



Report and Recommendation of the President to the Board of Directors

Project Number: 49055-007
March 2021

Proposed Loan and Administration of Loan Islamic Republic of Pakistan: Balakot Hydropower Development Project

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Asian Development Bank

CURRENCY EQUIVALENTS

(as of 16 January 2021)

Currency unit	–	Pakistan rupee/s (PRs/PRs)
PRs1.00	=	\$0.0062
\$1.00	=	PRs160.10

ABBREVIATIONS

ADB	–	Asian Development Bank
AIIB	–	Asian Infrastructure Investment Bank
COVID-19	–	coronavirus disease
CPPA-G	–	Central Power Purchasing Agency Guarantee Limited
EIA	–	environmental impact assessment
EIRR	–	economic internal rate of return
EMP	–	environmental management plan
GDP	–	gross domestic product
GENCO	–	generation company
GW	–	gigawatt
IDA	–	International Development Association
IFRS	–	International Financial Reporting Standards
IPP	–	independent power producer
LARP	–	land acquisition and resettlement plan
MW	–	megawatt
NEPRA	–	National Electric Power Regulatory Authority
O&M	–	operation and maintenance
PAM	–	project administration manual
PEDO	–	Pakhtunkhwa Energy Development Organization
PIU	–	project implementation unit

NOTES

- (i) The fiscal year (FY) of the Government of Pakistan and its agencies ends on 30 June. “FY” before a calendar year denotes the year in which the fiscal year ends, e.g., FY2021 ends on 30 June 2021.
- (ii) In this report, “\$” refers to United States dollars.

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PROJECT AT A GLANCE

1. Basic Data		Project Number: 49055-007	
Project Name	Balakot Hydropower Development Project (formerly Hydropower Development Investment Project)	Department/Division	CWRD/CWEN
Country Borrower	Pakistan Government of Pakistan	Executing Agency	Energy and Power Department, Government of Khyber Paktunkhwa
Country Economic Indicators Portfolio at a Glance	https://www.adb.org/Documents/inkedDocs/?id=49055-007-CEI https://www.adb.org/Documents/LinkedDocs/?id=49055-007-PortAtaGlance		
2. Sector	Subsector(s)	ADB Financing (\$ million)	
✓ Energy	Large hydropower generation	Total	300.00
			300.00
3. Operational Priorities		Climate Change Information	
✓ Addressing remaining poverty and reducing inequalities		GHG reductions (tons per annum)	572,643
✓ Accelerating progress in gender equality		Climate Change impact on the Project	High
✓ Tackling climate change, building climate and disaster resilience, and enhancing environmental sustainability		ADB Financing	
✓ Promoting rural development and food security		Adaptation (\$ million)	2.79
✓ Strengthening governance and institutional capacity		Mitigation (\$ million)	297.21
		Cofinancing	
		Adaptation (\$ million)	2.61
		Mitigation (\$ million)	277.39
Sustainable Development Goals		Gender Equity and Mainstreaming	
SDG 5.c		Effective gender mainstreaming (EGM)	✓
SDG 7.1		Poverty Targeting	
SDG 13.a		General Intervention on Poverty	✓
4. Risk Categorization: Complex			
5. Safeguard Categorization Environment: A Involuntary Resettlement: A Indigenous Peoples: C			
6. Financing			
Modality and Sources		Amount (\$ million)	
ADB		300.00	
Sovereign Project (Regular Loan): Ordinary capital resources		300.00	
Cofinancing		280.00	
Asian Infrastructure Investment Bank - Project loan (Partial ADB Administration)		280.00	
Counterpart		175.00	
Government		175.00	
Total		755.00	
Currency of ADB Financing: US Dollar			

I. THE PROPOSAL

1. I submit for your approval the following report and recommendation on a proposed loan to the Islamic Republic of Pakistan for the Balakot Hydropower Development Project.¹ The report also describes the proposed administration of a loan to be provided by the Asian Infrastructure Investment Bank (AIIB) for the Balakot Hydropower Development Project, and if the Board approves the proposed loan, I, acting under the authority delegated to me by the Board, approve the administration of the loan.

2. The project will finance the construction of a 300-megawatt (MW) run-of-river hydropower plant on the Kunhar River in Mansehra District, Khyber Pakhtunkhwa Province. The project will (i) improve energy security by increasing the clean energy share in the country's energy mix, which is dominated by thermal power generation; (ii) boost the economy and promote revenue-generating investments in the hydro-abundant Khyber Pakhtunkhwa Province; and (iii) build capacity and awareness on climate change impacts, adaptation, and mitigation measures.² The project also targets improving the quality of life of women in communities surrounding the project area and promotes gender mainstreaming.

II. THE PROJECT

A. Rationale

3. **Sector structure and energy mix.** Since 2002, Pakistan has been unbundling and restructuring its energy sector. The Water and Power Development Authority, the sole vertically integrated entity previously controlling the entire sector, was unbundled into 10 regional distribution companies, four government-owned thermal power generation companies (GENCOs), a transmission company, and a centralized agency—the Central Power Purchasing Agency Guarantee Limited (CPPA-G)—to purchase power from all GENCOs and independent power producers (IPPs). Privately owned Karachi Electric Supply Company is responsible for generating and distributing power in Karachi and is listed on the Pakistan Stock Exchange. Nearly 50% of the country's total installed capacity is provided by private sectors led IPPs. Pakhtunkhwa Energy Development Organization (PEDO), a fully state-owned entity, is responsible for investing, developing, and operating hydropower plants in Khyber Pakhtunkhwa Province using public sector financing, as well as acting as a one-window facilitator for private sector investors who intend to invest in hydropower projects in the provincial territory and avail of the concessions under the KP Hydropower Policy 2016.³ The National Electric Power Regulatory Authority (NEPRA) was established to determine tariffs, issue licenses, and regulate and ensure the long-term sustainability of the sector. All IPPs, state-owned, and province-owned electricity generation units sell electricity to the CPPA-G, mostly based on take-or-pay power purchase agreements.

4. In FY2019–2020, the total installed capacity in country was about 39 gigawatts (GW)—an energy mix dominated by thermal energy—with almost 60% generated from oil-, gas-, and coal-fired power plants, 29% from hydropower and remaining 11% from other sources including solar,

¹ Previously called the Hydropower Development Investment Project, the project's name was revised after the funding modality was changed from a multitranches financing facility to a stand-alone project. Asian Development Bank (Central and West Asia Department). 2019. PAK: Hydropower Development Investment Program – Request for Approval of Change in Financing Modality. Memorandum. 21 June (internal).

² The Asian Development Bank (ADB) provided transaction technical assistance to develop the proposed Balakot Hydropower Development Project. ADB. 2016. [Technical Assistance to the Republic of Pakistan for Hydropower Development Investment Program](#). Manila (TA 9185-PAK).

³ Government of Khyber Pakhtunkhwa. 2016. [KP Hydropower Policy 2016](#). Peshawar.

wind, nuclear, and bagasse. Generation costs were substantially skewed toward oil- and gas fired power plants, with 46% of the total cost in FY2017.⁴ The decade old demand-supply gap has been curtailed by adding 13 GW of generation capacity (mostly gas-fired or coal-based) to the national grid from 2016–2020 but with projected demand growth of 15 GW by 2030 and decommission plan of 5 GW of inefficient thermal and diesel plants by 2025, more additions are still required to meet future needs.

