the left-bank inter-village road (the left-bank road) at an estimated USD 30 million and not yet procured and (ii) the Lenders' Technical and E&S Advisor at an estimated USD 5 million and not yet procured.

Lots 1, 1A, 1B, and Lot 3A will be jointly co-financed with the World Bank. Lot 3A will also be supported by ADB, EIB and CDP.

Procurement under Lot 1A, 1B, and Lot 3A will be conducted in accordance with World Bank's "Procurement Regulations for Borrowers" (September 2023) which are materially consistent with the AIIB Articles of Agreement, AIIB Procurement Policy and Procurement Instructions to Recipients. A co-financing framework agreement is in place with the World Bank and a project-level co-lenders agreement will be entered into. As provided for in the Co-Financing Framework Agreement between AIIB and the World Bank, there will be Procurement Services provided by the World Bank which will include supervising the procurement process for jointly co-financed contracts including issuance of no objections to procurement decisions and oversight of procurement implementation by the Recipient.

Procurement for the left-bank inter-village road (the left-bank road) and the Lenders Technical Advisor will be conducted in accordance with the Directive on Procurement Instructions for Recipients (July 2024). AIIB's Standard Procurement Documents or other suitable MDB procurement documents will be used for parallel co-financed contracts. A PPSD has been developed and will be revised as needed. It is anticipated that there will be one civil works contract for roads and one consulting assignment for the Lenders Technical Advisor. Civil works contracts estimated to cost above the National Competitive Tendering threshold will be awarded following International Open Competitive Tendering method without pre-qualification. Consulting services assignments will follow International Open Competitive Selection. All contracts will be subject to prior review by the Bank.

For Lots 1A, 1B, and 3A, eligibility to participate in the tendering will be open to firms from all countries, which is consistent with AIIB's International Open Competitive Tendering procedure. AIIB will rely on the WBG to provide assurance of compliance with the Procurement Regulations.

With regard to the Lot 1 contract, the World Bank initially identified risks through its procurement reviews. These were reassessed under the current context following the TA support and most of those risks were found to have been addressed and based on the ''fit-for-purpose'' consideration, the Lot 1 contract was considered eligible for financing.

The Lot 1 contract has been amended to align it with the applicable FIDIC conditions, the environmental and social safeguards requirements of the financiers and Anti-Corruption Guidelines (World Bank) and Policy on Prohibited Practices (AIIB).

5.8 **Financial Management**. Based on the desk review assessment at the Appraisal stage, the project residual FM risk is High. To strengthen FM performance, the following FM capacity-building actions have been agreed upon as legal covenants within 60 days of effectiveness: (i) An accounting software satisfactory to the WB is installed and

maintained for Project accounting, budgeting, and reporting by DFZ; and the existing PMG's accounting software is adapted as necessary for the Project; (ii) an FM Specialist to be hired as part of the Project to provide daily support to the Chief Accountant of DFZ, and a Disbursement Specialist to be hired to PMG; (iii) the FM Manual is developed and adopted by DFZ as a disbursement condition for Component 3; and (iv) the FM Manual is adapted for PMG with the focus on how the payments to contractors/consultants will be verified and how assets constructed under the Project will be transferred to and accounted for by the Rogun HPP.

Budgeting: Under the Project, PMG and DFZ will be responsible for preparing the annual project budgets based on the procurement plan (PP), the financial agreements (FA), the project agreements (PA), RAP (for Component 3) and the yearly forecast of operating expenses for their respective implementing activities. Budgets should be prepared in accordance with the Interim Unaudited Financial Report (IUFR) format, including categories, components, significant activities, and sources of financing and should be divided into quarters. Budget processes are controlled by the Chief Accountant and the FM Specialist, who present the draft budget for a particular year. The detailed budgeting process for the upcoming fiscal year begins in the last quarter of the current year. PMG and DFZ should regularly compare budgets and actual expenditures. If required, mid-year revisions are made to the budget. Annual project budgets and detailed estimates of operating expenses should be agreed upon with the co-financiers before PMG and DFZ approve them and forward them to the Ministry of Finance (MoF) for further consolidation into the state budget. PMG and DFZ will report budget executions quarterly to the MoF and the State Committee on Investment and State Property Management (SCISPM).

Staffing: The FM responsibility for the proposed Project's Component 1 jointly co-financed with the WB and parallel co-financed Component 2 will be handled by PMG's Financial and Accounting Department (FAD). The FAD is headed by a Chief Accountant, who oversees all projects implemented by PMG and is supported by an Accountant-Cashier and an FM Specialist. In addition, PMG will hire a Disbursement Specialist to support the existing FM Specialist. For the proposed Project's Component 3, an FM Specialist will be recruited to ensure DFZ has acceptable financial management arrangements.

Accounting system: The Project will be accounted for and reported using the cash basis of accounting. PMG and DFZ will maintain project accounts and have custody of supporting documents for their implementing components. All transactions should be recorded and maintained in 1C accounting software, with a specific profile created for the Project. The Project's Chart of Accounts will be based on the MoF's Chart of Accounts but modified to allow for tracking of project transactions by the project components and significant activities. PMG procured and installed the 1C accounting software for the ongoing Grant financed project, and the same software can be used for the proposed Project once the necessary customizations are completed. DFZ is required to procure and install the 1C accounting software for its part of the Project.

Internal Control and Internal Audit: PMG has some internal controls, especially regarding transaction review and approval. These procedures are formally documented in PMG's FM Manual, which was prepared for the grant-financed project. The existing FM Manual at PMG will need to be adopted as an integral part of the POM for the

proposed Project. DFZ is required to prepare and adopt the accounting policies and procedures for its part of the Project. Neither PMG nor DFZ has an internal audit function.

Financial Reporting: For purposes of monitoring the Project's progress and financial performance, consolidated Interim Unaudited Financial Reports (IUFRs) will be prepared under the proposed Project. PMG shall produce a complete set of consolidated IUFRs quarterly, covering all components of the Project throughout its life. DFZ will submit its data to PMG for consolidation. The format of IUFRs may include (a) Project Sources and Uses of Funds, (b) Uses of Funds by Project Activity, (iii) Statements of Designated Accounts (if appropriate), and (iv) Disbursement Summary. The final format of IUFRs will be agreed upon within three months of the loan signing date. IUFRs should be submitted to the WB within 45 days of the end of each quarter via the Client Connection system. The WB will promptly share the IUFR and the results of its review with AIIB.

External Audit: PMG and DFZ will prepare the financial statements for their respective project parts, including all financing sources. PMG and DFZ will cause the separate project financial statements for their respective project parts to be audited in accordance with the International Standards on Auditing by an independent auditor acceptable to the WB and AIIB. A portfolio-wide audit contract covers all projects financed by the WB in Tajikistan. The private sector auditor is selected for three years. The same contract will cover the audit of the financial statements for the proposed Project. The project audit will include an extended audit coverage of 10% of beneficiaries annually. The audited project financial statements and the auditor's opinion will be presented in English to AIIB within six months from the end of the fiscal year. In addition, the annual audit of the IFRS financial statements of Rogun HPP will need to be carried out annually by auditors who are acceptable to the WB and AIIB.

The audit report for the project financial statements will include a management letter and auditor's opinions, which cover: (i) whether the project financial statements present an accurate and fair view or are presented fairly, in all material respects, in accordance with the applicable financial reporting standards; (ii) whether the proceeds of the loan were used only for the purpose(s) of the Project; and (iii) whether PMG and DFZ complied with the financial covenants contained in the legal agreements (if applicable).

5.9 **Disbursements.** The WB will provide disbursement services to AIIB as per the co-lender agreement. Therefore, the WB will handle all project disbursements according to its disbursement procedures.

Disbursements will follow the transaction-based method, including the following procedures: an Advance procedure (through advances to the Designated Account (DA)), a Direct Payment procedure, a Special Commitment procedure and a Reimbursement procedure with full documentation, including reimbursements under the Retroactive Financing procedure. PMG will use direct payments/special commitments for high-value payments under Component 1 and may also use the advance method for Component 2. DFZ will use the advance and direct payment procedures for Component 3.

There will be two Designated Accounts (DA) under AIIB's financing: (1) for DFZ for Component 3; and (2) for PMG for Component 2. The currency of the DAs will be any hard currency at the request of the project implementing entities, and DAs will be opened at a financial institution acceptable to the WB. PMG and DFZ will convert the funds and transfer them to the respective Project Accounts (PA) in local currency for payments

within the territory of Tajikistan. PMG and DFZ will administer the respective DAs and are accountable and responsible for the proper use of advances to the advance accounts, including advances to any sub-accounts.

The WB will issue the Disbursement and Financial Information Letter (DFIL), describing all required details. For AIIB loan disbursement, PMG and DFZ should submit one copy of the withdrawal application for eligible expenses under their respective parts of the project and copies of supporting documents to AIIB and one copy of the withdrawal application and copies of supporting documents to the WB. The WB will review each withdrawal application and advise AIIB to make the necessary payment, if any, subject to approval by AIIB. The payments for the AIIB portion will be made directly by AIIB after receiving the payment instructions from the WB, along with a copy of the application and the results of the WB's review of that application. The Borrower should ensure sufficient category and contract balances before requesting disbursements.

5.10 **Governance and Anti-corruption**. For Component 1 contracts, jointly co-financed with the World Bank, WB's Anti-Corruption Guidelines shall apply, which is materially consistent with AIIB's Policy on Prohibited Practices (2016) (PPP). However, AIIB's PPP will apply with regard to the prohibited practices of "Misuse of Resources" and "Theft", which are not covered under the WB's Anti-Corruption Guidelines. AIIB reserves the right to undertake investigations with regard to the Prohibited Practices of "Misuse of Resources" and "Theft", not covered under the WB's Anti-Corruption Guidelines. For parallel co-financed Sub-component 2.4 and Sub-component 3.2, AIIB's Policy on Prohibited Practices will apply. Detailed requirements will be specified in the Loan Agreement and included in the co-lenders' agreement.

5.11 **Financial Crime and Integrity (FCI) and Counterparty Due Diligence/Know Your Counterparty (CDD/KYC):** Following AIIB's applicable policies and guidelines, CDD/KYC has been conducted to assess Financial Crime risks, including Money Laundering and Financing of Terrorism risks, Bribery and Corruption Risk, Tax Transparency Risk, and risk deriving from integrity unsoundness when dealing with its Counterparties and Connected Parties in the financing. Tajikistan is not currently subject to international sanctions. There was no adverse media reporting noted in the screening. No critical findings were found.

D. Environmental and Social

5.12 **Environmental and Social Policy and Categorization**. The Project's environmental and social (E&S) risks and impacts for all Components have been assessed in accordance with the WB's Environmental and Social Framework 2018 (WB's ESF) and relevant E&S Standards (ESSs). To ensure a harmonized approach to addressing E&S aspects of the Project, and as permitted by AIIB's Environmental and Social Policy (AIIB's ESP), the WB's ESF and relevant ESSs will apply to all Components of this Project in lieu of AIIB's ESP. In addition, European regulations and directives on climate risk and climate impact assessment will be applied. The Bank has reviewed WB's ESF and ESSs and is satisfied that (i) the WB's ESF and ESSs are consistent with the Bank's Articles of Agreement and materially consistent with the provisions of AIIB's ESP and the relevant ESSs and (ii) the monitoring procedures that are in place are appropriate for the Project. The Project has been categorized as High (equivalent to **Category A** of AIIB) as the anticipated E&S risks and impacts of the

Project have the potential to be significantly adverse and irreversible, cumulative, diverse, or unprecedented.

The main risks related to environmental, social, health, and safety issues associated with the project are significant land acquisition and involuntary resettlement, biodiversity, dam safety, operational air emissions, GHG emissions, operations phase noise (including cumulative noise), solid waste generation (particularly hazardous waste), water use and discharge, stormwater drainage, worker management, pollution prevention, and climate change vulnerability, and contractor and community health and safety during construction.

5.13 **Client's E&S Performance**. The Project Management Group for Energy Facilities Construction under the President of the Republic of Tajikistan (PMG) serves as the implementing entity for the ongoing TA Project. The PMG, through an ESIA Consultant, is currently carrying out an update of environmental and social instruments of the Rogun HPP Project, ensuring compliance with national environmental and social legislation, the World Bank's ESF, and relevant environmental and social requirements of other lenders. It will also be responsible for the implementation of the Project. The PMG is also being supported by DFZ, which is responsible for implementation of the resettlement and livelihood restoration activities under the Project. The DFZ is responsible for implementation of resettlement and facilitating the livelihood restoration activities. The Rogun Open Joint Stock Company (OJSC) is responsible for the construction and operation of the Rogun HPP. There are numerous additional governmental ministries and local and national agencies, including those responsible for electricity transmission, utilities, environment, transport and labor, that will be responsible for delivery of E&S commitments under - or in association with - the three core client entities.

The DFZ has experience in development and implementation of resettlement and livelihood restoration activities under RAP 1 and LRP 1 prepared in line with the WB's E&S safeguards policies. Resettlement Audit completed by an independent consultant in 2018 found the DFZ resettlement activities satisfactory and compliant with the WB OP 04.12. The 2018 RAP1 Completion Audit Report was reviewed, approved and disclosed by the WB. After RAP 1 completion, DFZ prepared a RAP2 with no IFIs involved in the project at the time. The assessment of the Phase 2 resettlement has found that DFZ has followed the procedures and principles developed and approved by Lenders during RPF 1 and RAP 1 with some gaps identified and staffing to be strengthened.

The PMG, DFZ, and OJSC will require extensive E&S capacity building through the recruitment of additional qualified staff with specialized expertise to support the management of environmental and social risks. As an effectiveness condition, a Project Management Consultant (PMC) will be recruited for undertaking integrated construction supervision and quality assurance of the project across components. The existing contracts are being amended to reflect ESF requirements. The PMG is developing an organogram detailing E&S staffing arrangements across all entities of Rogun HPP project, including E&S positions. A training and capacity building plan is also being developed and implemented to familiarize PMG and OJSC staff with WB's ESF requirements and good international practice on ES standards, and on implementing their applicable requirements. Successful capacity building will require overcoming challenges with pay ceilings and living conditions on site. Additional implementing

agencies are being mapped as part of the ongoing upgrade of the ESMP. Capacity building actions will require extending to cover all institutions involved in assuring and delivering E&S compliance. Additionally, the lenders have established a set of new staffing requirements aimed at enhancing the capacity of the implementing agencies to be reflected in the ESMP.

To further strengthen the overall E&S compliance of the Rogun HPP project, the PMG engaged an Independent Environmental and Social Panel of Experts (ESPoE) which has been supporting the Project since the start of 2023. The ESPoE will be retained throughout the TA Project implementation period (end of 2026) and the Government has committed to finance it afterwards.

The World Bank has concluded negotiations on the Environmental and Social Commitment Plan (ESCP). The ESCP includes commitments relating to the retention of the ESPoE and recruiting by institutions and contractors of sufficient numbers of qualified E&S personnel to deliver an E&S compliant project. In addition, the ESCP seeks to further strengthen capacity through establishing a PMC with international E&S expertise including in dam safety.

5.14 **Environmental and Social Instruments.** Under the ongoing joint WB and AIIB technical assistance, Rogun PMG is updating the E&S instruments of the Rogun HPP, to comply with national environmental and social legislation, the WB ESF, and relevant environmental and social requirements of other co-financiers (e.g., EIB for climate-related assessments). The following instruments in Table 3 were initially disclosed by WB and the Client for consultation in a rolling program of release from December 22nd, 2023, through to June 26th, 2024. AIIB subsequently disclosed these documents via a link to the Client and WB disclosure websites in the PSI published on 19th July 2024.

Table 3. Summary of E&S Instruments disclosed

No.	E&S Instrument
1	Draft Updated Environmental and Social Impact Assessment (ESIA)
2	Draft Updated Resettlement and Livelihood Restoration Framework (RLRF)
3	Updated Stakeholder Engagement Plan (SEP)
4	Newly prepared Labor Management Procedures (LMP)
5	Environmental and Social Commitment Plan (ESCP)
6	Draft Updated Environmental and Social Management Plan (ESMP)
7	Gender Action Plan (GAP)
8	ESIA Non-Technical Summary (NTS)
9	Riparian Consultation Summary

The ESCP has subsequently been finalized and re-disclosed. Other key E&S instruments, including ESIA, ESMP, and NTS, are in the process of being updated under the AIIB and WB Technical Assistance to address extensive consultation feedback from Lenders, civil societies, and riparian countries on the disclosed versions. In addition to those listed in Table 3, the finalized ESCP identifies and commits the Client to preparing revised and new E&S instruments as set out in Table 4.

The ESIA consultant is working to a very tight schedule for the delivery of the E&S instruments. Most of the E&S instruments are specified as conditions of effectiveness in

the final WB ESCP and, whilst all parties are working to avoid a delay, it is probable that the instruments will not be developed to a standard considered by the Bank satisfactory to trigger effectiveness within the timescales expected by the Government.

Table 4. Summary of E&S Instruments for further disclosure

No.	E&S Instrument
1	Revised ESIA
2	Cumulative Impact Assessment (CIA)
3	Revised ESMP and ESMP for Left Bank Roads
4	Resettlement Action Plan (RAP) 2
5	Livelihood Restoration Plan (LRP) 2
6	Community Health and Safety Plan
7	Biodiversity Management Plan (BMP)
8	Security Management Plan (SMP)
9	Traffic Management Plan (TMP)
10	Cultural Heritage Management Plan (CHMP)

Additionally, for sub-component 3.2, a site-specific Environmental and Social Management Plan (ESMP) for left bank roads and bridges will be prepared, implemented by the State Enterprise Directorate of the Flooding Zone of the Rogun HPP (DFZ) and closely monitored by the Bank. For consistency the Component 3 ESMP will comply with the ESF of the lead co-financier.

5.15 **Environmental Aspects.** During the construction and impoundment period, the environmental challenges encompass risks associated with dam safety; changes in hydrology and impacts on river flow, quality and morphology; natural hazards including landslides and slope stability; inadequate management of solid, liquid, and hazardous wastes including asbestos, as well as legacy and construction related pollution and contamination risks; and impacts on natural habitats. Environmental concerns also relate to permanent inundation of the reservoir area, changes in the landscape and terrestrial and aquatic ecosystems, vibrations from blasting tunnels and heavy machinery, and dust pollution, etc. The majority of these risks will be managed through mitigation actions identified in the ESCP, upgraded ESIA, and the ESMP, and communicated to site teams including the engineering, procurement, construction (EPC) contractors of all the four lots, non-EPC contractors (undertaking preparatory and maintenance works), Rogun OJSC, PMG, and PMC, through a suite of template and full management plans and procedures. Notable construction phase management plans and procedures will include the following, but the full suite of plans will address all risks and impacts: Traffic Management Plan, Waste Management Plan, Wastewater Management Plan, Hazardous Materials Management Plan, Air Quality Management Plan, Erosion Control Plan, Watershed Management Plan, Biodiversity Management Plan, Landslide Monitoring Program, and Site restoration and Rehabilitation Plan.

During operations the Project is expected to be significantly exposed to physical climate risks, including but not limited to access to water resources, landslides, and extreme weather events triggered by climate change. Key operations phase environmental management plans and procedures are expected to include a Reservoir Operating Plan, Bathymetric Monitoring and Sediment Characterization Program, and a series of day-to-day management plans, which would include plans for Site Maintenance and

Housekeeping, Waste Management, Hazardous Materials Management, Wastewater Management, Landslide Management and Monitoring, Pollutant Spoil Prevention, and Minimum Flow Release Management. Dam safety during operations is also a key risk and design features, construction methods and quality, impoundment management approaches and operational and maintenance arrangements governing dam safety are being considered in detail by the DSPoE. The DSPoE will be aligning all dam safety plans and documentation with the requirements stipulated in ESS 1.

Operations phase risks are being assessed through the ESIA and additional studies identified as required by the DSPoE. The outstanding studies on climate change, hydrology and sedimentation are in progress but will not be available in time to inform the ESIA. AIIB is working with the ESIA consultant and DSPoE to assess that the assessment in the final ESIA is appropriately robust; i.e., it can be justified that no material changes to the assessment findings can be expected as a result of the studies. The DSPoE has also informed AIIB that the study findings are not expected to result in material changes to the risk profile of the project. The DSPoE is monitoring that study findings are implemented into design and operations scenarios.

To mitigate the environmental risks and impacts associated with the relocation and improvement of local roads and bridges connecting the communities on the left bank of the reservoir that AIIB will be financing, the ESIA Consultant has confirmed that the final ESMP will commit to the undertaking of a program of pre-construction surveys and the development of an activity-specific suite of environmental and social management plans / procedures aligned with the mitigation actions that will be applied for the main construction lots.

5.16 **Climate Risks and Opportunities.** AIIB will finance the following components: i) Component 1 of the Project, including electromechanical equipment and right bank structures, ii) sub-component 2.4, the lenders' technical and E&S advisor, and iii) sub-component 3.2, reconstruction of the construction and rehabilitation of 55km intra-village road and bridges on the left bank of the reservoir.

5.17 **Paris alignment (mitigation):** Components 1 includes activities directly related to the construction of the hydropower dam and therefore are on the list of 'universally aligned' activities for the mitigation goals of the Paris Agreement under the Joint Multilateral Development Banks' (JMDB) methodology for Paris Alignment (BB1) under the section 'Generation of renewable energy with negligible lifecycle emissions'. The sector specific guiding notes of the AIIB provides additional notes to determine if a project has negligible lifecycle emissions[9].

The team has worked out Rogun's HPP power density as 34.4 W/m2 (assuming a surface area of 110 km2 and total install capacity of 3,780 MW), exceeding the minimum threshold value of 10W/m2 for automatically PA-aligned activities, thus we can conclude

[9] The notes state: "*Large hydropower may emit significant GHG emissions due to the creation of large reservoirs resulting in anaerobic decomposition of organic matter in the inundated area. Therefore, large hydropower will be automatically PA alig*
ed only if corresponding GHG emissions are confirmed to be negligible, following the criteria developed by the Climate Bond Initiative (CBI):

• Hydropower plants in operation pre-2020: less than 100 gCO_2 equivalent per kWh power generation or the plant's power density4 is above 5 W/m^2.
• Hydropower plants in operation since 2020: lifecycle GHG emissions of lower than 50 gCO_2 equivalent per kWh power generation, or the plant's power density is above 10 W/m^2".

that the components related to the construction of the hydropower dam are aligned with the mitigation goals of the Paris Agreement (BB1).

5.18 **Paris alignment (adaptation):** The project team performed a Climate Resilience Assessment (CRA) during due diligence following AIIB's methodology to evaluate its alignment with the adaptation goals of the Paris Agreement (BB2). The result of the CRA was positive (the project incorporates measures to mitigate the climate risk from the hazards that might materially affect it and is not incompatible with the NDC and other national climate adaptation strategies) and is considered aligned with the adaptation goals of the Paris Agreement and thus Paris Aligned.

Sub-component 3.2 involves the construction and rehabilitation of 55km intra-village gravel road, including road and pedestrian bridges on the left bank of the reservoir that are needed to provide Project-affected people with uninterrupted transport connections after reservoir filling. This component can be considered 'Universally aligned' for BB1 under the section 'Road upgrading, rehabilitation, reconstruction, and maintenance without capacity expansion'. Even though this section does not normally include greenfield infrastructure, the road financed by AIIB cannot be considered a 'new road' as it will replace the existing roads that will get lost after the inundation of the dam and will not trigger any capacity expansion vis-à-vis the current road network.

5.19 **Climate mitigation finance:** The sum of the CAPEX of all the qualifying sub-components financed by the AIIB (Lot 1, 1A, and 1B) is USD 465 million, equivalent to 93 percent of the investment for Phases 1 and 2. For Phase 1 only, USD 237.5 million qualify, equivalent to 87.96 percent of AIIB's investment. Sub-component, 3.2, comprising the construction of 55km inter-village road and bridges does not qualify as climate mitigation finance.

5.20 **Climate adaptation finance**: Given that the project belongs to the climate adaptation type 2 (Enable adaptation) being climate resilience one of the main project objectives (PO), specifically enhancing the national and regional energy security, the outcome and output level indicators and the climate resilience measures incorporated on it (structural and non-structural) listed above, using the AIIB's proportional approach based on the JMDB methodology for tracking climate adaptation finance, a 50 percent is allocated to Lot 1, 1A and 1B co-financed by AIIB, (50 percent of USD 465 million) equivalent to USD 232.5 million, equal to 46.5 percent of AIIB's finance for Phases 1 and 2. For Phase 1 only, the climate adaptation finance is equal to USD 118.75 million (43.98 percent of AIIB's investment).

The total climate finance of the Project would be equivalent to the sum of the climate mitigation and climate adaptation finance allocated to it (USD 465 million for mitigation plus USD 237.5 million for adaptation) rounded to a maximum of 100 percent of AIIB's investment (USD 500 million). Therefore, the total climate finance would be equivalent to USD 500 million or 100 percent of AIIB's investment for Phases 1 and 2. For Phase 1 only, the total climate finance would be equivalent to USD 270 million (100 percent of AIIB's finance).

5.21 **Social Aspects**. The Rogun HPP construction is expected to have significant adverse social risks and impacts. The key social risks and impacts are related to large scale resettlement impacts with physical and economic displacement across 69

settlements with more than 50,000 people[10] (6,788 households) of Rogun City, Nurobod and Rasht districts. Under RAP1, 2,542 people have been resettled. As of November 2024, 7,820 people have been resettled under RAP 2, 6,699 people are in the process of being resettled, and another 2,400 will be resettled during the second phase of the resettlement. The reservoir impoundment will also result in the loss of seven bridges and partial loss of access roads (55 km) between 17 villages located on the left bank of the river, which may cause potential severance risks to over 8,900 people if relevant intra-village roads could not be rehabilitated in time**.**

Given that resettlement activities are being carried out in a phased manner, to correspond to inundation levels of the reservoir as well as the magnitude of people affected by displacement, a framework approach to identify and mitigate adverse impacts on project-affected people was considered appropriate. The RLRF is designed to facilitate the implementation of multiple-phase multi-year resettlement. It provides modalities for conducting up-to-date comprehensive socio-economic baseline studies and census surveys and includes mechanisms to establish resettlement cut-off dates for each phase of resettlement. RAP2/LRP2 includes an analysis of compensation and livelihood restoration measures and relevant resources up to 2026. RAP2/LRP2 is being finalized and will serve as the Withdrawal Condition of the project disbursement. The estimated budget for RAP2/LRP2 completion is abound USD 87 million. The budget for completing the resettlement and livelihood restoration activities from 2026 onward is estimated at around USD 200 million. The project financing plan allocates USD 300 million specifically for the implementation of RAP and LRP. This allocation consists of USD 255 million from the state budget and USD 45 million from the International Development Association (IDA). The subsequent RAPs and LRPs will be consulted upon, disclosed, and implemented from 2026 to 2032, prior to impoundment. The Benefit Sharing Program being designed will also define systematic efforts by project proponents to sustainably benefit local communities affected by hydropower investments, as well as providing support for broader regional or national activities. The ESIA/ESMP being finalized will include the ES risks, impacts and relevant mitigation measures related to the construction of local intervillage roads and bridges, which will be cascaded down to the C-ESMPs of the civil works contractor to be recruited by DFZ. More details on the resettlement issues are included in Annex 4.

The Project presents various community health and safety risks and impacts, including those associated with the reservoir, such as drowning, labor influx, social conflicts, gender-based violence, sexual exploitation and abuse, as well as the transmission of diseases, and safety and security issues. The influx of labor, due to the migration of foreign workers into the Project area, may create challenges including increased pressure on local services, a higher risk of disease transmission, decreased community cohesion, and potential conflicts. To address these impacts, the Project has implemented several measures, including well-established communication channels with local communities and development of Labor Management Procedures (LMP) and a Gender Action Plan (GAP) to prevent social conflicts and incidents of gender-based violence, sexual exploitation, and abuse. Furthermore, a grievance mechanism is in place to address any concerns raised by project workers and external stakeholders. A

[10] This number could increase to 60,000 people by the end of the resettlement process primarily as a result of natural population growth (birth rate exceeding death rate).

Community Health and Safety Plans will be developed by the Contractors to facilitate community health and safety measures. The security of the Rogun dam, a significant asset in the country, is being safeguarded by the Army, and a Security Management Plan will be developed to assess and mitigate any security risks, including those related to military activities at the dam site.

The Project activities are expected to have adverse impacts on tangible and intangible cultural heritage including archeological, cultural, and sacred resources. It is estimated that a total of 32 cultural and sacred resources including cemeteries, tombs, mosques, and fortresses are known to be affected during construction. Intangible heritage such as traditional music and crafts are also distinct to the region. A comprehensive Cultural Heritage Management Plan (CHMP) will be developed to minimize impacts on both known and unknow heritage assets. Key mitigation measures will include: (i) implementing exclusion zones around known assets; (ii) detailed cemetery relocation guidelines; (iii) ongoing engagement to ensure safe access to sacred areas; (iv) recording and identification through investigations of known assets; and (v) a Chance Finds Procedure. The CHMP is a condition of disbursement for all activities to be implemented by PMG. Annex 4 highlights more details on cultural heritage aspects.