5. **Sector issues.** Key issues faced by Pakistan's power sector include (i) recurring circular debt, (ii) an unsustainable and unaffordable energy mix with heavy reliance on imported fuel-based electricity generation, (iii) a stressed transmission and distribution network, and (iv) the slow pace of reforms. The government made large investments in transmission, distribution, and generation from 2009 to 2019, but system stability and reliability have not been fully resolved mainly because of cash constraints caused by recurring circular debt and network bottlenecks caused by old infrastructure and growing demand. While further planned investment in the network will improve system reliability, sustainability and affordability cannot be achieved unless the key issues that feed the circular debt—to which imported fuel-based generation and the slow pace of reforms are major contributors—are resolved. This project will contribute to improving the energy mix by increasing the clean energy share and reducing the reliance on imported fuel. A thermal-dominant energy mix for a fuel-importing country with weak hedging systems not only makes a country vulnerable to price fluctuations and abnormal tariff increases, but also burdens its foreign reserves and exposes it to unnecessary foreign exchange risks.

6. Other factors contributing to circular debt are weak governance of sector institutions, inadequate cost recovery consumer tariffs, and mismatched subsidies, which are being addressed in parallel through a structured reform program prepared by the government with support from development partners, including the Asian Development Bank (ADB). Through this reform program, the sector will (i) secure financial sustainability by controlling accumulation and addressing reduction of circular debt; (ii) strengthen governance by rationalizing a competitive market road map, separating policy and regulatory functions in hydrocarbons, appointing appellate tribunals, implementing multiyear tariffs, and unbundling the gas subsector; and (iii) reinforce infrastructure improvements through integrated planning to facilitate public and private sector investments across the energy supply chain.⁵

7. Balancing the energy mix has been a challenge for the government mainly because of large investment needs and the focus on solutions that could be implemented in the shortest possible time to address the large demand–supply gap affecting the country since 2007. To some extent, this has been effective in reducing the demand–supply gap, but focusing on short-term solutions increased reliance on imported fuel-based power plants, which in turn has made the sector less sustainable and affordable. To resolve these issues, the share of clean energy has to be substantially increased. Developing new hydropower plants can play an important role not only by increasing the share of clean energy but also by generating large economic activities associated with the construction of mega projects, such as hydropower plants. Pakistan is rich in hydropower resources, but despite 100 GW of recognized and 60 GW of identified hydropower potential (30 GW of which are in Khyber Pakhtunkhwa), only 9,861 MW (16%) have been harnessed (5,729 MWs in KP), including 472 MW of hydropower added by private sector. Pakistan added 2.5 GW of hydropower to its energy mix in 2018, but considering Pakistan's huge

⁴ NEPRA. 2020. [State of Industry Report 2020](#). Islamabad.

⁵ ADB. 2019. [Report and Recommendations of the President to the Board of Directors: Proposed Programmatic Approach and Policy-Based Loan for Subprogram 1 to the Islamic Republic of Pakistan for the Energy Sector Reforms and Financial Sustainability Program](#). Manila.

hydropower potential and need for clean energy, its energy mix should be further rationalized and come from more hydropower and other renewable energy sources.

8. Recognizing the challenges, the government introduced the Power Generation Policy 2015 to (i) empower the provincial governments to function as facilitators for IPPs, (ii) simplify investment decision-making by local and federal authorities, (iii) identify zones of responsibility in processing and implementing generation projects, and (iv) extend the federal government's support of backing up the power purchaser payment obligation and political and other risks in the projects to the provincial government-initiated projects when conforming to certain requirements.⁶ In parallel, the Government of Khyber Pakhtunkhwa issued the KP Hydropower Policy 2016 (footnote 3), which assigned PEDO as the single facilitator for all investors in hydropower projects in the province and aims to develop projects through the private and public sector windows.

9. **Pakhtunkhwa Energy Development Organization's hydropower development plan and strategy.** PEDO has identified several sites and is implementing a strategy to maximize the province's hydropower potential. The development of these projects has been directed through the private and public sectors. The private sector feeds into indirect economic growth (increased industrial activities), and the public sector helps increase the government's revenue by exploiting indigenous resources, which provides the provincial government a bigger cushion for social sector spending that would otherwise not be possible given the limited provincial potential to generate revenues from other sectors. ADB supported PEDO in developing a 10-year road map for the Khyber Pakhtunkhwa energy sector. The provincial government approved the road map, including an investment plan, on 15 August 2016. The road map identified the need to restructure PEDO into an independent corporate entity that would undertake interventions such as establishing multiple special purpose vehicles for power projects and special facilitation windows for private sector investments. The investment plan aims to develop 21 run-of-river hydropower projects with a total funding requirement of \$11 billion. PEDO aims to commercialize the proposed projects, allowing private sector participation and encouraging investments by providing incentives and easing procedures. Projects with low potential interest from the private sector will be implemented using public sector financing with support from development partners, including this project by ADB, the World Bank, and the government's own resources (details are in para. 13).

10. Rationalizing the generation mix aligns with ADB country partnership strategy, 2021–2025 outcomes, which prioritize developing domestic energy resources such as hydropower and renewable energy; and promoting greater availability, affordability, and efficiency in the sector. The project is included in ADB's country operations business plan, 2020–2022 for Pakistan.⁷ It supports (i) ADB Strategy 2030 operational priorities 1, 2, 3, 5, and 6 by helping reduce remaining poverty and inequalities, accelerate progress in gender equality and reduce women's time poverty, tackle climate change, build climate and disaster resilience, enhance environmental sustainability, promote rural development, and improve the financial management of PEDO; and (ii) Sustainable Development Goals 5, 7 and 13 by providing affordable, clean, and sustainable energy; and meeting Pakistan's climate change mitigation and adaptation objectives.⁸

⁶ Government of Pakistan, Ministry of Water and Power. 2015. [Power Generation Policy 2015](#). Karachi.

⁷ ADB. 2020. [Country Partnership Strategy: Pakistan, 2021–2025](#). Manila; and ADB. 2019. [Country Operations Business Plan: Pakistan, 2020–2022](#). Manila.

⁸ ADB. 2018. [Strategy 2030: Achieving a Prosperous, Inclusive, Resilient, and Sustainable Asia and the Pacific](#). Manila; United Nations. Sustainable Development Goals. [Goal 5: Gender Equality](#); United Nations. Sustainable Development Goals. [Goal 7: Affordable and Clean Energy](#); and United Nations. Sustainable Development Goals. [Goal 13: Climate Action](#).