5.22 **Gender Aspects.** Female labour force participation in the energy sector of Tajikistan is the lowest in Central Asia. The national average is 11.5 percent with wide variance between key players such as Barqi Tojik at 7.4 percent and Power and Energy Sector at 15 percent.[11] Based on the findings of the recent WB report on Gender Gaps in Central Asia, the Tajik energy sector companies do not have supportive gender policies, and several factors explain the large gender gap, including gender-based discrimination in recruitment processes and field assignments, lack of female role models and networking opportunities. Women currently comprise 5.2 percent of the workforce for the Rogun HPP. Sexual harassment in the workplace is prohibited by law, and measures such as training on gender-based harassment and strict enforcement of a code of conduct are in place to reduce risks.

The Project will work with the implementing entities to support implementation of specific interventions to address the gender gaps including: (i) facilitating STEM to work transition for women by organizing field visits for female young graduates and launching mentorship programs; (ii) advancing the recruitment, retention and promotion of women through professional development courses and mentoring programs; and (iii) promoting an inclusive and safe work environment through launching an on-site childcare facility.

A Gender Action Plan (GAP) has been prepared and was disclosed in March 2024. It will be financed under Component 3 of the Project. It identifies actions under three priority areas: (a) building and strengthening capacity to address Gender-Based Violence (GBV) and Sexual Exploitation and Abuse / Sexual Harassment (SEA/SH) risks at or near the Rogun HPP project sites, in three implementing entities for the project and at resettlement sites; (b) creating socio-economic opportunities for women and girls Project Affected People (PAPs); and (c) creating greater opportunities for women as workers and employees with the Rogun project and its three implementing entities. GAP

[11] Percentage of women employed in the electric, power, gas, steam and air conditioning supply sector in Tajikistan. Women and Men of the Republic of Tajikistan, Agency on Statistics under the President of the Republic of Tajikistan, 2020.

implementation requires additional staff at Rogun PMG with the requisite skills. An experienced Gender Specialist will be recruited by the PMG to oversee GAP implementation. Further details about gender and social inclusion are found in Annex 4.

5.23 **Occupational Health and Safety (OHS), Labor and Working Conditions (LWC).** The Project involves OHS risks and impacts, especially during the construction stage. This includes challenges in labor management such as ensuring proper working conditions, occupational health and safety (OHS), and establishing safe accommodations for the peak workforce of 15,000 to 20,000 workers. Currently, approximately 14,735 people are employed on the project. A labor audit conducted in March 2023 also identified areas for improvement, particularly in accommodation standards. As a result, substandard facilities will be upgraded to meet international benchmarks. Other key OHS risks are also identified, such as hazardous tasks (e.g., working at heights, confined spaces, and using heavy machinery), exposure to harmful materials, fatigue from long hours, inadequate rest periods, and a lack of awareness about safety practices. Additionally, issues related to migrant workers and workplace harassment pose additional risks. To address these challenges, the Project will implement labor management procedures (LMP) that will be incorporated into contracts with EPC contractors. The OHS requirements and worker accommodation standards are detailed in the LMP and the ESMP, following the World Bank Group's EHSG H&S capacity of the Project implementing institutions and contractors is a key compliance risk, and mitigations are identified in the ESCP and will be defined in the final ESMP and cascaded down in the Contractors OHS Plans to be prepared.

The project LMP includes all labor management requirements, including terms and conditions of employment, procedures to ensure nondiscrimination and protection of vulnerable categories of workers, minimum working age and age verification procedure, management of contractors, monitoring of primary supply workers, procedures to prevent sexual harassment in the workplace (including suggested Code of Conduct), and grievance mechanism. There is an existing Workers' grievance mechanism (GM), which will be further improved and operationalized in line with the LMP. Under the project LMP, a separate process for handling confidential and sensitive complaints, such as those related to sexual harassment will be developed.

5.24 **Stakeholder Engagement, Consultation and Information Disclosure:** Extensive stakeholder engagement commenced in 2008 for the resettlement process and was carried out for the 2014 ESIA, a process which continues to the present. A SEP has been prepared for the Project, disclosed in March 2024 and consulted upon. Through a thorough review of Project plans, objectives, and potential impacts, stakeholders have been categorized based on direct and indirect effects, considering both environmental and social aspects. The SEP defines in detail the risks and impacts on all parties that may be affected by the Project. It outlines the commitments of the PMG related to stakeholder engagement, consultation, and disclosure for the entire Project, throughout construction, operation, and resettlement activities. Stakeholder activities include: (a) early notifications to riparian countries in line with AIIB's Operational Policy on International Relations (notification letters sent in September 2023, followed by riparian consultation events in Almaty in November 2023 and in Tashkent in November, 2024); (b) ongoing consultations with the project-affected people and communities during RAP and GAP implementation; (c) consultations with neighboring

countries on water-related issues through regional organizations or other appropriate forums as part of broader regional water sector engagement in Central Asia; and (d) development of a public communication program and the Benefit Sharing Program, confirming the Borrower's commitment to improving local community livelihoods. The SEP also sets out the project grievance mechanism, which has been operating in the communities at and near the dam site, as well as at PMG and DFZ. The importance of regular consultations to foster trust and mutual understanding between the project management team and stakeholders throughout both the construction and operation phases is established in the SEP, and regular consultations will continue during the project implementation with all direct and indirect stakeholders.

The draft ES instruments stated above were disclosed in English and local languages (Russian and summaries in Tajik) by the Borrower and in English by the WB for public consultations during the period of December 2023 to June 2024. AIIB subsequently disclosed these documents via a link to the Borrower and WB disclosure websites in the PSI published in July 2024. The final package will be publicly available prior to the project effectiveness date.

5.25 **Project Grievance Redress Mechanism**. A multi-tier project-specific mechanism is being established to address complaints and issues. The project grievance procedure builds on the existing communication methods and channels that communities currently use to raise concerns. Affected community members can submit project-related grievances through the Jamoats (local self-governing bodies) or District Livelihood and Engagement Officers (DLEOs) hired by DFZ. Tier 1 involves the Rogun HPP and DFZ handling all resettlement-related grievances, while the PMG Stakeholder Engagement Lead will manage other types of grievances. If no mutually satisfactory resolution is reached in Tier 1, the grievance escalates to Tier 2 GRM. This stage involves third-party mediation, where participants agree on the process, involved parties, and available remedies. Specific issues raised by vulnerable groups and individuals with sensitive complaints will be managed by a third-party sensitive grievance manager. Dedicated communication materials in the local language are being developed to inform stakeholders about the grievance redress channels and procedures.

Concerns from international and national non-governmental organizations (NGOs), civil society organizations (CSOs), and others can be submitted to the PMG Stakeholder Engagement Lead. The WB has also created a webpage dedicated to Rogun[12], where the frequent questions from CSOs will be clarified.

In accordance with the Project's LMP, the existing multi-tier worker GRM will be strengthened at both Contractor and PMG levels, with a Labor Inspection Panel serving as the appeal body. The Rogun PMG will oversee GRM management and reporting.

5.26 **Independent Accountability Mechanism.** Pursuant to AIIB's agreement with the WB, the WB's ESF will apply to this Project instead of the AIIB's ESP. The WB's corporate Grievance Redress Service (GRS) and its Independent Accountability Mechanism, the Inspection Panel, which reviews the WB's compliance with its policies and procedures, will handle complaints relating to the WB's compliance with its ESF

[12] https://www.worldbank.org/en/programs/rogun-hydropower-plant-project

under the Project. In accordance with AIIB's Policy on the Project affected People's Mechanism (PPM), submissions to the PPM regarding such complaints under this Project will not be eligible for consideration by the PPM. Information on the WB's corporate GRS is available at Grievance Redress Service. Information on the WB's Inspection Panel is available at Home | Inspection Panel.

5.27 **Monitoring and Supervision Arrangements.** The Rogun PMG bears responsibility for overall monitoring and supervision of ES performance of all implementing entities involved in construction and operation phases. DFZ will provide progress reports on the implementation of Component 3 to Rogun PMG. The Rogun PMG will be responsible for submitting to the Bank (i) semi-annual implementation progress reports on the RF, including the ES performance; and (ii) monthly reports (prepared by the PMC, DFZ and contractors) to report on progress of key activities. Rogun PMG will rely on the Project Management Consultant to support with monitoring, supervision and reporting of contractors including their ES compliance and performance. The ESPoE will be retained to observe and advise on the Project's ES compliance, and to provide an independent review of ES compliance. The financiers will also have a lenders' technical advisor who will report directly to donors and support them with day-to-day supervision and monitoring, including ES monitoring. AIIB will carry out semi-annual supervision missions, including site visits to monitor and support the Project implementation in close coordination with the World Bank, the lead co-financier.

E. Operational Policy on International Relations

5.28 **Trans-boundary issues**. AIIB's Operational Policy on International Relations (OPIR) is triggered in the Project because the Rogun dam is situated on the Vakhsh River, which is a significant tributary of the Amu Darya River. The Amu Darya river is shared by Afghanistan, Kyrgyz Republic, Tajikistan, Turkmenistan and Uzbekistan, and flows into Aral Sea which is located in Kazakhstan and Uzbekistan, therefore is considered an "international waterway" for purposes of the Policy. In accordance with the OPIR, WB and AIIB sent joint riparian notification letters and all relevant information about the Project to Afghanistan, Kyrgyz Republic, Turkmenistan and Uzbekistan, as well as Kazakhstan. Two of the notified countries did not raise any objections within the timeframe specified in the notification letters[13]. Three of the notified countries responded, two of which confirmed that they have no objection to the Bank proceeding with processing the Project further. The third country responded disagreeing with any existing, planned, ongoing and potential water uses which may impact its current, ongoing and future legitimate water uses in the shared basin. The Bank reviewed the objection as part of its assessment in accordance with the OPIR and concluded that the Project will not have a material adverse effect on the riparian countries' reasonable access to, use of, or benefit from the water.

F. Risks and Mitigation Measures

The overall risk assessment of the Project is High. Identified risks and mitigation measures are provided in the table below.

[13] The notification letters were issued on September 27, 2023, with a specific request that riparians raise comments or objections (if any) no later than November 23, 2023. The timeframe for riparians to consider the Project is longer than 30 days.

Table 5: Summary of Risks and Mitigating Measures

Risk Description	Assessment (H/M/L)	Mitigation Measures
Political and governance risk: Despite the substantial governance and transparency challenges in the sector, there is strong support at the highest level on the priority of Rogun HPP project and the authorities have also demonstrated strong commitment to accompany the projects with much needed reforms. The Project is also supported across the political spectrum and is consistent with the country's development strategy. However, residual risk remains concerning sector and Rogun OJSC governance aspects.	**High**	The risks will be mitigated through the implementation of recommended actions resulting from governance assessment by the World Bank under the ongoing technical assistance to the Project. These actions include improving performance management, providing transparency and accountability training for key staff, and conducting prior reviews of high-risk procurement activities.
Macroeconomic Risk: Regional and other geopolitical tensions with neighboring countries may deteriorate Tajikistan's growth prospects over the medium term and undermine the Government's ability to implement structural reforms, including in the energy sector. The deterioration of the macroeconomic situation, potential revenue losses, and extra spending (on public debt service and security spending) might also impact the construction work of Rogun HPP given that a substantial portion of financing will come from the state budget (including for Lot 2, the main dam). Despite signed PPAs, an unfavorable external environment may affect the creditworthiness of PPA counterparts and Rogun's export revenues from energy sales. A potential exchange rate risk on servicing public debt (due a high share of hard currency debt vs.	**High**	Mitigation measures include: (a) clear signal from all potential financiers that they will not support the project if the financing plan is macroeconomically not sustainable; (b) the ongoing policy dialogue with the IMF and the World Bank including prospects of funded programs/budget support operations; (c) regular monitoring of macroeconomic developments and updates to the debt sustainability analysis to determine whether the financing plan to be developed would require any update(s); and (d) risk of relying on contributions from state budget mitigated by (i) demonstrated track record of the Government contributing approximately US$300-400 million per year to Rogun construction activities, including during constrained macro-fiscal period of COVID

local currency revenue) as well as a substantial increase in recurring subsidies or contingent liabilities of state-owned enterprises may undermine the Government's fiscal position and affect the spending envelope available for Rogun HPP construction. Moreover, if the Government deviates from the implementation of recommendations related to macro-fiscally sustainable financing plan, then considering its desire to complete the construction of the project as soon as possible, the risks of public debt distress would increase.		19; and (ii) support from other DPs in other Lots, allowing the Government to focus its resources on Lots 2 and 3.
Sector Strategies and Policy Risk: The proposed Project is consistent with the NDS objectives as specified in the Tajikistan NDS 2030 and other strategic documents. However, this risk at Project level is Substantial given the poor financial and governance performance of the electricity sector which could jeopardize the robustness of the commercial framework for Rogun HPP project and impact collection of revenues for electricity sales by the project. The overall sector financial standing will impact Rogun OJSC given that BT is one of the off-takers of electricity from Rogun HPP (with up to 30 percent of sales expected to go to BT).	**High**	Mitigation measures include: (a) sustained progress on achieving results under the WB PUFR to achieve targets related to tariff adjustments (strict adherence to the agreed trajectory to achieve cost recovery tariffs by 2027), transparency of financial flows in the energy sector through improvements to the sector escrow account, implementation of cost-saving measures, and adoption of good-practice governance including independent members to the supervisory boards of energy companies; (b) introduction of sector specific conditions for effectiveness and dated/recurrent legal covenants in the proposed operation.
Technical Risk: Whilst most of the technical risks identified are typical in nature for any large HPP, the construction of the dam as well as legacy risks from works already performed warrant the highest level of dam safety	**High**	The technical design is being reviewed in depth the DSPOE. Several appropriate technical risk mitigation measures have been recommended by the DSPOE and are being integrated into the detailed design and the

and technical scrutiny. In particular, due to the location of the Project in an active seismic zone, the risks related to seismicity, geology, flood management, and sediment management need detailed examination. Sedimentation-related risks have arisen because of construction delays already incurred that have impeded the rate of reservoir impoundment. Contract management is also a key technical risk. With a number of contractors working concurrently, and the scale of the project, there will be technical issues and interface coordination requirements, which may be beyond the control of the Employer (including geological surprises, natural disasters, contractor's liquidity problems, adequacy of insurance coverage and relative delays in inter-dependent contracts).		construction and monitoring procedures. Additional studies to update the related design parameters are being undertaken for hydrology and climate change, seismicity and sedimentation. Sedimentation risks will be mitigated by focusing on the relevant construction activities and adopting a modified and gradual reservoir impoundment sequence. In addition, a new PMC will be recruited to replace the existing ER. The new PMC will have an expanded scope to ensure that best practice is being followed for the design, construction and insurance of the works, in management of contracts and interfaces, and keeping the schedule and costs under control in such a complex project setting. To mitigate legacy risks, there are several studies either completed or underway through the WB-AIIB technical assistance, including the QA/QC audit and DT assessment, both of which identify appropriate mitigation measures.
Environmental and Social Risk: Significant, diverse, cumulative and irreversible environmental risks related to permanent inundation of the reservoir area, changes in landscape, dam safety, hydrology, impacts on river flow, biodiversity, terrestrial and aquatic ecosystems, construction and operations-induced impacts. Significant adverse social risks and impacts related to large resettlement, restoration of livelihoods, labor management challenges, community health and safety issues and cultural heritage.	**High**	The management of environmental and social risks will be addressed through the engagement by the Borrower of a Project Management Consultant (PMC) that will include international environmental, social and health and safety expertise and robust staffing levels to approve Contractor E&S management plans and procedures and effectively monitor and enforce E&S performance on site. In addition, the E&S capacity of key implementation agencies, including the PMG and DFZ, will

These adverse impacts and risks are multiplied by (a) insufficient E&S capacities for implementation of ESMP, (b) inadequate monitoring and reporting on Project's E&S performance.		be bolstered. For PMG this will include the provision of staff in key positions, including an E&S Director, by the PMC. In addition, the Borrower will retain an independent environmental and social panel of experts, and AIIB and the Lender group will engage a Lenders Technical Advisor to deliver comprehensive E&S and technical implementation compliance monitoring. Further, the Operation Implementation Plan (OIP) will be expanded to include E&S activities, including resettlement, left bank works, and safe demolition and decontamination activities. The OIP will establish schedule dependencies between these E&S activities and technical activities such as raising the elevation of the reservoir. These measures have been designed to deliver mitigation that will be specified in the updated E&S instruments, which will include the updated ESIA, ESMP, ESCP, RLRF, RAP 2/LRP 2 and CHMP, as well as the LMP, SEP, GAP, series of Environmental, health and safety and emergency response management plans, and where necessary, any additional E&S plans and studies prepared during project implementation. To further mitigate the risk of reduction of flow downstream, a legal covenant will be introduced committing the Government to operate within existing water sharing arrangements.

Procurement Risk: procurement risk is High, which reflects the complexity of the project, as well as existing procurement and technical capacity limitations in the PMG. Procurement risks include: (i) technical complexity making it difficult to define and delineate contracts; (ii) project with legacy designs which started decades ago and some data may not be easily verifiable by bidders; (iii) interface risks among contracts financed by various IFIs under different Procurement Rules; (iv) coordination risks among different IFIs; (v) governance and integrity risks; (vi) limited capacity of the Rogun PMG to conduct procurement and supervise contracts; and (vii) evaluation committees of over 20 members resulting in delays in evaluation. There is also a risk that procurement-related complaints may arise after the contract award of Lot 1 becomes public upon the Banks' approval of the Project.	**High**	Mitigation measures include: (i) regular coordination meetings among IFIs themselves and between IFIs and Government; (ii) preparation of OIP and hiring a PMC to coordinate all project components; (iii) market sounding and engagement and establishing electronic data room for bidders to access all information: (iv) use of probity assurance, beneficial ownership disclosure and direct payment to contractors by the Bank (on approval of invoice by Employer); (v) preparation of PIA to define roles and responsibilities including governance arrangements for approval of contracts and amendments, composition of tender evaluation committees and business standards for decision making to be agreed upon with the Bank; and (vii) strong Bank oversight and implementation support including hands on enhanced implementation support and capacity building in procurement and contract management. For potential Lot 1-related complaints, the AIIB team will monitor the developments in close coordination with the WB team to mitigate any risks.
Financial Management Risk: Component 2 of the project may be negatively affected by the issue of financing for withholding taxes. Component 3, including resettlement cash compensations and cash stipends, will be processed by the DFZ, which doesn't have any prior experience of working with the IFIs and will be in charge of a vast number of payments to individuals.	**High**	Except for custom duties, excises and social charges (which will be eligible for financing under the project), the Government confirmed its intention to seek an exemption from all other applicable taxes or to provide the funds to cover them. With regard to DFZ, The mitigation measures will include detailed payment and verification procedures of cash

		payments and the extended audit coverage of 10 percent of beneficiaries annually. For payments of large contracts under PMG, the direct payment and reimbursement methods will be used to mitigate the risks of improper use of funds.
Implementation Capacity Risk: The Rogun PMG, Rogun OJSC, and DFZ have limited experience in implementation of projects financed by the Bank or other DPs resulting in an accumulation of design and construction delays, as well as technical and dam safety issues. These interconnected issues pose a substantial risk to the project's safety, timeline, and costs, necessitating prompt and effective management to mitigate these risks. The Rogun technical assistance has supported capacity building of Rogun PMG including strengthening of in-house capacity. However, further capacity building is required on: (a) geology, hydrology, and other specialized aspects of hydropower; (b) procurement and financial management; and (c) monitoring and ensuring environmental compliance of the project.	**High**	Mitigation measures: (i) hiring additional experts at Rogun PMG to strengthen their implementation capacity and trainings on technical aspects of hydropower (in process), procurement specialists, contract management specialist, and an OHS specialist; (ii) The government has also agreed to include in the scope of the PMC being recruited under the project a "twinning contract arrangement" under which the PMC will provide management services to PMG, and under which oversight and responsibilities will be shared to improve transparency and speed of decision-making processes.
Other risks: The project objectives are well understood, and all key stakeholders, comprised of local residents near Rogun HPP, the electricity consumers, and key local and central government bodies, support the project. However, the Rogun HPP is on an international waterway. There is a lack of an effective binding arrangement among all riparian countries over shared water resources and the	**High**	Mitigation measures include: (a) early notification to riparian countries, per AIIB OP on IR (notification letters sent to all riparian countries September 2023 and riparian consultations event held in Almaty November 2023); (b) ensuring that filling of the reservoir respects existing water sharing arrangements through appropriate legal covenants; (c) consultations with neighboring countries on water

lack of dispute resolution mechanisms amid growing populations and climate stressors. There is also a risk that the potential project affected people (those to be resettled) may not provide the required cooperation with consultants that would prepare the RAPs.		related issues through existing regional organizations, or in other appropriate format, as part of broader regional engagements in the water sector in CA; (d) a robust communication strategy to ensure transparent communication with the local and international community, providing regular updates on the project's progress, and explaining the safeguards and systems in place to ensure that the project is executed responsibly and sustainably; and (e) the development of the BSP, which would send a strong signal about the Project’s focus on improvement of livelihoods of local communities.

6. Next steps

Milestones	Actual or Expected Completion Dates
Screening	July 7, 2022
Concept Review	September 13, 2023
Final IDR/IC	Oct 21, 2024
Negotiation	Nov 26-29, 2024
Board Approval	Dec 19, 2024
Loan Signing	Q4 2024
Effectiveness	Q1 2025
First Disbursement	Q1 2025

Annex 1: Results Monitoring Framework

Program Objective	To increase the supply of clean, affordable, and climate-resilient hydroelectricity for consumers in Tajikistan and the Central Asia region.						
Project (i.e. Phase 1) Objective	To increase the supply of clean, affordable, and climate-resilient hydroelectricity for consumers in Tajikistan and the Central Asia region.						
Indicator Name	**Unit of measure**	**Baseline Year**	**Baseline Data**	**Phase 1 target (2029)**	**Program Target (2033)**	**Frequency**	**Responsibility**
Project development indicators							
Renewable energy capacity enabled	MW	2024	400	2040	3780	Annual	Rogun PMG
People with enhanced resilience to climate riskss	Millions	2024	0	9.75	9.75	Annual	World Bank/Rogun PMG
Electricity exports to Central Asia region	GWh	2024	0	2.500	8,100	Annual	Rogun PMG
Net GHG emissions reductions per year	MtCO2/year	2024	0	1.75	3.50	Annual	Rogun PMG
Intermediate indicators by components							
Component 1: Construction activities							
Hydropower generation capacity constructed under the project	MW	2024	0	1260	2520	Semi- annual	Rogun PMG
Hydropower generation capacity rehabilitated under the project	MW	2024	400	780	1260	Semi- annual	Rogun PMG
New generating units supplied and installed under the Project	Number	2024	0	2	4	Annual	Rogun PMG
Supply and installation of replacement turbine runners for Units 5 and 6 completed under the Project	Number	2024	0	2	2	Semi- annual	Rogun PMG
Component 2: Project implementation support							
Preparation and update of (a) construction supervision and quality assurance plan; and (b) instrumentation plan is completed	Yes/No	2024	No	Yes	N/A	Annual	Rogun PMG
Preparation and update of the O&M plan and EEP is completed in phased manners	Yes/No	2024	No	Yes	N/A	Annual	Rogun PMG
Retention of DSPOE and ESPOE until 2029 for Phase 1 and 2035 for Phase 2	Yes/No	2024	Yes	Yes	Yes	Semi-annual	Rogun PMG
Share of women taking on jobs at OJSC, DFZ and Rogun PMG as workers and in technical and managerial levels	Percentage	2024	5.2	10	10	Annual	Rogun PMG
Component 3: RAP and LRP implementation							
Number of the Project Affected People (PAP) compensated as part of involuntary resettlement	Number	2024	0	10,000	50,000	Annual	DFZ/Rogun PMG

Percentage of registered project related grievances responded during project implementation	Percentage	2024	0	100	100	Monthly	Rogun PMG/DFZ
Percentage of citizens who believe that the Project has established effective engagement	Percentage	2024	0	At least 80%	At least 80%	Semi-annual	Rogun PMG
Percentage of people benefitting from the Benefit-Sharing Program of the Rogun HPP project	Percentage	2024	0	At least 20%	At least 20%	Semi-Annual	Rogun PMG
Component 4: Hydro meteorological activities							
Water level and discharge data from modernized hydroposts is shared twice a day with the MEWR and BWO Amudarya Headquarters	Yes/No	2024	No	Yes	Yes	Monthly	Rogun PMG

Annex 2: Detailed Project Description

1. **Vakhsh River and transboundary water management.** The Vakhsh river, where Rogun HPP is located, is the largest river in Tajikistan, crossing the country from the northeast to the southwest. Originating at the confluence of the Surkhob and Obikhingob rivers, it becomes the Vakhsh river. Running further downstream, the Vakhsh River meets and confluences with Pyanj River in the Tigrovaya Balka Nature Reserve on the border between Afghanistan and Tajikistan, and form the Amu Darya, one of the major rivers in Central Asia and Afghanistan. Rising in the Pamir Mountains, north of the Hindu Kush, the Amu Darya flows from there northwestwards into the southern remnants of the Aral Sea.

The main rivers in Tajikistan are classified as transboundary. Several of those rivers (Vakhsh, Pyanj, Kofarnihon and Zeravshan rivers) cross the boundaries of two countries and some others (Amu Darya, Syr Darya) – the boundaries of four countries. During the Soviet period, water resources were shared among the five Central Asia republics based on master plans for water resources development in the Amu Darya and Syr Darya river basins. With the establishment of the Interstate Commission for Water Coordination (ICWC) in 1992, the newly independent states prepared a regional water strategy (Agreement of 18 February 1992) but continued to respect existing principles until the adoption of a new water-sharing agreement. The new agreement ("Agreement on joint actions to address the problem of the Aral Sea and socio-economic development of the Aral Sea basin") was signed by the Heads of the five states in 1996. The agreement included the construction of the Kambarata-1 hydropower project in Kyrgyz Republic and the Rogun hydropower project in Tajikistan. The ICWC meets twice annually to set surface water withdrawal quotes, taking into account the main rivers water flow prognosis for the October-March and April-September seasons.

2. **The Vakhsh River Cascade.** The Vakhsh River is abundant of hydropower resources. Its catchment area lies in the highest part of Tajikistan, at over 3,500 masl. and the annual average flow of the Vakhsh river is 22.2 km3/year, providing plentiful water and potential energy to generate hydropower. The Vakhsh River Cascade was planned to consist of the following five existing and one under construction power plants to efficiently utilize the potential energy, listed from upstream to downstream in Table 6.

Table 6. The Vakhsh River Cascade

HPP Project	Installed Capacity	Status
Rogun	3,780 MW	Under construction
Nurek	3,000 MW	Completed in 1979 (under rehabilitation)
Baipaza	600 MW	Completed in 1986
Sangtuda-1	670 MW	Completed in 2009
Sangtuda-2	220 MW	Completed in 2013
Sarband-1	270 MW	Completed in 1963 (rehabilitated)

The six hydropower plants along the Vakhsh River represent the dominant energy production facilities in Tajikistan. The two upstream plants comprise two of the highest dams in the world: the under-construction Rogun Dam (335 m) and the existing Nurek Dam (300 m) constructed in the 1970s. The two reservoirs have large storage capacities, 13.3 bcm and 10.5 bcm respectively. After the completion of Rogun HPP, the Vakhsh River Cascades can achieve stronger flood protection, better and more efficient joint operation at river basin level, as well as sedimentation management. Rogun HPP will supply firm energy during winter months when demand for electricity is the highest in Tajikistan and will allow for exports of clean electricity to the Central Asia (CA) region and beyond. The Rogun HPP could play the role of a balancing

plant for Tajikistan and the broader CA region to help reliably integrate significant new solar PV and wind generation capacity into the network.

Table 7. Key characteristics of Rogun HPP

Location	Vakhsh River, first project in the cascade upstream of the Nurek HPP
Dam type	rock-filled dam with a central impervious core
Dam crest	El. 1,300 meters above sea level
Full supply level	El. 1290 meters above sea level
Foundation level	~965 meters above sea level
Dam height	335 m
Installed capacity	3,780 MW (6 units x 630 MW)
Expected annual average generation (at fully supply level)	14,400 GWh
Surface Spillway	7,800 m3 /sec (PMF)
Maximum operating head	320 m
Total reservoir capacity	13.3 km3
Reservoir active storage	10.3 km3
Reservoir area	110 km2
Reservoir operating lifespan	115 years (based on the estimated sediment inflow)

3. **Overview of Rogun HPP Development.** The development of Rogun HPP began in the mid-1960s, with construction officially starting in 1970s. It faced significant interruptions due to the dissolution of the Soviet Union and the civil war in Tajikistan during the 1990s, which halted progress. Small-scale construction activities resumed in 2007 with financing from the state budget and accelerated in 2016 with the selection of the contractor for the Main Dam - Webuild (Italy). Rogun HPP is currently operating with two temporary turbines (400 MW capacity). A snapshot of key development milestones in the Rogun HPP is provided in Table 8.