11. **Lessons and experiences.** The Independent Evaluation Department reviewed ADB's energy investments in Pakistan since 2005 and made two recommendations based on experiences and lessons from ongoing projects: (i) strategic—strengthen support for clean energy and conservation by investing in renewable energy generation and energy efficiency; and review the renewable energy policy and associated regulations to increase the share of renewable energy in the mix, reduce generation costs, and mitigate climate change impacts; and (ii) operational—promote sovereign investments to lower baseload power generation costs, building on sound integrated energy planning to increase Pakistan's energy security by reducing its dependency on imported fuels.⁹ These recommendations have been incorporated in ADB investment plans. ADB is supporting the first recommendation through the ongoing policy-based program loan (footnote 5) and the second by focusing sovereign investments on hydropower development, such as in this project. Such projects will lower generation costs and reduce the sector's reliance on imported fuel. The new Alternative and Renewable Energy Policy 2020 approved in July 2020 set a target to increase the renewable energy share from 3.40% in 2020 to 20% by 2025 and 30% by 2030 (footnote 4). In June 2020, the World Bank approved a \$500 million multisector policy-based program-Resilient Institutions for Sustainable Economy (RISE). The energy component of RISE supports Pakistan's transition to low carbon energy and development of indigenous resources for clean energy generation through deployment of renewable energy and hydropower sources.

12. ADB has been engaged with PEDO since 2005 and has not only contributed to PEDO's investment needs but also provided extensive support in developing plans, strategies, capacity building, improvements in institutional setup, and reforms. ADB supported developing PEDO's corporatization plan, which the PEDO board of directors approved for implementation. The plan includes strengthening financial systems and creating special purpose vehicles to enhance institutional efficiency and financial management. Among all development partners, ADB has the longest and most valued relationship with PEDO. With ADB assistance of \$44 million, PEDO has developed two run-of-river hydropower plants with capacity of 20 MWs to generate 105 gigawatt-hours of electricity annually.¹⁰ ADB has also provided \$237 million to support the provincial government's initiative to provide 2.4 million people and 8,000 schools with reliable access to electricity through innovative business models by engaging communities in developing and operating micro hydel plants (hydropower plants with capacity less than 1,000 kW).¹¹ These interventions and innovative business models will help Khyber Pakhtunkhwa increase access to electricity by using clean energy resources and engaging communities.

13. **Hydropower investments by other development partners.** All major development partners support hydropower investments in Pakistan. The World Bank has the largest hydropower portfolio at \$2.2 billion, comprising (i) \$725 million in an International Bank for Reconstruction and Development loan and International Development Association (IDA) credit for the fourth extension of the Tarbela Hydropower Plant (1,410 MW); (ii) \$390 million in IDA credit for the fifth extension of the Tarbela Hydropower Plant (1,410 MW), with \$300 million cofinancing from AIIB; (iii) \$588 million in IDA credit and \$460 million in IDA guarantees for developing the 2,160 MW Dasu Hydropower Plant; and (iv) \$450 million in IDA credit for three hydropower schemes in Khyber Pakhtunkhwa's Upper Dir and Swat districts. The Islamic Development Bank provided \$141 million for three medium-sized hydropower plants (323 MW). Similarly, European

⁹ Independent Evaluation Department. 2019. [Sector Assistance Program Evaluation: ADB's Support to Pakistan Energy Sector, 2005–2017](#). Manila: ADB.

¹⁰ ADB. [Pakistan: Renewable Energy Development Sector Investment Program—Project I](#).

¹¹ ADB. 2016. [Report and Recommendation of the President to the Board of Directors: Proposed Results-Based Loan and Technical Assistance Grant to the Islamic Republic of Pakistan for the Access to Clean Energy Investment Program](#). Manila.

bilateral partners support the Government of Pakistan in enhancing hydropower capacity, with a combined active portfolio of \$372 million, including the construction of hydropower plants (211 MW) and the rehabilitation of the 243 MW Warsak Hydropower Plant. The involvement of major development partners in harnessing Pakistan's hydropower potential has helped initiate multiple projects, employing both stand-alone and cofinancing options, depending on country partnership strategies and institutional priorities. Private sector participation in hydropower-based generation is expected to increase, with 1,611 MW to be commissioned in 2021–2022 and another 4,851 MW planned to be added to the system by 2030. Between 2021 and 2030, the private sector will add about 12,478 MW of generation capacity dominated by 51.79% of hydropower.

14. **Economy and COVID-19 impact.** Pakistan's episodic pattern of economic growth is characterized by periods of boom and bust. A narrow production and export base has made the economy less resilient to economic shocks, restricted trade, and resulted in a binding balance-of-payments constraint to growth. Domestic resource mobilization is severely limited. A large fiscal deficit, weak external position, and eroded macroeconomic buffers reflect structural weaknesses in economic management. Consequently, the fiscal and monetary policy adjustments needed to correct these economic imbalances are limiting the fiscal space to tackle Pakistan's infrastructure deficit, raising the cost of doing business for the private sector, and holding back the country's international competitiveness. Governance bottlenecks and institutional capacity challenges persist. Gross domestic product (GDP) growth contracted 0.4% in FY2020 as the coronavirus disease (COVID-19) pandemic affected consumer demand and private sector activity, leading to a sharp decline in economic activity. The current account deficit narrowed substantially from 4.8% of GDP in FY2019 to 1.1% in FY2020, with exports and imports declining because of the pandemic. Remittances maintained an upward trend, rising 6.4% in FY2020 despite some monthly volatility from COVID-19 restrictions in the Middle East. The fiscal balance recovered from a deficit of 9.1% of GDP in FY2019 to 8.1% in FY2020. The Pakistan rupee stabilized at about PRs158 against the United States dollar in FY2020.

15. The COVID-19 pandemic also delayed advance procurement actions under the project. The bidding period was extended multiple times to accommodate requests from international bidders because of lockdowns in multiple countries. The project implementation design includes instructions to contractors on preparing and implementing an effective COVID-19 health and safety plan. In general, the project will positively contribute to boosting the indirect economic impact in the province by generating jobs and construction activities. Once operational, the province can use the revenues generated from the hydropower plant to improve health and education facilities.

16. **Climate change.** Hydropower generation is at the nexus of Pakistan's climate change adaptation and mitigation priorities and objectives. Scaling up large hydropower generation, building climate-resilient water-related infrastructure, and enhancing water resource management are among the country's priority climate actions.¹² The country is among the most vulnerable to climate change, with water resources and energy particularly at risk from expected increases in the magnitude and frequency of extreme weather events such as floods, droughts, and high temperatures.¹³ Under the Paris Climate Agreement, Pakistan has committed to reduce by 2030

¹² Government of Pakistan. 2016. [Pakistan's Intended Nationally Determined Contribution \(PAK-INDC\)](#). Islamabad.

¹³ ADB. 2017. [Climate Change Profile of Pakistan](#). Manila.

its annual greenhouse gas emissions by 20% relative to the business as usual level, subject to the availability of international financial, technological, and capacity building support.¹⁴

17. **Gender impacts of unreliable electricity supply.** Women are the primary managers and users of electricity in households. The energy crisis adds to women's time poverty as it increases the time needed to carry out domestic chores such as cleaning, cooking, and laundry; and reduces the productivity of home-based workers.¹⁵ More than 70% of women work in the informal sector and are largely associated with small and medium-sized enterprises. From 2017 to 2018, women comprised 62.1% of home-based workers, and 55% of them are piece-rate workers in manufacturing.¹⁶ Unreliable electricity and long power outages adversely affect their productivity and livelihood opportunities. Because of their geographic location and hard terrain, the province's northern districts are isolated and have lower socioeconomic indicators than the rest of the province and country. Less reliable energy in the project area further limits women's opportunities to participate in economic activities. Improved and reliable electricity supply will boost economic opportunities for the province's remote communities, particularly for women.