Table 8. Snapshot of Rogun HPP Project Development Milestones

Milestones	Dates
Field investigations and surveys of the Project started	1967
Construction activities started	1976
Vast majority of geological and geotechnical investigations completed	1978
Construction discontinued due to collapse of Soviet Union and Civil War is Tajikistan	1992
Small-scale construction activities resumed	2008
Commencement of Techno-Economic Assessment Study (TEAS) by the WB	2011-2014
International tender for procurement of contractors for main lots launched	2015
Contract for construction of the Main Dam signed with Webuild (Italy)	2016
Contract for design, supply, and installation of electromechanical equipment signed with Voith Hydro (Austria)	2021

In 2011-2014, the World Bank supported (i) the preparation of TEAS for Rogun HPP Project; (ii) development of E&S instruments e.g., ESIA; (iii) two independent panels of experts (one on dam safety, and one on E&S) to provide advice for the studies. The assessment study was undertaken in three phases.

a. Phase 0 was an assessment of the potential impact of the salt wedge that exists at the Rogun site. It was concluded that this impact can be addressed by appropriate mitigation measures to ensure the long-term safety of the proposed dam.

b. Phase I was an assessment of all previous work done to date on the Rogun HPP site. It was concluded that, with the implementation of specified remedial measures, the existing facilities and equipment were suitable for use in the project.

c. Phase II was a techno-economic assessment of different alternatives of the Rogun HPP. Three full supply level were studied corresponding to dam heights of 335 m, 300 m and 265 m respectively. Three installed generation capacities were studied for each FSL (ranging from 3,600 MW to 2,000 MW), resulting in a total of nine Rogun alternatives studied. The assessment concluded that, subject to specified design modifications and the implementation of the identified mitigation and monitoring measures, any of the Rogun dam alternatives could be built and operated at the Rogun site within international safety norms.

The 2014 TEAS by WB included an Environmental and Social Impact Assessment (ESIA) and a detailed economic analysis covering a wide range of possible scenarios. The analysis of environmental and social impacts of the three dam height alternatives showed that the environmental and social impacts of all three alternatives could be adequately mitigated. The results of the economic analysis showed that all Rogun dam height alternatives would have an overall beneficial impact on the Tajikistan electricity system across all sensitivities, with the highest dam alternative generally showing the greatest benefit across most sensitivities.

Considering the long duration of the construction period for all the proposed dam alternatives, an early impounding and early generation concept was adopted for all alternatives. A smaller Stage 1 Dam, embedded in the Main Dam, allows raising the reservoir level before dam completion. A temporary power intake and two temporary units were designed to make this early generation possible. This would allow for the early generation of benefits during the lengthy implementation stage of the project.

The sedimentation study estimated that the ultimate life span of the Rogun reservoir is in the range of 115 years. Furthermore, construction of Rogun will largely decrease the Nurek reservoir sediment filling rate, ensuring continued river regulation for a significant additional period of time.

The 2014 TEAS included preparation of a broad framework of the Emergency Preparedness Plan (EPP)[14], with the EPP itself to be prepared prior to reservoir filling.

Based on the results and recommendations of the 2014 TEAS, the Government of Tajikistan (GoT) decided to pursue construction of the Rogun HPP for the alternative with the highest dam (335 m) and largest generation capacity (3,600 MW), which capacity was further optimized to be 3,780MW.

An Employer's Representative (ER, a joint venture of Tractebel Engineering and Electroconsult) was hired and further design work was undertaken. The ER prepared bidding

[14] Full-fledged Emergency Preparedness Plan (EPP) for Vakhsh Cascade, including Rogun HPP and downstream Nurek HPP, is being prepared by the GoT in compliance with the guidelines and recommendation of the World Bank. The EPP will be based on the Potential Failure Mode Analysis performed for Nurek and Rogun HPP schemes using the topographic data. The EPP will define the required procedures for the roll-out and operation of a monitoring and early warning system in the event of a possible emergency at the Rogun HPP or Nurek HPP schemes.

documents for four engineering-procurement-construction (EPC) lots (see Table 9): Electro-Mechanical Equipment, Main Dam, Right Bank Structures, and Left Bank Structures. Expressions of interest were invited in early 2015, followed by prequalification, and then by submission of bids in early 2016. Salini Impregilo (now Webuild) was awarded the contract for Lot 2 (Main Dam), with the contract being signed on July 1, 2016. Award of the other three lots were delayed due to financing constraints. The contracts for Lot 1 and Lot 3 were awarded in 2021 to Voith Hydro and Tojikgidroelektromontaj (TGEM) respectively, whereas the contract for Lot 4 has not yet been awarded yet.

Project implementation was resumed in 2015 with financing from the Government. The pace of implementation has been impacted by the availability of financial resources, leading to slow construction exposing the Project to significant risks, for instance from floods, earthquakes, landslides and sedimentation.

The optimized Project construction schedule developed during the TEAS was based on a substantial amount of works being completed and/or initiated prior to awarding the main construction contracts. These Pre-Contract Works (PCW) included constructing a third diversion tunnel DT3. Most of these works have already been implemented through a number of different Tajik and regional contractors. In order to mitigate the impact of the delayed award of the contract for Lot 4 on the overall implementation schedule, some of these contractors have been undertaking a variety of works that are collectively called Lot 4 Early Works. These include works related to the main power intakes (shafts, penstocks, etc.) and slope stabilization in the power intakes area. Table 9 summarizes the major construction contracts and their implementation status as of December, 2023.

Table 9: Main Contracts under Component 1[15]

Contract	Scope	Contractor	Estimated cost	Status
Lot 1: Electro-mechanical equipment	Supply and installation of four new generating units; upgrading of the two early generating units transformers; electrical and mechanical auxiliary systems equipment, and unit control equipment	Voith Hydro (Austria)	EUR 471 million (USD527 million equivalent)	Under implementation
Lot 1A: Additional electro-mechanical equipment and powerhouse works	Installation of replacement runners for Units 5 & 6, any other turbine rehabilitation works required, and control system integration.	To be procured	USD 20 million (estimated)	Expected award mid-2025
Lot 1B: Additional Electro-Mechanical Equipment	Design, supply and installation of replacement generators for Units 5 & 6	To be procured	USD 100 million (estimated)	Expected award in 2029
Lot 2: Main dam	Construction of an upstream cofferdam; treatment of the salt wedge that exists beneath the dam; construction of 140m high Stage 1 dam; construction of the 335m Main Dam and grouting of the foundation and abutments.	Webuild (formerly, Salini Impregilio, Italy)	USD 2.5 billion	Under implementation
Lot 3: Limited right bank structures	Completion of the Diversion Tunnel 4 (DT-4); completion of investigations for the atypical zone (ATPZ); excavation and lining of the grouting galleries 1 and 3; grouting operations	TGEM (Tajikistan)	USD 457 million[16]	Under implementation
Lot 3A: Full scope of right bank structures	Flood discharging structures, which progressively provide the required discharge capacities as construction of the dam and the impoundment of the reservoir proceeds.	To be procured	USD 1.4 billion	Procurement process expected to start in 2024
Lot 4: Early works (EW)	Works for the excavation and stabilization of permanent power intakes (PPI) and the associated upstream waterways of the plant.	Ariana, EMZ and Various small contractors	USD 474 million	Under implementation
Lot 4: Left bank structures	Remaining headrace and tailrace civil works required to provide inflows for the generating units and direct outflows to the tailrace; construction of grouting galleries left bank and grouting operations, powerhouse auxiliaries.	To be procured	USD 850 million	Procurement process underway
Control room	Supply and installation of the control room equipment.	Rakurs	USD 13 million	Contract signed

In addition to the construction contracts, AFRY is to execute a contract for the engineering design of the works to be constructed under Lot 4 and Lot 3A, and Tractebel-ELC is performing ER services for Lots 1, 2 and 3, limited ER services for Lot 4 Early Works (design review and progress monitoring), and design review services for Lot 4, whereas the Rogun OJSC itself undertakes all of the remaining project management tasks. The E&S supervision by the ER covered only Lot 2 until mid-2023 but has since covered Lots 1 and 3 also. The E&S supervision for the remaining works has been carried out by the Employer. There is a condition

[15] Excluding pre-contract works which have been completed
[16] To be confirmed as the division of scope between Lot 3 and new Lot 3A is finalized.

of effectiveness related to the expansion of the scope of the ER for E&S supervision, or hiring of PMC (whichever comes first).

Providing adequate flood discharge capacity for different construction stages and for the operation phase is a complex issue for Rogun due to a variety of factors. First of all, the height of the dam requires at least three levels of discharge structures as the head on the gates has to be limited to 150 m. Safety considerations require that floods are discharged by at least two independent structures. Such considerations result in six tunnels with inlets at different elevations and two first stage surface spillways. In addition, it is foreseen that when the reservoir has eventually silted up, attenuation will no longer be possible and additional spillway capacity will be required. This can be provided by two remote tunnel spillways but other options are under consideration.

Except for the two diversion tunnels DT1 and DT2 that are constructed through the left abutment, all of these structures are to be constructed through the right abutment. The geology of the right abutment is a constraint, as there is a large geologically atypical zone (ATPZ) about 2 km long and 1.5 km wide. The thickness of the ATPZ ranges up to 150 m. Fitting all of these structures in the right abutment is a challenge, especially the outlet structures with their energy dissipation devices. Recent design studies are re-evaluating the overall flood discharge arrangements and some modifications in the arrangements are being undertaken.

Under the provisions of the Lot 2 Contract, the management of the inflows is the responsibility of the Lot 2 Contractor. Thus, the various discharge structures are to be constructed by the Lot 3/3A Contractors, handed over to the Employer and then taken over for operation and maintenance by the Lot 2 Contractor. However, Webuild did not take over Tunnel DT3 after its completion in 2019 due to reservations about design and construction aspects, and DT3 has been operated and maintained by the Employer. This has potential contractual and insurance implications. Discussion has now resumed between the Employer and Webuild to seek a solution to this issue.

The Main Dam itself is a rockfill dam with a central impervious core and it has been designed to withstand a 10,000-year Safety Evaluation Earthquake (SEE) with a peak ground acceleration (PGA) of 1.08g and the Probable Maximum Flood (7,800 m3/s).

The existing Nurek dam downstream of Rogun as well as the other projects of the Vakhsh cascade are not designed to withstand the PMF, and the Rogun Dam will provide the major additional benefit of also protecting the entire downstream cascade, including Nurek, by using the storage capacity available in the Rogun reservoir to attenuate the PMF to the maximum design flood (1 in 10,000 year) for Nurek (5,400 m3/s). It is envisaged that coordinated operation of the Rogun and Nurek reservoirs will also allow enhanced energy generation.

In April 2020, the President of Tajikistan requested the World Bank to evaluate the options for financing the completion of the Project in a sustainable manner. The World Bank commissioned a Financing Options Study in response to this request. The Financing Options Study was prepared by the World Bank staff with input from external consultants.

The Financing Options Study focused on various aspects of the Project, including an overview of the implementation progress. This included obtaining an update on the construction status, carrying out an overview of the main contracts and of implementation issues, and high-level recommendations to address them. The Financing Options Study presented an outline of the typical requirements of international development partners that would need to be fulfilled by the Government and Rogun OJSC to enable consideration for financing the Project.

This study was shared with the Government in November 2021 and subsequently with other Development Partners. Development Partners expressed their interest in the Project during a high-level roundtable organized by the Government on December 7, 2022. The Government and the Bank team presented the findings from the study. The outcomes and conclusions were endorsed by the potential financiers including the list of issues that need to be addressed to increase the likelihood of the Project to secure financing.

As far as design and construction activities are concerned, some activities are being financed under the WB-AIIB financed technical assistance.

The key milestones established in the latest draft of the OIP (as at October 2024) are as follows – however it is expected that there will be some further delays in these milestones as design and construction delays have occurred:

Table 10. Project Construction Milestones and Completion Dates

Impounding Level	Construction Milestones	Optimized[17] Completion Date	Accelerated [18]Completion Date
1100 masl	Main Dam Partial at 1110 masl	Sep. 2026	Oct. 2025
	Reservoir Impounding to 1100 masl	Sep. 2026	Oct. 2025
	Unit 5&6 Runner Replacement	Dec. 2026	Dec. 2025
1175 masl	Unit 3&4 Permanent Turbines	Dec. 2027	Dec. 2027
	Main Dam Partial at 1185 masl	Oct. 2028	Aug. 2027
	Reservoir Impounding to 1175 masl	Oct. 2028	Aug. 2027
1230 masl	Unit 1&2 Permanent Turbines	Jan. 2029	Oct. 2028
	Main Dam Partial at 1300 masl	Dec. 2032	Jan. 2030
	Reservoir Impounding to 1230 masl	Jun. 2032	Jun. 2030
	Unit 5&6 Permanent Turbines	Jan. 2033	Jan. 2032
1290 masl	Reservoir Impounding to 1290 masl	Jun. 2038	Jun. 2036

[17] Based on the Optimized Implementation Program (OIP) revision H, October 2024
[18] Assuming the Government mobilizes additional financial resources

Annex 3. Main Achievements Supported by the World Bank and AIIB financed technical assistance

- **Appointment of DSPOE**. An eight-member (Dam Safety Panel of Experts) DSPOE was established in 2023 and tasked with ensuring due diligence and international quality standards in the design and construction of the project and the start of operations. The DSPOE made several important recommendations regarding technical risk mitigation measures, and these are being integrated into the detailed design and the construction and monitoring procedures.

- **Appointment of ESPOE**. The ESPOE has been appointed and is reviewing the updated E&S instruments and providing guidance to PMG on ongoing E&S issues.

- **Update of E&S instruments**. The update of the E&S instruments, which were developed as part of the Bank financed Techno-Economic Assessment Studies (TEAS) in 2011-2014, has been finalized and the following documents have been approved by the World Bank and publicly disclosed: (a) the draft Environmental and Social Impact Assessment (ESIA) including the Environmental and Social Management Plan (ESMP) was disclosed on December 22, 2023; (b) the Resettlement and Livelihood Restoration Management Framework (RLRF), Stakeholder Engagement Plan (SEP), Labor Management Plan (LMP), and Gender Action Plan (GAP) have also been finalized and disclosed prior to appraisal.