B. Project Description

18. The project is aligned with the following impacts: carbon footprint reduced; and energy sector made more renewable, efficient, and reliable.¹⁷ The project will have the following outcome: energy security in Khyber Pakhtunkhwa enhanced.¹⁸ A gender-inclusive community development program will be implemented to mitigate resettlement impacts and build the communities' resilience against disasters and economic shocks.

19. **Output 1: Climate-resilient hydropower plant commissioned.** A 300 MW hydropower plant will be commissioned near Balakot City in Khyber Pakhtunkhwa by 2027. Its design will incorporate seismic strengthening and climate-proofing measures. The plant will improve the energy mix by adding 1,143 gigawatt-hours of clean energy annually to the system and will enhance the sector's reliability and sustainability, leading to better energy security. A community development program will be implemented to cater to the socioeconomic needs of the affected communities and the communities surrounding the project area. This will improve the livelihood opportunities for the displaced households and adjacent communities, including women and vulnerable segments of the population; build economic resilience; and improve their capacity to cope with risks, such as health, climate change, natural disasters, and other relevant issues.

20. **Output 2: Capacity for climate change risk management in hydropower production enhanced.** Awareness will be developed among communities, with specific training for women and youth groups to serve as climate change leaders. PEDO staff will be trained to incorporate climate change risk guidelines into hydropower plant operations.

21. **Output 3: Pakhtunkhwa Energy Development Organization's revenues from indigenous resources increased.** PEDO will supply one-third of the electricity generated from the 300 MW hydropower plant to the Peshawar Electricity Supply Company and the rest to the

¹⁴ Based on [Carbon Brief Paris climate pledge tracker](#), Pakistan commits to peak and then reduce its emissions. Specific commitments will be made once "reliable data on our peak emissions levels is available". Includes paragraph on adaptation. (footnote 12).

¹⁵ ADB. 2016. [Pakistan Country Gender Assessment—Volume 1 of 2: Overall Gender Analysis](#). Manila.

¹⁶ Home Net South Asia. [Statistical Brief on Home-Based Workers in Pakistan \(2020\)](#).

¹⁷ Government of Pakistan. 2013. [National Power Policy 2013](#). Islamabad.

¹⁸ The design and monitoring framework is in Appendix 1.

National Transmission and Despatch Company Limited. This will substantially increase PEDO's revenue and will help reduce average daily load shedding in Khyber Pakhtunkhwa.

22. Output 4: Income-earning opportunities and skills for local communities increased.

During construction, the local population will benefit from job opportunities, commercial activities, and material supply. The project will generate more than 1,200 skilled and unskilled jobs for male and female workers, of which about 40% will be sourced locally. The project design includes livelihood skills development for women, who have limited economic opportunities.

23. Building on ADB's experience in the sector since 2005, the project will help strengthen PEDO's strategy to encourage hydropower development in the province. This will contribute to attaining an energy mix that will not only increase the share of clean energy but also help lower baseload generation costs.

C. Value Added by ADB

24. ADB's value addition comes from the components included in the project design. These include (i) implementing a gender-inclusive community development program to mitigate resettlement impacts and build the communities' resilience against disasters and economic shocks, (ii) considering climate change impacts in the technical design, (iii) adding extra tiers in the review of the technical design to help mitigate some of the major implementation risks, and (iv) incorporating necessary reforms to improve the financial management and sustainability of PEDO.

D. Summary Cost Estimates and Financing Plan

25. The project is estimated to cost \$755,000,000 (Table 1). Detailed cost estimates by expenditure category and by financier are included in the project administration manual (PAM).¹⁹

Table 1: Summary Cost Estimates
(\$ million)

Item	Amount ^a
A. Base Cost^b	
1. Output 1: Disaster-resilient hydropower plant commissioned	641.5
2. Output 2: Capacity for climate change risk management in hydropower production enhanced	2.0
3. Output 3: PEDO's revenues from indigenous resources increased	1.0
4. Output 4: Income-earning opportunities and skills for local communities increased	1.0
Subtotal (A)	645.5
B. Contingencies^c	53.0
C. Financial Charges During Implementation^d	56.5
Total (A+B+C)	755.0

ADB = Asian Development Bank, AIIB = Asian Infrastructure Investment Bank, PEDO = Pakhtunkhwa Energy Development Organization.

^a Includes taxes and duties of \$52.6 million to be financed from government resources, partly through exemptions and partly through cash contributions.

^b In mid-2019 prices as of July 2019.

^c Physical contingencies computed at 4.4% for the turnkey contract. Price contingencies computed at 5.7% on foreign exchange costs and 5.2% on local currency costs; includes provision for potential exchange rate fluctuation under the assumption of a purchasing power parity exchange rate.

^d Includes interest, commitment charges, and other fees to be incurred under the ADB and AIIB loans. Interest during construction for ADB's ordinary capital resources loan has been computed at the 5-year forward London interbank

¹⁹ Project Administration Manual (accessible from the list of linked documents in Appendix 2).

offered rate (LIBOR) plus a spread of 0.5% and 0.1% of maturity premium. Commitment charges for the ADB loan are 0.15% per year to be charged on the undisbursed loan amount.
Source: ADB estimates.

26. The Government of Pakistan has requested a regular loan of \$300,000,000 from ADB's ordinary capital resources to help finance the project. The loan will have a 27-year term, including a grace period of 7 years; an annual interest rate determined in accordance with ADB's London interbank offered rate (LIBOR)-based lending facility; a commitment charge of 0.15% per year (the interest and other charges during construction to be capitalized in the loan); and such other terms and conditions set forth in the draft loan and project agreements. Based on the custom-tailored repayment method, the average maturity is 16 years, and the maturity premium payable to ADB is 0.10% per year.

27. The government has also requested a loan not exceeding \$280,000,000 from AIIB to help finance the project. The AIIB loan is expected to have a 22-year term, including a grace period of 7 years; an annual interest rate determined in accordance with AIIB's sovereign-backed loan pricing; a commitment charge of 0.25% per year; a one-time front-end fee of 0.25% charged on the loan principal; and such other terms and conditions to be set forth in the draft loan agreement between the government and AIIB. ADB will partially administer the AIIB loan.

28. The summary financing plan is in Table 2. ADB and AIIB will jointly finance expenditures related to the turnkey contract on a cost-sharing basis and the related contingencies and financial charges during implementation.²⁰ ADB will solely finance consulting services. The provincial government will finance costs related to taxes and duties, project management, environment and social mitigation, land acquisition, and a portion of the main turnkey contract. ADB financing will not be used for costs relating to land acquisition. The proceeds of the ADB loan will be relented to the provincial government, and through the provincial government will be made available to PEDO for the purposes of the project.

Table 2: Summary Financing Plan

Source	Amount (\$ million)	Share of Total (%)
Asian Development Bank		
Ordinary capital resources (regular loan)	300.0	39.7
Asian Infrastructure Investment Bank ^a	280.0	37.1
Government	175.0	23.2
Total	755.0	100.0

^a Partially administered by the Asian Development Bank.

Source: Asian Development Bank estimates.