- **Design of the benefit sharing program (BSP)**. The design of BSP is underway. Core BSP principles have been prepared and were approved through a government decree (Decree No. 27, dated January 29, 2024). Detailed design is expected to be completed in early 2025.

- **Optimized Overall Implementation Plan (OIP) and financial plan**. The objective of the OIP is to develop an optimized project implementation completion plan for the project that is technically feasible and macroeconomically sustainable. The financing plan was designed with the view of maintaining macro-fiscal stability. It is now being finalized and the DSA confirmed that the project is not expected to add major public debt distress risk for Tajikistan.

- **Development of commercial framework for the Project**.The PPA with Uzbekistan has been signed, and a term sheet with Kazakhstan (with PPA expected to be signed shortly) for long-term supply of Rogun's electricity to Uzbekistan and Kazakhstan. The PPAs ensure the adequacy and predictability of cash flows to service the debt.

- **Audit of quality control (QC) and quality assurance (QA) systems of the project**. This activity assessed the robustness of civil works completed to date, which is an important decision factor for financiers considering that they are entering the Program mid-stream. The assessment is underway, with a review of QA/QC documents completed and follow-up physical assessments planned where QA/QC documentation was inadequate, which will be reviewed by the DSPOE for any remedial actions that may be needed.

- **Independent Assessment of Diversion Tunnels (DT) 1-3**. Following a recommendation from the DSPOE, the Rogun TA Project is financing an independent assessment of DTs 1-3. The assessment reviewed the design and construction quality to confirm their capacity to safely handle construction floods and identify any remedial measures that may be needed. Tunnel inspections and design review phases have been completed, and remedial actions, including cost estimates, will be prepared by effectiveness.

- **Additional dam safety studies**. Work is well advanced to fulfill the requirements of the WB's ESS4 for the development of the following Dam Safety Plans: plan for construction supervision and quality assurance, instrumentation plan, operation and maintenance (O&M) plan, and the emergency preparedness plan (EPP). Additional studies underway and expected to be concluded end 2024/early 2025 include: (i) an update to the Seismic Study; (ii) an update to the climate change and hydrology study; and (iii) an update to the sedimentation study.

Annex 4: Environmental and Social Summary Information

1. Project E&S Context

Construction of the Rogun HPP began in 1982 and was interrupted in 1993 due to the hard economic and political situation of the RT at that time. Construction restarted in 2008, but has been suspended pending finalization of the technical, economic, environmental, and social studies held under the World Bank technical assistance. The Rogun HPP ESIA package, including ESMP, Resettlement Policy Framework (RPF), Resettlement Action Plan (RAP) for Phase 1 and LRP for Phase 1 were prepared under the World Bank TA support between 2011 and 2014. Following the disclosure and Tajikistan's approval of the ESIA, the Rogun OJSC has committed to implementing the mitigation measures specified in the E&S instruments to meet the international environmental and social requirements during construction and operation.

The Government of Tajikistan has a long history of cooperation with the World Bank that includes the initial design and ESIA preparation for the Rogun HPP as well as the successful design and implementation of several major energy and water infrastructure projects under both the World Bank's Safeguard Policies and, since 2018, the newer Environmental and Social Framework (ESF). Tajikistan established the Rogun OJSC to construct, own and operate the Rogun HPP, and the DFZ, which is responsible for implementation of the resettlement activities.

Rogun OJSC re-started construction in 2007 and accelerated in 2016.This included appointment of contractors to continue construction of the dam, tunnels and underground works, and associated facilities. Three EPC contractors have been appointed for electromechanical works and for the dam and tunneling (with one EPC contractor for some tunneling works yet to be appointed). A number of non-EPC contractors to prepare the site for major works and support ongoing operation of the partially completed HPP have also been appointed. Rogun OJSC supervises engineering and environmental compliance and performance of the non-EPC contractors and has appointed an Employer's Representative or Project Management Consultant to supervise the EPC contractors.

Resettlement Audit completed by an independent consultant in 2018 found the DFZ resettlement activities satisfactory and compliant with the WB OP 04.12. The 2014 Interim Household Level Audit Report and 2018 RAP1 Completion Audit Report were reviewed, approved and disclosed by the WB. In 2020, the World Bank conducted an audit of the resettlement program and observed the sites during public consultations with PAPs. In 2021, the World Bank reviewed the ongoing construction to evaluate the adequacy of the mitigation measures in the ESMP and other E&S instruments to reduce the potential impacts to acceptable levels and comply with the ESF, and also to evaluate the extent to which Rogun OJSC and its contractors were implementing the requirements of the ESMP. The implementation of the environmental and social instruments to date has demonstrated capacity challenges on several environmental health and safety issues, as well as commitments to ongoing stakeholder engagement, consultations, disclosure, and grievance redress. The ongoing technical assistance to the Project is helping to address the shortcomings identified as a result of that review. In 2021, site visits to assess the environmental and occupational health and safety performance of the contractors onsite were conducted. The site visit revealed that ESHS performance for Lot 2 was very good, especially for the country and region, but that the other lots would need substantial improvement, as would supervision of their activities.

2. Key E&S Risks

a) Capacity Constraints

As mentioned in the main PD text, there are significant capacity gaps in the institutions responsible for implementing the Project's environmental, health, and safety (EHS) measures. This is a recognized risk by the Client and Lenders, and efforts are being made to address this through the WB ESCP and Loan Agreement. While the Rogun PMG lacks experience in implementing projects financed by international financial institutions (IFIs), they have extensive experience executing projects funded by the state budget. This includes preparing international bidding documents, evaluating bids, negotiating contracts, and managing contracts.

Improvements are also needed in the DFZ's capacity, particularly regarding its capacity to support the livelihood activities, enhance the GRM, and provide enough resettlement specialists to adhere to the construction schedule. The strategies and actions to mitigate the impacts of economic displacement on resettled populations will be outlined in the Livelihood Restoration Plans (LRPs) for Phases 3, 4, and 5 of the resettlement programs. The livelihood restoration strategies outlined in the RLRF could also benefit from further improvement. It is important to note that improvements in one aspect, such as replacement housing and access to services, do not necessarily offset a deterioration in other critical areas, such as a reduction in income levels of the displaced population.

Mirroring capacity challenges in the client organizations, there are also significant E&S capacity and performance issues associated with the current project contractors that present a high compliance risk going forward and will need robust management. Numerous parties have identified and reported these issues, including the ESIA consultant the Project H&S auditor, and the due diligence activities of Bank staff, amongst others. Social requirements and the environment need to be incorporated into the contractors' contracts.

All contracts that have been guiding the project to date specify compliance with national E&S standards rather than the WB ESF and Good International Industry Practice (GIIP). There are gaps between national EHS standards and the WB ESF / GIIP, and the standard of EHS management and performance has been compounded by (i) outside of Lot 2 - very limited prioritization of EHS matters by all parties (institutional and contractors) and their senior management; (ii) an absence of EHS supervision outside of Lot 2 until July 2024, and a lack of capacity, enforcement power and Client support for achieving EHS standards; (iii) capacity, competence, experience, and organizational structure gaps; and (iv) challenges in recruiting and retaining EHS personnel. The environmental supervision needs substantial improvement.

The scale of improvement in contractor E&S performance that will be required on-site following loan signing has been recognized and is being addressed by WB and AIIB teams. New contracts for each construction lot are being negotiated to include detailed E&S requirements specifying full compliance with the WB ESF and ESSs. Conclusion of these contract changes is a condition of effectiveness in the WB ESCP. In addition, the project organizational structure is being amended to include an overarching PMC, with a scope that includes responsibility for enforcing compliance with contract international E&S requirements and supervising E&S performance on all lots. In addition, the final ESMP is being developed to include detailed organizational structures and minimum EHS staffing levels, and these will also become

binding under the WB ESCP. The Bank will complete a detailed review of the ESMP to ensure appropriate proposed arrangements. The final ESMP will be re-disclosed.

These mitigation measures will establish a workable framework for E&S management on site. Implementation challenges are still expected for the duration of construction, given the scale of change required, and Bank monitoring and supervision arrangements will be regular and robust.

b) Downstream and Transboundary Impacts

The primary environmental concern of riparians, CSOs, and Lenders is whether the project will result in any change to the availability of water downstream. This is a highly sensitive and contentious subject due to the economic dependence of riparian on irrigation, the presence of the Tigrovaya Balka (an area protected for the presence of the water-dependent Tugay forest habitat located at the confluence of the Vakhsh and Panj rivers), and the long-standing and well-documented loss of much of the Aral sea.

The validity of these concerns rests on whether implementation and operation of Rogun will materially change flows (seasonality and total volumes) downstream of the existing Nurek HPP. There are several considerations in making this determination.

Firstly, the regional water sharing agreement Protocol 566 establishes a total agreed quantum of water allocated to each riparian on an annual basis (although in practice allocations are agreed by a regional water body on a six-monthly basis). Tajikistan does not presently utilize its full allocation, and the remainder will be used to gradually fill the reservoir year-on-year. Tajikistan plans to continue abstracting its full allocation in perpetuity after the reservoir is full. Whilst there will be a reduction in the total volume of water passing downstream the total volume will be within pre-agreed limits (although the Protocol does not consider Afghanistan and does not include key enforcement and other legal provisions) rather than directly required as a result.

Secondly, the existing Nurek HPP has established a seasonal shift in the release of waters; that is, a portion of reservoir inflows during peak flow seasons (summer) are held back and released in the winter to meet elevated power generation needs. If this shift from summer to winter were increased it would reduce the total volume of water available for irrigation.

Thirdly, the Tigrovaya Balka has been impacted by the operation of Nurek HPP, which has minimized peak flood discharges and prevented the transportation of sediment downstream. Floods are required to maintain healthy Tugay forest habitat. There is consequently significant interest from CSOs on whether the Rogun project could result in further incremental impact, or conversely could benefit the habitat by modifying flood flows.

The ESIA prepared for Rogun by the WB in 2014 assessed the first and second risks in detail and proposed an objective to modify flood flows in relation to the third. Based on simulations, it concluded that it would be possible for the Rogun and Nurek hydropower plants and the Vakhsh cascade to be operated for efficient energy production while at the same time honoring regional water sharing agreements, meaning that possible downstream impacts from the Rogun project can be contained to be no worse than the impacts experienced since the Nurek hydropower operation commenced. The fundamental underlying assumption underpinning this assessment (and the approach to the assessment of the Project since prior to 2014) is that because Tajikistan will be utilizing its pre-agreed maximum water allocation, the decrease in the total annual volume of water released downstream during impoundment is not a *Project*

impact. The impact is attributed instead to the water sharing agreements, the impacts from which are not in the scope of the Rogun project to assess. Moreover, in relation to seasonality of releases, the Government of Tajikistan committed to maintaining the existing seasonal shift.

This finding was used as the basis for the 2023 ESIA update but key information from the 2014 ESIA was not captured, and no updated assessment was carried out. This prompted significant concern from riparians and CSOs, culminating in letters of complaint to the lenders. At public consultations in Tajikistan in October 2024 CSOs were continuing to question why the reduction in total water during impoundment was not assessed as a Project impact. AIIB has provided extensive feedback to the PMG and ESIA Consultant on these gaps and is undertaking further comprehensive due diligence on the upgraded 2024 ESIA. AIIB is requiring a full and robust assessment of possible changes in water availability downstream, and a supported justification on the attribution to the project or otherwise, of any impacts that may be identified. AIIBs acceptance of the ESIA for disclosure will be dependent on satisfaction that these requirements are met.

In addition to robust assessment in the ESIA, effective mitigation will be needed to provide riparians confidence in Tajikistan's adherence to the agreed seasonality and volume of releases. WB has included two loan covenants on this matter, but no other *legally binding* enforcement mechanisms are available.

c) Resettlement, Involuntary Land Acquisition & Livelihood Restoration

The Project will involve economic and physical displacement of approximately 50,267 people (6,788 households) in 69 villages of Rogun City, Nurobod, and Rasht district. This number is expected to increase to around 60,000 people. The resettlement process is being carried out in a multiple-phase multi-year process. Under Resettlement Action Plan 1, from 2009 to 2017, (RAP 1), 2,542 people were resettled. The ongoing second phase of resettlement (2018-2025) has already resettled around 7,820 people, 6,699 people are being resettled and another 2,400 people will be resettled. by the end of 2026. The remaining project-affected people (30,000 to 40,000) will be resettled between 2026 and 2032 under RAPs 3-5.

Phase 2 RAP implementation identified the following key challenges: lack of a properly documented census; no customized livelihood restoration program; insufficient documentation to confirm if the resettlement is being managed appropriately, including grievances; no compensation for improvements and buildings beyond residences, nor for informal uses of land; and challenges with the independent monitoring of the RAP. Moreover, although the resettlement activities of the Project aim to provide replacement housing for the affected households, the Project faced some concerns raised by PAPs. This includes the sufficiency of compensation to address recent increases in labor and material prices, timely compensation for land (e.g., access to water supply, electricity, and social services), and access to community amenities and livelihood restoration.

To address these shortcomings, Phase 2 RAP/LRP is being renewed during the ongoing TA and the Rogun DFZ's capacity for resettlement will be further strengthened. The RLRF has been prepared and updated to guide the development and implementation of the next phase of the RAPs and resettlement process, consistent with the World Bank's relevant ESS and other MDB requirements. The RLRF outlines the specific strategies to mitigate potential adverse impacts, provide necessary support during resettlement activities, and restore or improve the livelihoods of the PAPs. RAP2/LRP2 are being finalized, will be disclosed by the

Effective Date and will serve as the Withdrawal Condition of the project disbursement. The estimated 2024-2025 budget requirement for RAP2/LRP2 completion is around USD 87 million. The estimate budget of USD 300 million is earmarked to support RAP and LRP implementation for 2026 onwards with the financing split on a proportional basis between the Borrower and the WB.

The RLRF also emphasizes the need for systematic data collection, ongoing stakeholder engagement, timely compensation, and monitoring of the resettlement process. It also pays particular attention to vulnerable groups, such as those affected by gender, age, religion, disability, economic disadvantage, ethnicity, and social discrimination/exclusion.