29. Climate mitigation is estimated to cost \$747.97 million and climate adaptation is estimated to cost \$7.03 million. ADB will finance 40% of mitigation and adaptation costs, and AIIB will finance 37%.²¹ Mitigation costs comprise the construction of the low-carbon hydropower generation plant with associated infrastructure and capacity building. The project's carbon dioxide reduction is estimated at 572,643 tons per year. Adaptation costs comprise (i) capacity building and the

²⁰ Turnkey contract will be jointly financed by ADB and AIIB. As both the loans will not be made effective at the same time, the ADB loan will be front-loaded and will finance 85% of the turnkey contract, exclusive of taxes and duties. Once the AIIB loan is declared effective, the share of ADB and AIIB financing will be revised based on the remaining amounts to be financed for the turnkey contract at the date of effectiveness of the AIIB loan. The estimated financing percentage is 43% for the ADB loan and 42% for the AIIB loan.

²¹ Climate Change Assessment (accessible from the list of linked documents in Appendix 2).

equipment for strengthened climate change risk management, and (ii) the construction of a flood-resilient dam wall and associated slope stabilization.

E. Implementation Arrangements

30. The project executing agency will be Khyber Pakhtunkhwa's Energy and Power Department. The implementing agency will be PEDO, which will manage procurement and project implementation. PEDO will set up a dedicated project implementation unit (PIU) and be supported by project management consultants. Works will be carried out by a turnkey contractor. All procurement to be financed and all consultant services to be recruited under the ADB and AIIB loans will follow the ADB Procurement Policy (2017, as amended from time to time) and the Procurement Regulations for ADB Borrowers (2017, as amended from time to time). The works contract will be jointly financed by ADB and AIIB. As the AIIB cofinancing will be partially administered by ADB, universal procurement will apply to all contracts except for the project management consultant.²² The project is prepared with advance contracting for the turnkey contract and the consulting services. Retroactive financing of up to 20% of the ADB loan amount for eligible expenditures incurred up to 12 months before the date of loan signing will be considered subject to project preparedness and the availability of counterpart funds.

31. Implementation arrangements are summarized in Table 3 and described in detail in the PAM (footnote 19).

Table 3: Implementation Arrangements

Table 3: Implementation Arrangements			
Aspects	Arrangements		
Implementation period	March 2021–June 2027		
Estimated completion date	30 June 2027		
Estimated loan closing date	31 December 2027		
Management			
(i) Oversight body	Government of Khyber Pakhtunkhwa		
(ii) Executing agency	Energy and Power Department, Government of Khyber Pakhtunkhwa		
(iii) Key implementing agency	PEDO		
(iv) Implementation unit	PEDO will fully establish a dedicated project implementation unit with 49 staff headed by a project director, with offices in Peshawar and near the dam site		
Procurement (EPC contract)	Open competitive bidding (internationally advertised)	1 contract	\$600,000,000 ^a
Consulting services			
(i) project management consultant (international)	Quality- and cost-based selection (full technical proposal)	1 contract (1,240 person-months)	\$18,000,000
(ii) community development program (national NGO)	Quality-based selection	1 contract (56 person-months)	\$700,000
(iii) external environmental and resettlement monitors (national)	Individual consultant selection method	2 contracts (15 person-months)	\$300,000
Retroactive financing and advance contracting	The project envisages advance contracting for the turnkey contract and the consulting services. Retroactive financing of up to 20% of the ADB loan amount for eligible expenditure incurred up to 12 months before the date of loan signing will be considered subject to project preparedness and the availability of counterpart funds.		
Disbursement	Disbursement of the loan proceeds will follow ADB's <i>Loan Disbursement Handbook</i> (2017, as amended from time to time) and detailed arrangements agreed among the government, ADB, and AIIB.		

²² ADB. 2015. *Enhancing Operational Efficiency of the Asian Development Bank*. Manila. Universal procurement was not applied for the advance actions for the project management consultant because the request for proposal was issued to the shortlisted firms before AIIB cofinancing was confirmed.

ADB = Asian Development Bank; AIIB = Asian Infrastructure Investment Bank; EPC = engineering, procurement, and construction; NGO = nongovernment organization; PEDO = Pakhtunkhwa Energy Development Organization.

^a Jointly financed by ADB and AIIB. Universal procurement will apply to all contracts except for the project management consultant. The request for proposal for the project management consultant was issued to the shortlisted firms before AIIB cofinancing was confirmed.

Source: Asian Development Bank.

III. DUE DILIGENCE

A. Technical

32. The project was planned in 1995, followed by a feasibility study in 2013. The dam safety panel hired under ADB transaction technical assistance in 2017 revealed major concerns about the layout and location. An option analysis and additional investigations were carried out from 2018 to 2019, and the feasibility study was updated to make it sufficient for the turnkey contract. The area is prone to earthquakes and floods. The parameters for the design, investigations, and scenarios for earthquakes, landslides, extreme rains events, and induced flows were analyzed, and stability of the selected design was established. The dam break study shows a high potential impact category for population and infrastructure. However, the design incorporates features to prevent catastrophic failure. Climate change impacts were considered during the selection of flood peak and frequency, sedimentation, and hydropower generation. Flood events will not constitute a climate change project vulnerability, while flow variations have been considered in hydropower generation.

33. The proposed 58-meter gravity concrete dam is significantly shorter and equal or better at the installed capacity of 300 MW than previous options. Overall, the proposed technical solution is the most cost-effective. The project planning and feasibility study captured information from the ongoing upstream Suki Kinari hydropower project and the completed downstream Patrind hydropower project.²³ Multistage site investigations, including boreholes, were carried out to firm up the design and cost and to reduce the risk. The project implementation period, including testing and commissioning, is adequate. The feasibility study adequately described the additional studies and measures during design and operation, notably the supplemental geological and geotechnical investigations for slope stabilization, physical modeling, and three-dimensional modeling for the turnkey contract.

34. The design proposes Francis reaction-type turbines after an analysis of the hydraulic variables (gross head, maximum and minimum net head, and foreseen outflow) and the calculation of the base turbine speed and other parameters for the given installed capacity based on the hydropower optimization studies. The design also covers the sizing of the main and auxiliary components of the turbine. A cavern type-powerhouse has been proposed and comprises three vertical shaft synchronous generators coupled to the Francis turbines. The project also includes a 500-kilovolt switchyard and its 1.5 km connecting transmission line.

35. The technical solutions do not depart from the systems generally used in the hydropower stations in Pakistan, and follow the best modern practice in terms of safety. The interconnection scheme among the plant, the National Transmission and Despatch Company Limited, and the Peshawar Electric Supply Company networks fulfills the planning and/or design criteria as required by NEPRA's Grid Code.²⁴ The technical specifications for the design, manufacture,

²³ [SK Hydro](#); and ADB. 2011. *Report and Recommendation of the President to the Board of Directors: Proposed Loan for the Patrind Hydropower Project in Pakistan*. Manila.

²⁴ NEPRA. 2005. *The Grid Code*. Islamabad.

installation, and commissioning of the electromechanical equipment are well defined. PEDO operation and maintenance (O&M) staff are familiar with the proposed design concepts.