The project is committed to addressing these concerns and ensuring that compensation measures are based on the replacement value of assets without depreciation. Livelihood restoration programs, including training, apprenticeships, and provision of resources, will be implemented to support the affected people in improving or restoring their incomes and standards of living. This includes the provision of community social infrastructure, allocation of land for private and communal use, and additional resources and services through benefit-sharing. Vulnerable groups within the PAPs are identified as well and given special attention, including female-headed households, women and girls, women elderly, and others.

Further RAPs and LRPs will be disclosed and implemented in consultation with the affected communities. The project aims to minimize the impacts on cultural heritage sites and biodiversity through appropriate management plans.

Below are the specific details of the resettlement in phases according to a series of RAPs:

RAP PLANNING (For all 69 villages, resettlement completed by 2032 and full impoundment (1290 asl) by 2036)						
Impoundment levels based on lowest point of villages (m asl)	**Proposed years to complete resettlement**	**RAP period**	**No. of villages covered in each RAP**	**No. of households covered in each RAP**	**No. of PAPs covered in each RAP**	**RAP Status**
1092-1220	2014-2017	2014-2017 RAP 1	8	326	2,697	Completed
1110-1290	2017-2025	2017-2025 RAP 2	16	1,710	16,919	In progress (finalized in 2024)
1185-1270	2026-2028	2026-2028 RAP 3	16	1,328	9,206	RAP 3 ready by 2025*
1271-1295	2028-2030	2028-2030 RAP 4	17	2,215	12,547	RAP 4 ready by 2027
1296-1414	2030-2032	2030-2032 RAP 5	12	1,209	8,898	RAP 5 ready by 2029
TOTAL AFFECTED POPULATION			69	6,788	50,267*	

**The commencements dates for RAPs/LRPs 3 to 5 may be adjusted if the impoundment/filling dates change.*

***This is the current number as of June 2024. It is possible that the final count of PAPs could be up to 60,000 to take account of population growth.*

DFZ has established good communication and coordination channels with implementing agencies (PMG, OJSC) and closely works with other relevant ministries, state agencies, and local governments on resettlement and livelihood restoration activities. There is also an

interagency coordination group headed by the Prime Minister to address inter-agency coordination issues. The resettlement process will be closely monitored to implement necessary adjustments in the compensation and the livelihood restoration measures, as needed.

d) Potential severance of left bank communities

In addition to those communities located within the impoundment area that will be resettled, there are also communities located around the reservoir but above the maximum extent of the impoundment. These communities are connected to neighboring communities and larger regional towns by a network of minor local roads and associated transport infrastructure including road bridges that cross gully's, streams and rivers. In addition, the left and right banks of the reservoir are presently connected by a series of bridges.

Whilst the communities will not be impacted by the reservoir impoundment, the connecting road and bridge infrastructure will be. On the right bank, where there is a greater population and more services, the severance of communities from larger towns and neighbors is being mitigated by the development of a major road that is being funded by EBRD, ADB and AIIB (with AIIB funding the section of the road comprising a bridge across the upstream extent of the reservoir).

Severance risks to the communities remaining on the left bank are more severe as there is greater reliance on ability to cross to the right bank for access to work and services, and longer travel times to larger urban centers due to poor road conditions. Community members closest to the dam will be able to cross the crest subject to strict security protocols, but others will not.

In total, the reservoir at full impoundment level will result in the loss of seven left-right bank connecting bridges and partial loss of access roads (55 km). Presently these access roads connect 17 left bank villages with a combined population of 8,900 people.

The seven left-right bank connecting bridges are located at different elevations, between 1,079 m asl to 1,164 m asl, and will be decommissioned in stages commensurate with the inundation schedule.

The two left-right bank connecting bridges closest to the dam will be decommissioned prior to the next planned stage of inundation (presently understood to be 1100 m asl, scheduled for August 2025). A solution to impacts on the four left bank communities affected by the loss of these bridges is pressing due to pressure and necessity to raise the reservoir level, including because of sedimentation. The loss of the bridges will significantly increase travel time from left-right banks as upstream bridges would need to be accessed. The potential to access upstream crossings will however only be short term.

Without mitigation, impacts will extend to all 17 left bank villages once water elevation reaches 1165 m asl, currently understood to be scheduled to be achieved by late 2026. At 1165 m asl, intra-village connection of the left bank communities to the administrative centers of Rogun city, Nurobod district and other regions of the country will be severed, and the settlements will become isolated.

A design solution to ensure full connectivity of the left bank villages and the larger settlement of Nurobod is in preparation. The Design Institute under the Ministry of Transport has been preparing initial technical designs for 55 km of intra-village gravel road (category 5), including

12 road and pedestrian bridges for the crossing of left bank gully's, streams and rivers (these are not left-right bank connecting bridges).

The priority mitigation for these impacts was to identify funding of the left bank road and bridge works and AIIB has been able to address this through a rearrangement of its financing package.

Separately, ESIA Consultant is assessing risks and evaluating potential mitigations as part of its ongoing work to finalize the ESIA. In addition, AIIB has been working to influence the content of the next iteration of the OIP such that it explicitly captures activities associated with addressing left bank severance risks and links these to the technical program. AIIB has explained to all parties that the reservoir may not be raised until an appropriate and effective solution is in place.

The ESIA Consultant is assessing residual severance impacts that may occur because of the removal of left-right bank crossings.

To mitigate the environmental risks and impacts associated with the left bank works, the ESIA Consultant has confirmed that the final ESMP will commit to the undertaking of a program of pre-construction surveys and the development of an activity-specific suite of environmental and social management plans / procedures aligned with the mitigation that will be applied for the main construction lots.

3. Additional information on notable potential E&S risks and impacts

a) Biodiversity

Biodiversity surveys, including e-DNA[19] survey of the Vaksh River, have been completed and a critical habitat assessment has been completed. Whilst the revision of the biodiversity ESIA chapter is ongoing, the client's ESIA Consultant has verbally confirmed the results and advised that - assuming the revised ESIA continues to find downstream and transboundary impacts to water availability will not be realized - the Project will not impact any area meeting critical habitat criteria. The Project will result in the loss of areas of two categories of natural habitat, flood plains and juniper woodland. The client's ESIA Consultant is calculating the areas that will be lost, and its biodiversity specialists have been in-country to work with national authorities to identify areas suitable for implementing habitat improvements to achieve no net loss. AIIB has confirmed that the ESIA Consultant will need to demonstrate as part of the ESIA process that achieving No-Net-Loss (NNL) is feasible, before the ESIA and associated biodiversity documentation is accepted.

Red list species of sturgeon that would trigger Critical Habitat (CH) are present in some downstream reaches of the catchment, but according to the ESIA Consultant, eDNA has not indicated their presence in the project affected reach. This supports previous aquatic ecological surveys. The existing downstream cascade prevents upstream migration of key species to Rogun.

There is limited terrestrial fauna of biodiversity interest in the project affected area.

A Biodiversity Management Plan (BMP) is required to be delivered by the ESIA Consultant under the WB ESCP. The BMP will capture all mitigations. AIIB will be involved in the review and acceptance of the BMP.

[19] Deoxyribonucleic acid

b) Ground contamination and hazardous waste management

In addition to standard construction wastes, the Project will involve the demobilization and deconstruction of construction sites. Sites include facilities for the storage and use of hazardous materials and chemicals and have been established for decades, potentially pre-dating bans on e.g., Polychlorinated Biphenyls (PCBs). Asbestos is also routinely used in buildings. Standards of pollution prevention have been found to be low and it is likely that ground contamination has occurred in some areas. As the sites will be flooded during impoundment mobilization of ground contamination into reservoir waters is possible.

From our meetings with ESIA Consultant in Dushanbe in September we are confident that a strong focus on assessing and managing risks of identification, removal, transport and disposal of ground contamination is being afforded. This has included visits to Tajikistan waste facilities, and discussion of options to open up project-specific waste management areas. The revised ESIA will include the findings of the assessment.

Whilst the issue of waste management is challenging in the project and country context, management options will be available and AIIB will review those presented in the ESIA and ESMP for alignment with GIP.

AIIB has also advised the project teams responsible for the update of the OIP that timeframes for contamination surveys and the extraction and disposal of any identified contaminants need to be built into the OIP and treated as pre-impoundment critical activities.

c) Environmental flows

On most hydropower projects one of the impacts of greatest concern is a change to the amount of water remaining in the 'depleted reach' between intake and tail race, as well as impacts from impoundment and operational regimes such as intermittent flows from peaking.

Rogun has no depleted reach and, according to the ESIA and operational information available to date, daily changes in water levels from Rogun will only influence the ~70km reach of the Vaksh River downstream to the Nurek reservoir. Changes would occur as a result of meeting daily energy dispatch instructions (which could result in anything from no turbining to on-lining of between one and all six turbines for variable durations), combined with the management and discharge of flood flows etc. No notable social or environmentally sensitive receptors have been identified in the affected reach and due to the attenuation effect of Nurek, changes are not presently expected to be significant nor propagate downstream. The updated ESIA will include further consideration of the operational regime and these preliminary findings will be revisited. The Client's ESIA consultant has been coordinating with the Lenders to update the ESIA chapter on e-flows, and this will not be accepted by AIIB until the Bank is satisfied that the assessment, including information on operations, is appropriately robust.

d) Stakeholder Engagement

Rogun HPP has engaged extensively with stakeholders since 2008. This process began with consultations during the resettlement planning phase and continued through the preparation of the 2014 ESIA. The engagement is designed to include both directly affected communities and broader regional stakeholders. A SEP has been developed to guide consultation and communication. This plan outlines commitments of the PMG and DFZ relating to stakeholder engagement for regular consultations, disclosure of project impacts, and a GRM to address

community concerns. The final version of the SEP was disclosed prior to negotiations but will continue to be updated as more consultations take place. The SEP aims to ensure transparent, inclusive, and regular consultation with all affected communities and interested parties. Stakeholders are categorized into two main groups: (a) Affected Parties, which include local communities directly impacted by the project due to potential effects on their physical environment, health, safety, cultural practices, well-being and livelihoods; (b) Other Interested Parties, which encompass groups and organizations with a broader interest in the project's outcomes that may arise from the location of the Project, its characteristics, impacts, or issues of public interest. To address concerns and manage impacts, the SEP also includes a two-tiered GRM, allowing community members to raise issues. The GRM has been active in communities around the dam site and within the offices of PMG and DFZ since 2014. Over the past year, PMG and DFZ have updated and refined the GRM procedures to align with international best practices. This mechanism provides a structured and accessible process for submitting and resolving grievances, with an option to escalate unresolved issues to a higher review level. Sensitive matters, such as those related to gender-based violence, are handled through a confidential grievance system to protect the identity of the complainant. The SEP also emphasizes continuous information disclosure and consultation, ensuring that all project stakeholders have access to detailed and up-to-date information on potential impacts and mitigation measures.

e) Labor Management Challenges

The Project faces significant labor management challenges due to its large workforce, which is expected to peak at 15,000 to 20,000 workers. The current workforce consists of approximately 14,735 people, with 23 percent sourced from local communities within 50 kilometers of the project site. Women make up 5.2 percent of the workforce, primarily in support roles. Around 5.1 percent of the workforce comprises expatriates from countries such as India, Iran, and Italy. The project will have different categories of workers involved. Direct workers consist of employees of PMG, OJSC, and DFZ who are directly assigned to work on the project, as well as individual technical consultants supporting project implementation. Contracted workers include those employed by construction contractors and subcontractors in four lots for the construction of the Rogun HPP, as well as workers hired by firms engaged by PMG to provide technical, engineering, and consulting services. These contracted workers can be both Tajik and foreign nationals. Additionally, there are primary supply workers who are employed by firms that continuously provide essential goods or materials for the project's core activities. The project is committed to addressing these challenges and ensuring compliance with labor laws and international standards. Ensuring safe working conditions, managing labor influx, preventing workplace harassment, and maintaining fair employment terms are key challenges. A labor audit conducted in 2023 identified areas for improvement, including worker accommodations, access to drinking water, and medical and sanitary facilities. In response, the PMG has collaborated with contractors to upgrade facilities to meet international standards by the end of 2024.

Other social risks associated with the workforce include health and safety concerns, gender-based violence (GBV)/sexual exploitation and abuse/sexual harassment (SEA/SH), and conflicts arising from labor influx. Occupational health and safety risks include working in hazardous environments, such as working at heights and in confined spaces, use of heavy machinery, use of hazardous materials, dust, noise, exposure to chemical, fumes, electrocution; fatigue due to long working hours leading to injuries or fatalities; lack of

adequate rest period during the week; overtime work and payment for overtime work; lack of workers' awareness on occupational health and safety requirements such as the use of PPE and safe workplace practices; presence of migrant workers and issues related to their terms of employment; labor influx; sexual harassment in the workplace. Tensions between workers and local communities also pose a risk to community cohesion. To mitigate these risks, the project has implemented measures such as the Labor Management Procedures (LMP) to ensure fair employment practices and safe working conditions, which will be cascaded down to EPC contractors. A Code of Conduct and mandatory training will be provided to address GBV and sexual harassment. Upgrades to worker accommodations and facilities are underway, and a two-tiered grievance mechanism allows workers to report grievances confidentially. The Project also includes a sensitive grievance mechanism for SEA/SH, ensuring appropriate responses and management. These measures aim to create a safe, fair, and compliant labor environment while minimizing social risks to workers and the local community.

f) Community health and safety

Community H&S risks involve the risk of drowning, potential disease transmission, social tensions, and road safety hazards due to an influx of labor and increased traffic in surrounding areas. Some identified impacts include heightened noise levels, reduced air quality, increased road accident risks, and safety and security concerns for local families, especially women and children. To address these risks, the project will implement a CHSP. This plan considers the effects on residential areas near the construction sites and the roads used for access. Road safety will be improved through a Traffic Management Plan that designates specific routes for construction vehicles to minimize disruption to residents. This plan will also establish speed limits, signage, and driver training programs. Additionally, improvements to road infrastructure are planned to enhance both project and community safety. To ensure effective communication with local residents, District Livelihood and Engagement Officers (DLEOs) have been appointed to keep the communities informed, address concerns, and manage health, safety, and traffic-related grievances. DLEOs will provide clear updates on project activities, safety protocols, and restricted areas. Moreover, a Community GRM has been established to provide a two-tier system for addressing complaints. Immediate concerns will be addressed first, with options for escalation if issues remain unresolved. This mechanism focuses on health, safety, and security concerns related to the labor presence and increased traffic. The project will also implement community awareness programs designed to educate residents—particularly vulnerable groups such as women, children, and the elderly—on safe practices and effective ways to report any safety issues.

g) Cultural Heritage

Cultural heritage aspects of the Project are being assessed as part of the on-going 2024 update of the ESIA.