36. In the project area, climate change is expected to decrease total winter and spring precipitation and increase total summer and autumn precipitation relative to historical levels, leading to (i) increased total annual generation but decreased peaking generation, (ii) increased magnitude and frequency of flood events, and (iii) increased sediment load (footnote 21). The feasibility study has confirmed that the dam will be designed to withstand higher peak flood events and that the project incorporates strengthened climate change risk management in plant operations, including disaster risk awareness and management, and improved cascade water resources management.

B. Economic and Financial Viability

37. The project is economically viable, with an economic internal rate of return (EIRR) of 14.1%, exceeding the hurdle rate of 9.0%, and an economic net present value of PRs46.3 billion.²⁵ Sensitivity analysis confirmed that the project remains economically viable against the following adverse circumstances: (i) a 20% increase in investment costs, (ii) a 20% increase in O&M costs, and (iii) a 20% decrease in output. Results indicated that the project EIRR is above ADB's hurdle rate against these adverse shocks, but the EIRR is sensitive to the combined effect of revenue decline and capital cost escalation.

38. The financial internal rate of return of 5.3% compares favorably with the weighted average cost of capital of 3.1%.²⁶ Financial viability is gauged by comparing the revenue and cost streams of with- and without-project scenarios. Sensitivity analysis confirmed that the project's financial viability is robust under adverse circumstances. The financial internal rate of return is based on the estimated average tariff for hydropower generation from similar projects in Pakistan without escalation. Although NEPRA will determine the project's actual tariff based on the engineering, procurement, and construction cost indexed by foreign exchange rate variation, this scenario was not considered in the financial analysis. The economic and financial analyses incorporated expected levels and patterns of precipitation and adaptation costs to ensure that project viability is robust under expected climate changes (footnote 21). PEDO's operating and financial sustainability has been strong, with stable profitability, well-controlled O&M, and a low level of indebtedness.

C. Sustainability

39. Circular debt and liquidity are the major risks to sector sustainability in Pakistan. The government, in consultation with development partners, embarked on a reform and financial sustainability program to address the sector's fiscal, governance, technical, and policy deficits (footnote 5). The program entails strengthening the governance of sector institutions, rationalizing prices, reforming tariffs, and reducing subsidies. PEDO is exposed to the same risks as other GENCOs but with limited impacts, because (i) PEDO's liquidity and overall exposure to circular debt is mitigated by the provincial government's support for the timely reconciliation of payments for electricity produced and supplied to the national grid; (ii) PEDO's generation is all based on hydropower and therefore has no exposure to the fuel supplier's default; (iii) the CPPA-G settles all payments to PEDO within the fiscal year, and no debt is carried forward to the next fiscal year; and (iv) for payments delayed beyond 90 days, PEDO regularly receives penalty payments by

²⁵ Economic Analysis (accessible from the list of linked documents in Appendix 2).

²⁶ Financial Analysis (accessible from the list of linked documents in Appendix 2).

the CPPA-G. In the long run, such sector liquidity and payment discipline risks can affect PEDO's financial viability. To address these concerns, PEDO's revenues must be ring-fenced in NEPRA's approved cost recovery tariff settings and enforced contractual terms for payments by the CPPA-G. Both mitigation measures have been covenanted in the project's loan agreement to support economic and financial viability. The feasibility-level tariffs for the project are found to be sufficient for facility maintenance and the sustainable operations for the project life. The project tariff is within the normal limits for such projects.

D. Governance

40. PEDO's financial management risk is *substantial* and its financial management capability is weak. PEDO's accounting policies, procedures, and financial reporting have followed federal accounting and international accounting standards. To comply with its corporate mandate, PEDO's accounting and reporting are transitioning from cash to accrual accounting, compliant with the International Financial Reporting Standards (IFRS). PEDO delayed submitting audited entity statements for FY2018 and FY2019, which are expected to be completed by March 2021. Supported by external consultants, PEDO completed its first IFRS adoption for FY2016 and FY2017. PEDO needs to strengthen institutional capacity and staff skills for IFRS reporting, financial planning, internal audit, and corporate governance. To strengthen its disclosure quality and transparency, PEDO prioritized automation of accounts by pilot-testing enterprise resource planning and capacity enhancement measures, such as recruiting an adequate number of qualified financial management and accounting staff. Loan covenants have been included to address this concern from ADB's perspective.

41. Although PEDO is governed by its board of directors, approval procedures for major decisions still rest with the provincial government. As part of the ongoing reforms and to enhance the corporate governance, a corporatization plan for PEDO has been approved by the board of directors and is being implemented through actions that include (i) reforming its reporting and disclosures from cash to IFRS-compliant accrual accounting and adopting enterprise resource planning, and (ii) strengthening its oversight capacity and creating independent audit and risk management under the supervisory board for operational efficiency control.

42. PEDO's capacity for procurement, financial management, and project implementation were assessed and found to be sufficient to manage international procurement and maintain accounting systems, financial controls, and audit arrangements. Its financial accounting, auditing rules, and internal control systems follow generally accepted international practices.

43. The overall procurement risk is *medium*. The procurement of civil works (the turnkey contract) and consulting services financed by the ADB and AIIB loans follows ADB's Procurement Policy and the Procurement Regulations for ADB Borrowers. Universal procurement will apply for all contracts except for the project management consultant (para. 30). Advance contracting actions for the procurement of civil works (turnkey contract) used ADB's standard bidding documents in open competitive bidding advertised internationally. The executing agency has gained experience in the procurement of civil works and consultant recruitment from previous ADB-funded projects. A strong PIU will be fully established, comprising staff familiar with ADB's Procurement Policy. Procurement training will also be provided. Project procurement and implementation will be supported by a team of international consultants.

44. ADB's Anticorruption Policy (1998, as amended to date) was explained to and discussed with the government and Khyber Pakhtunkhwa's Energy and Power Department. The specific policy requirements and supplementary measures are described in the PAM (footnote 19).

E. Poverty, Social, and Gender

45. The poverty, social, and gender assessment carried out during project preparation revealed that a significant proportion of households lives below the estimated national poverty line in the project area. One main reason for poverty in the area is the lack of livelihood opportunities. Of the total population surveyed for the environmental impact assessment (EIA) and the poverty, social, and gender assessment, 55% were employed and 25% were unemployed. The project area is susceptible to disasters caused by humans or triggered by natural hazards, such as earthquakes and flash floods—the area was hit by two earthquakes in 2004 and 2005 (footnote 21). This adds to the local communities' vulnerability to economic shocks. To address these issues, a community development program has been developed with the following features: (i) preference for local communities during construction for unskilled, semiskilled, and skilled work; (ii) livelihood skills training programs for local communities; and (iii) training programs to improve the local communities' capacity to cope with climate change and disasters caused by humans or triggered by natural hazards.

46. The project is classified *effective gender mainstreaming*. A detailed gender action plan was developed based on the findings of the gender assessment.²⁷ Key actions of the gender action plan are (i) developing and implementing a gender-mainstreamed community mobilization strategy; (ii) ensuring women's participation in consultations at all project implementation stages; (iii) developing and implementing a skills development program for improving livelihood opportunities, with 50% women's participation; and (iv) training women and youth groups as climate change leaders to create awareness and sensitize their communities on issues related to climate change and to build resilience against disasters caused by humans or triggered by natural hazards. A nongovernment consulting firm will be hired to assist PEDO in developing and implementing the community development program.