As part of the ESIA conducted in 2023, baseline studies of archaeological, historic, cultural and sacred resources were conducted to map and record the baseline cultural heritage environment of the Project. A 1km buffer around the Full Supply Level (FSL) and all Project Components was used as the focused area of influence. Expert archaeological and ethnographic experts undertook a program of rapid, targeted field reconnaissance and community consultations. The surveys were informed by ongoing stakeholder engagement

activities, household surveys, and desktop literature reviews. It is currently estimated that a total of 32 cultural and sacred resources including cemeteries, tombs, mosques, and fortresses are known to be affected during construction. Intangible heritage such as traditional music and dance crafts are also distinct to the region.

The 2023 assessment of impacts in relation to cultural heritage focused on two key aspects: cultural heritage resources that have been identified within the Project area that will be subject to preparatory works, resettlement and flooding (i.e., direct impacts); and cultural heritage resources within the perimeter of the reservoir that may be subject to secondary land slippage and/or alteration of landscape setting (i.e., indirect impacts).

A comprehensive Cultural Heritage Management Plan (CHMP) will be implemented for all EPC contractors and overseen by PMC. CHMP will include key components of exclusion zones, Chance Find Procedures, strategies for maintaining community access to tangible sacred resources and facilitating respect for intangible cultural heritage, and continuation of ongoing engagement program with Project-affected communities and key stakeholders of cultural heritage.

h) Associated facilities

The ESIA identified and assessed associated facilities for the Rogun HPP, which includes the construction and reconstruction of several roads and bridges necessitated by the formation of the dam and reservoir and the construction of transmission lines to connect the project to the national electricity grid. Any resettlement or economic displacement resulting from the construction of these facilities will be addressed in future Resettlement Action Plans (RAPs) while respective ESIAs have been prepared to identify, assess, and mitigate the environmental and social risks and impacts consistent with relevant lender's ES requirements and policies for many of the associated facilities. Below are details regarding each associated facility:

1. International Highway (Vakhdat - Jirgital): The new roads and bridges to replace the stretches of the main road from Dushanbe to Obi Garm (M41) that would be impacted by the filling of the reservoir have been constructed. ESIAs consistent with lenders standards (approved by ADB in 2019, by EBRD in 2019, and AIIB in 2023) are developed and have been or being implemented for the road stretches financed by the corresponding institutions.

2. International Highway Bridge (over the reservoir): The construction of a major transport bridge over the Rogun HPP Reservoir at Darband over the Surkhob River is required to maintain connectivity. The bridge is being funded by AIIB and an ESIA to AIIB standards was approved in 2019.

3. Transmission Lines (High Voltage): Up to six overhead transmission lines involved in power evacuation and transmission in the region may be considered associated facilities. As part of the ongoing ESIA update the status of each line with regards its associated facility status is being determined. For each transmission line categorized as an associated facility the ESIA will establish the alignment of E&S assessment conducted and flag any mitigating actions required to comply with the WB ESF.

4. Left Bank Roads and Bridges: These facilities will be funded by AIIB and constructed by the DFZ with the technical support from the Ministry of Transport. The Rogun HPP ESIA covers the road construction induced ES risks and impacts, and an ESMP for the left bank roads will be prepared and implemented during the civil works. The replacement infrastructure will assist

in the continued connectivity between villages and preventing isolation following submergence of existing connecting roads and bridges during reservoir impoundment.

i) Dam safety

Dam safety is a critical issue for the project. PMG/OJSC has been addressing the required preparation and implementation of the four Dam Safety Plans: (i) plan for construction supervision and quality assurance; (ii) instrumentation plan; (iii) operation and maintenance (O&M) plan; and (iv) emergency preparedness plans (EPPs). It was agreed that a new Project Management Consultant (PMC) will be recruited within three months of project effectiveness for undertaking an integrated construction supervision and quality assurance of the project (CSQAP) across components. It was also agreed that the detailed CSQAP covering all project components is to be prepared by the PMC in coordination with the PMG, OJSC, other relevant entities and the Dam Safety Panel of Experts (DSPoE) by June 2025.

Annex 5: Member and Sector Context

1. The power sector of Tajikistan is comprised of two electricity generation companies (Barqi Tojik OJSC or BT, and Rogun OJSC), two independent power producers (IPPs), electricity transmission and distribution companies, and a concession in Gorno-Badakhshan Autonomous Oblast (GBAO) combining electricity generation and distribution. BT is the state-owned generation company which owns and operates all utility-scale generation plants in the country except for GBAO. Rogun Joint Stock Company (JSC) is the majority state-owned[20] company responsible for construction and operation of the 3,780 MW Rogun HPP project. Two of the IPPs – Sangtuda-1 and Sangtuda-2 HPPs – were commissioned in 2009 and 2013 respectively to help the country address the issue of electricity supply shortages. Sangtuda-1 and Sangtuda-2 IPPs have 20-year PPAs with BT. Rogun OJSC has a PPA with BT which is renewed each year. In June of 2019, the Government established the new state-owned electricity transmission and distribution companies - Shabakahoi Intiqoli Barq (SIB) Open Joint-Stock Company (OJSC) and Shabakahoi Taqsimoti Barq (STB) OJSC respectively. Pamir Energy Company (PEC) generates and supplies electricity to around 245,000 people as well as public and commercial sector consumers in GBAO under a 25-year concession agreement, which expires in 2027.

2. The electricity supply mix is dominated by hydropower. The total installed generation capacity of Tajikistan is 6,125 MW, with HPPs account for more than 90 percent of total annual generation volume. The 3,000 MW Nurek HPP, with a seasonal reservoir and average annual generation of about 11,000 GWh, is the largest operating plant and accounts for about 50 percent of the total annual electricity supply. The 3,780 MW Rogun HPP is the largest project under construction and, once its completed and the reservoir reaches the fully supply level in 2035, its annual average generation is expected to be around 14,400 GWh, which would be about 50 percent of total projected electricity demand.

3. The thermal power plants are primarily operated in winter to supply electricity and heat given: (a) high winter electricity demand, which accounts for 60 percent of annual demand; and (b) limited winter generation by HPPs due to reduced winter flows. .

4. The key challenge in the sector is financial distress of BT as a result of: (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 (f) depreciation of TJS vs USD in 2015-2021. The financial distress of the electricity sector impacted the reliability of the electricity supply, which deteriorated due to obsolescence and under-maintenance of main power generating plants and T&D networks. Nurek HPP is currently being rehabilitated with financial support from the World Bank and AIIB (two generating units have already been rehabilitated with an upgraded capacity of 375MW each).

5. The Government Program for Financial Recovery of Electricity Sector for 2019-2027 identified policy, financial, and operational measures aimed at improving financial viability of the electricity sector and increasing reliability of electricity supply**.** The key measures in the Government Program include: (a) gradual increase of tariffs to reach cost recovery, including 50 percent increase of tariff for one of the largest consumers in the country - Tajikistan Aluminum Company (TALCO, a state owned enterprise) - and publishing of five-year tariff

[20] Republic of Tajikistan – 97 percent; various local legal entities and individuals – 3 percent.

reform plan; (b) restructuring of loan agreements between MOF and BT; (c) conversion into equity of BT's fines and penalties for overdue principal repayments and interest under BT's debt to MOF; (e) use of technically, economically, and financially sound principles for investment decision-making in generation, transmission, and distribution; (f) strengthening of the sector governance including consistent implementation of the escrow account mechanism to manage cash flows in the sector; and (g) improved operational and financial transparency of the electricity sector timely rehabilitation and upgrade of key electricity T&D assets.

6. The Government made some progress with the implementation of these sector reform measures supported by the World Bank-financed Program for financial recovery of the sector as well as Asian Development Bank (ADB), and European Bank for Reconstruction and Development (EBRD). Those include consistent electricity tariff increases since 2017 with the most recent average increase of 16 percent that became effective on January 2024; (b) restructuring of TJS 12.5 billion of debts between MOF and BT including conversion into BT's equity of fines and penalties for overdue debt service; (c) introduction of boards of directors at newly-created electricity transmission and distribution companies (SIB and STB) and the required committees; (d) involvement of a management contractor in operation of STB; (e) optimization of expenses through better inventory management and reduction of unnecessary fuel processes; and (f) strengthening of the capacity of Anti-Monopoly Service (AMS) that is responsible for review of tariffs. Moreover, as part of the broader reform agenda required for successful implementation of Rogun HPP, the Government committed to continuation of tariff reforms, improvement of SOE performance and governance, signing of long-term contracts for sale of Rogun electricity, development of macro-fiscally sustainable financing plan for Rogun HPP, strengthening of SOE fiscal risk management, and other measures.

7. Electricity exports have been increasing, and regional connectivity is improving. Electricity exports increased from 1,350 GWh to almost 2,680 GWh in 2023 due to resumption of exports to Uzbekistan. There is adequate electricity transmission capacity on existing interconnections with Uzbekistan, which can allow to substantially increase electricity exports once synchronization with Central Asian Power System (CAPS) is completed. However, there is a further need to increase electricity exports to enable larger exports that would be required to ensure financial viability of Rogun HPP project. Several actions are necessary to position Rogun HPP as a regional export-oriented project and to ensure financial viability of the project without continuing to burden the state budget.

Annex 6: Country Credit Fact Sheet.

1. **Background.** Tajikistan is a lower-middle-income country with an income per capita of around USD1,270 (around USD5,660 in purchasing power parity) and a population of over 10 million. The country has shown remarkable resilience through the shocks of the past few years, with growth averaging close to 7 percent over the last five years.

2. Despite high growth, incomes are still comparatively low. The informal sector is large (around 38 percent of GDP). Tajikistan is one of the largest recipients of remittances in the world (38 percent of GDP, predominately from Russia), and domestic demand depends on it to a large extent. Furthermore, the state continues to have a large footprint in the economy, with state enterprises accounting for about 17 percent of GDP and 24 percent of employment.

3. The government has achieved significant fiscal consolidation and is committed to keeping the deficit below 2.5 percent of GDP, which will keep public debt on a downward trajectory, from the then-unsustainable levels of over 50 percent of GDP in 2020. At the same time, sizable expenditures related to the Rogun hydropower project will put pressure on public finances in the near and medium term. Upon completion, the Rogun hydroelectric power facility would be the biggest hydropower station in Central Asia and is expected to support the country's plans for accelerated industrialization. Additional spending of about USD6.3 billion (equivalent to about half of 2023 GDP) is needed to complete construction by 2035.

4. **Recent Developments.** The geopolitical conflict in Europe has led to inflows of businesses and money into Tajikistan. The risk of a subsequent slowdown in Russia and a reduction of remittances from the 2022 peak has not materialized. Growth reached 8.3 percent in 2023, and the economy continued to grow at a similar rate during January-August 2024.

5. Tajikistan's FX reserves have been bolstered by a favorable balance of payment in the past several years, and central bank's monetization of gold purchased from domestic producers, allowing reserves to remain at around 7 months of imports. The current account has remained in surplus for the first half of 2024.

6. The central bank has maintained tight monetary policy for several years which has helped sustain the exchange rate and keep price pressures in check. Inflation, normally relatively volatile, has fallen from a peak of around 10 percent in 2020-21 to around 3-5 percent since then. In light of better outcomes, the central bank has reduced the policy rate by a cumulative 375 basis points, since 2023.

Key Economic Indicators	2020	2021	2022	2023	2024	2025	2026	2027
Real GDP growth 1/	4.4	9.4	8.0	8.3	6.8	4.5	4.5	4.5
Inflation (average, % change)	8.6	9.0	6.6	3.7	4.5	5.9	6.5	6.5
Fiscal balance	-4.3	-0.7	-0.2	-1.3	-2.5	-2.6	-2.5	-2.5
Public debt	51.8	42.1	32.5	30.9	30.7	30.1	29.3	28.8
Gross public financing needs	…	1.8	3.2	4.3	4.0	5.1	5.4	5.7
Current account balance	4.3	8.2	15.6	4.9	0.3	-1.7	-1.8	-2.3
External debt	.43.8	37.1	28.5	27.6	27.8	27.1	26.3	25.5
FX reserves (USD billion)	2.2	2.5	3.8	3.6	3.6	3.8	4.0	4.4
Exchange rate, TJS/USD 2/	10.3	11.3	11.2	10.9	10.9	..		

Source: IMF WEO Oct 2024, Country Report 24/84; in percent of GDP unless indicated otherwise; 2024-27 = projections
Notes: 1/ percent change, year-on-year 2/ end-of-period; most recent data from central bank; as of Nov 29, 2024

7. **Outlook and Risks.** Geopolitical tensions, with the related potential for lower remittances, continues to create uncertainty in the medium-term. Growth is projected to decelerate to 6.8 percent in 2024 and around 4.5-5.0 percent thereafter, according to the IMF.

8. The financial sector faces relatively high credit risk, significant dollarization, and elevated nonperforming loans due to banks' exposure to SOEs. However, dollarization and NPLs have been trending downwards (NPLs of 12.5 percent in 2023, down from a peak of 46.8 percent in 2016). The banking system remains profitable allowing banks to strengthen capital.

9. A non-financing IMF program is in place since February 2024. The program focuses on revenue mobilization and SOE oversight, aiming to maintain the fiscal deficit below 2.5 percent of GDP, alongside enhancements in debt management and structural reforms. The program serves as an anchor for economic policies, providing the macroeconomic frame and confidence around the financing of the Rogun dam. The financing envelope developed by the World Bank, suggests annual Rogun-related domestically financed expenditures at around 3 percent of GDP during 2024-26, supplemented by external funding from multilateral and bilateral partners. With the program on track, in October 2024, the IMF and the authorities reached a staff-level agreement on the first review.

10. According to the IMF, risk of debt distress remains high, but this is almost entirely due to the upcoming Eurobond repayment during 2025-27. The government has been preparing for the redemption, and plans to use a combination of budget revenues, domestic debt issuance and FX reserves. Tajikistan is subject to a zero limit on non-concessional borrowing under the IMF's Debt Limits Policy (DLP). However, an exception is provided for Rogun-related loans, given the critical importance of this project.

11. In August 2024, S&P upgraded Tajikistan's sovereign credit from 'B-' to 'B', with a stable outlook, noting that resilient economic growth and narrower fiscal deficits will keep Tajikistan's highly concessional public debt at a moderate level. Likewise, Moody's changed the outlook on its B3 rating to 'positive' in 2024, citing stable economic growth, higher international reserves, and concessional support from development partners to the medium-term fiscal and external financing of the Rogun project.