F. Safeguards

47. In compliance with ADB's Safeguard Policy Statement (2009), the project's safeguard categories are as follows.²⁸

48. **Environment (category A).** The EIA and environmental management plan (EMP) have been prepared following ADB's Safeguard Policy Statement. The EIA includes an assessment of environmental flows and impacts on aquatic ecology. A critical habitat assessment carried out as part of the ecology baseline indicated that the project is in a critical habitat because of the presence of valued aquatic biological resources, including endemic fish species. The Kunhar River is home to the Alwan Snow Trout, a migratory fish species listed as vulnerable in the International Union for Conservation of Nature Red List of Threatened Species. The project may have significant adverse environmental impacts during construction and operation related to (i) loss of the riverine ecosystem because of inundation by the Balakot Reservoir; (ii) degradation of the river ecosystem in the low-flow segment downstream of the Balakot dam; (iii) disruption of the water supply for mountain spring users because of alterations to the natural passage of springs caused by blasting for tunnels; and (iv) failure of spoil disposal sites, resulting in increased erosion and sediment load entering the river. However, the project is expected to have significant positive impacts, including changes in the ecological integrity of the Kunhar River through the implementation of the biodiversity action plan.

²⁷ Gender Action Plan (accessible from the list of linked documents in Appendix 2).

²⁸ ADB. [Safeguard Categories](#).

49. Adequate mitigation measures were incorporated in the project design and will be implemented through the EMP, which summarizes the organizational requirements and the management and monitoring plans to ensure that PEDO takes the necessary measures to avoid adverse effects and maximize the benefits of the project and to operate in conformance with the applicable laws and regulations of the provincial government and the Safeguard Policy Statement. The biodiversity action plan was prepared to support PEDO's corporate commitments on conserving biodiversity and to meet the requirements of the International Finance Corporation Performance Standard 6 and the Safeguard Policy Statement. The environmental management cost has been estimated at \$8,726,170 during construction and \$782,281 per year during operation. The project management consultant will monitor the EMP implementation. The PIU will establish an environmental and social management unit, which will ensure that the project is being implemented in an environmentally sustainable manner. PEDO's environmental safeguard capacity is low. The PIU and the contractor's personnel will receive training to maintain awareness of the environmental aspects, impacts, and risks associated with the project and corresponding controls. PEDO will hire an external monitoring consultant to independently monitor the contractor's compliance with environmental and social requirements. The project complies with ADB's public disclosure and consultation requirements. Consultations with project stakeholders were undertaken in April–June 2017 and June–July 2018. The draft EIA was disclosed on the ADB website on 10 December 2018 and the final EIA was disclosed on 15 November 2019.

50. **Involuntary resettlement (category A).** The project will require the acquisition of about 33 hectares of land, affecting about 165 households (887 people) in six villages, according to feasibility study estimates. About 133 households (730 people) will be severely affected and 129 households will be physically displaced. Additional land may be required for the spoil disposal site. The project will also affect some community and public infrastructure facilities, such as schools, health clinics, mosques, local roads, and bridges.

51. A draft land acquisition and resettlement plan (LARP) was prepared to address these impacts, including rehabilitating the affected community and public infrastructure facilities, based on preliminary surveys and consultations with the affected households. The draft LARP was disclosed on 29 July 2019. It will be updated during the detailed design phase and notification (based on Sections 4 and 5 of the Land Acquisition Act, 1894). A livelihood restoration component under the community development program will be developed to help the affected households and residents of the affected villages restore and improve their livelihood situation, cope with the changes, and benefit from the project. Working under the PIU, a nongovernment organization specializing in community development and facilitation will be engaged for this purpose. The environmental and social management unit in the PIU will oversee LARP updates and implementation, with support from the project management consultant and in coordination with the revenue department. An external resettlement monitor will be engaged and confirm LARP implementation. No works will commence until full implementation of the LARP and ADB's acceptance of the external monitor report.

52. **Indigenous peoples (category C).** No communities or settlements in the project area are considered indigenous people. All households in Mansehra belong to Pakistan's mainstream population and nobody self-identified or were identified by others as part of a distinct social and cultural group. The major castes among the affected households are Syed (69%), Akhund Khel (11%), Gujjar (7%), Qureshi (5%), Awan (3%), and Mughal (1%). None of these are considered indigenous people.

G. Summary of Risk Assessment and Risk Management Plan

53. Significant risks and mitigating measures are summarized in Table 4 and described in detail in the risk assessment and risk management plan.²⁹

Table 4: Summary of Risks and Mitigating Measures

Risks	Mitigation Measures
H: Dam break study showing high potential impact	The design incorporates features to prevent catastrophic failure. The government will make sure that a dam emergency action plan, including a warning system in the downstream valley and a shared system of information for dams on Kunhar River, is in place and effective before the hydropower plant is commissioned. The system should include instrumentation with modeling for automatic weather stations in catchments, stream gauges, and coordinated reservoir operations.
H: Complexities in the detailed design and PEDO's weak technical capacity	The recommendations and requirements for the design are defined in the feasibility study and bill of quantities section of the bidding document, including supplemental geological and geotechnical investigations, physical modeling, and three-dimensional modeling. A review of the detailed design by an independent panel of experts is recommended before PEDO's approval of the design.
H: Weak reporting, monitoring and information systems	Information systems, monitoring mechanism and information technology base processes to be enhanced with support from consultants in supervising project implementation and reporting.
H: Financial management analysis showing weaknesses in accounting systems	An accounting system that is compliant with the International Financial Reporting Standards will be established and maintained for the project to minimize risk with the support of consultants hired under the project.

H = high, PEDO = Pakhtunkhwa Energy Development Organization.

Source: Asian Development Bank.

IV. ASSURANCES

54. The government and PEDO have assured ADB that implementation of the project shall conform to all applicable ADB requirements, including those concerning anticorruption measures, safeguards, gender, procurement, consulting services, financial management, and disbursement, as described in detail in the PAM and loan documents.

55. The government and PEDO have agreed with ADB on certain covenants for the project, which are set forth in the draft loan agreement and project agreement.

V. RECOMMENDATION

56. I am satisfied that the proposed loan would comply with the Articles of Agreement of the Asian Development Bank (ADB) and recommend that the Board approve the loan of \$300,000,000 to the Islamic Republic of Pakistan for the Balakot Hydropower Development Project, from ADB's ordinary capital resources, in regular terms, with interest to be determined in accordance with ADB's London interbank offered rate (LIBOR)-based lending facility; for a term of 27 years, including a grace period of 7 years; and such other terms and conditions as are substantially in accordance with those set forth in the draft loan and project agreements presented to the Board.

Masatsugu Asakawa
President

9 March 2021

²⁹ Risk Assessment and Risk Management Plan (accessible from the list of linked documents in Appendix 2).

DESIGN AND MONITORING FRAMEWORK

Impacts the Project is Aligned with

Carbon footprint reduced; and energy sector made more renewable, efficient, and reliable (Pakistan National Power Policy, 2013)^a

Results Chain	Performance Indicators	Data Sources and Reporting Mechanisms	Risks and Critical Assumptions
Outcome Energy security in Khyber Pakhtunkhwa enhanced	By 2027: a. Installed hydropower share in the energy mix, increased by 1200 MW (2020 baseline: 5,729 MW) (RFI A) ^b (OP 1.3; OP 1.3.1; OP 3.1.3) b. Average daily load shedding in PESCO reduced to 2.0 hours daily (2020 baseline: 3.2 hours) (OP 1.3; OP 1.3.1)	a.–b. NEPRA's annual state of industry reports	R: Delay in evacuation of power will cause cash flow constraints.
Outputs 1. Climate-resilient hydropower plant commissioned 2. Capacity for climate change risk management in hydropower production enhanced	1a. By 2027, 300 MW hydropower plant commissioned in Balakot, Khyber Pakhtunkhwa, incorporating seismic strengthening and climate-proofing measures (2020 baseline: not applicable) (OP 1.3; OP 1.3.1; OP 3.1.1) 1b. By 2025, gender-inclusive community development program ^c implemented (2020 baseline: not applicable) (OP 2.1.4) 2a. By 2023, knowledge of at least 30 PEDO staff (including at least 50% of PEDO's female staff) on climate change impact mitigation and adaptation for hydropower projects enhanced through training and capacity building (2020 baseline: 0) (OP 2.1.4; OP 3.1.2) 2b. By 2023, climate change risk guidelines in PEDO standard operating procedures for hydropower projects incorporated (2020 baseline: not applicable) (OP 3.1.2) 2c. By 2023, awareness campaign ^d in Khyber Pakhtunkhwa, with at least	1a. Operational acceptance certificate 1b. PEDO's biannual project progress report 2a.–c. PEDO's biannual project progress report	R: Contractors are not interested in bidding because of risks associated with land acquisition, resettlement, and site complexity. R: Security issues in Khyber Pakhtunkhwa may affect the willingness of suppliers and providers to supply needed technologies.

Results Chain	Performance Indicators	Data Sources and Reporting Mechanisms	Risks and Critical Assumptions
3. PEDO's revenues from indigenous resources increased	30% participation by women and girls, on climate change impact and mitigation measures launched (2020 baseline: not applicable) (OP 2.1.4; OP 3.1.2; OP 6.1.1)		
	3a. By 2027, power purchase agreement for the 300 MW hydropower plant between PEDO and CPPA-G signed (2020 baseline: not applicable) (OP 6.1)	3a. Power purchase agreement	
	3b. By 2027, 300 MW hydropower plant connected to national grid (2019 baseline: not applicable) (OP 1.3; OP 1.3.1)	3b. PEDO's biannual project progress report	
4. Income-earning opportunities and skills for local communities increased	4a. By 2023, 500 local jobs in construction-related work generated (2020 baseline: 0) (OP 5.1)	4a.–b. PEDO's biannual project progress report	
	4b. By 2025, livelihood skills ^e of 500 community members, of whom at least 50% are women, improved (2020 baseline: not applicable) (OP 2.1.4; OP 5.1)		
Key Activities with Milestones 1. Climate-resilient hydropower plant commissioned 1.1 Issue invitation for bids for a turnkey EPC contract for the 300 MW hydropower plant (Q4 2019) 1.2 Award EPC contract (Q1 2021) 1.3 NGO develops and starts community development program (Q2 2023) 1.4 Complete detailed design (Q1 2024) 1.5 Complete civil works (Q1 2026) 1.6 Erect transmission line (Q4 2026) 1.7 Test and commission hydropower plant (Q2 2027) 1.8 Issue request for proposals for the PMC (Q4 2019) 1.9 Award PMC contract (Q3 2020) 2. Capacity for climate change risk management in hydropower production enhanced 2.1 PMC conducts capacity and specific needs assessment on climate change impact mitigation and adaptation for PEDO staff (Q3 2021) 2.2 Prepare training plan (Q4 2021) 2.3 Train PEDO staff (Q2 2022) 2.4 NGO develops and implements awareness-raising programs on climate change and disasters triggered by natural hazards (Q4 2023) 3. PEDO's revenues from indigenous resources increased 3.1 EPD endorses draft power purchase agreement (Q3 2026) 3.2 PEDO and CPPA-G sign power purchase agreement (Q4 2026)			

4. Income-earning opportunities and skills for local communities increased

- 4.1 NGO develops and implements a gender-responsive community mobilization strategy for communities (Q3 2022)
- 4.2 Develop and implement livelihood improvement program (Q2 2023)
- 4.3 Train PEDO in developing socially inclusive and gender-responsive energy projects (Q1 2025)

Project Management Activities

Fully establish a project implementation unit in PEDO (Q2 2021)

Issue a request for proposals for the PMC (Q4 2019)

Award contract for the PMC (Q4 2020)

Recruit external environmental and resettlement monitors (Q4 2021)

Recruit a community development NGO (Q1 2022)

Start implementing environmental management, land acquisition and resettlement, gender action, and climate change adaptation and mitigation plans (Q2 2021)

Inputs

Asian Development Bank: \$300 million (regular ordinary capital resources loan)

Asian Infrastructure Investment Bank: \$280 million

Government: \$175 million

CPPA-G = Central Power Purchasing Agency Guarantee Limited; EPC = engineering, procurement, and construction; EPD = Energy and Power Department, Government of Khyber Pakhtunkhwa; MW = megawatt; NEPRA = National Electric Power Regulatory Authority; NGO = nongovernment organization; OP = operational priority; PEDO = Pakhtunkhwa Energy Development Organization; PESCO = Peshawar Electric Supply Company; PMC = project management consultant; Q = quarter; R = risk.

^a Government of Pakistan. 2013. [National Power Policy 2013](#). Islamabad.

^b RFI A - Installed generation capacity. Target: megawatts, out of which hydropower has 6,029 megawatts.

^c The gender-inclusive community development program will ensure equitable participation of women during project implementation in all activities as indicated in the Gender Action Plan (accessible from the list of linked documents in Appendix 2).

^d To be developed and implemented by a NGO under the community development program targeting men and women in the surrounding areas of the project. The target of 30% for women and girls is based on the gender assessment data of KPK.

^e Trainings to improve livelihood skills development is part of the overall community development program as indicated in the Gender Action Plan.

Contribution to Strategy 2030 Operational Priorities

Expected values and methodological details for all OP indicators to which this operation will contribute results are detailed in Contribution to Strategy 2030 Operational Priorities (accessible from the list of linked documents in Appendix 2 of the report and recommendation of the President).

Source: Asian Development Bank.

LIST OF LINKED DOCUMENTS

<http://www.adb.org/Documents/RRPs/?id=49055-007-3>

1. Loan Agreement
2. Project Agreement
3. Sector Assessment (Summary): Energy
4. Project Administration Manual
5. Financial Analysis
6. Economic Analysis
7. Summary Poverty Reduction and Social Strategy
8. Gender Action Plan
9. Environmental Impact Assessment
10. Resettlement Plan
11. Risk Assessment and Risk Management Plan
12. Climate Change Assessment
13. Contribution to Strategy 2030 Operational Priorities

Supplementary Document

14. Financial Management Assessment