Public Disclosure Authorized

Public Disclosure Authorized

Document of

The World Bank

FOR OFFICIAL USE ONLY

Report No: PAD5585

INTERNATIONAL DEVELOPMENT ASSOCIATION
AND
INTERNATIONAL BANK FOR RECONSTRUCTION AND DEVELOPMENT

PROJECT PAPER

ON

PROPOSED ADDITIONAL IDA CREDITS AND AN ADDITIONAL IBRD LOAN

IN THE AMOUNT OF US$1 BILLION EQUIVALENT

COMPRISING AN IDA SHORTER MATURITY LOAN OF US$435 MILLION (SDR328.6 MILLION EQUIVALENT)
AND
AN IDA CREDIT OF US$365 MILLION FROM THE REGULAR SCALE UP WINDOW (SUW)
AND
AN IBRD LOAN OF US$200 MILLION

TO THE

ISLAMIC REPUBLIC OF PAKISTAN

FOR A

SECOND ADDITIONAL FINANCING FOR DASU HYDROPOWER STAGE I PROJECT

May 17, 2024

Energy & Extractives Global Practice
South Asia Region

This document has a restricted distribution and may be used by recipients only in the performance of their official duties. Its contents may not otherwise be disclosed without World Bank authorization.

CURRENCY EQUIVALENTS

Exchange Rate Effective March 31, 2024

Currency Unit	=	Pakistani Rupees (PKR)
US$ 1	=	PKR 278
US$ 1	=	SDR 0.755

FISCAL YEAR
July 1 to June 30

Regional Vice President:	Martin Raiser
Country Director:	Najy Benhassine
Regional Director:	Pankaj Gupta
Practice Manager:	Simon J. Stolp
Task Team Leader(s):	Rikard Liden, Gunjan Gautam

ABBREVIATIONS AND ACRONYMS

AF	Additional Financing
AM	Accountability Mechanism
CO_2/CO_2e	Carbon Dioxide/Carbon Dioxide Equivalent
CoC	Code of Conduct
DA	Designated Account
DHC	Dasu Hydropower Consultant
DHP	Dasu Hydropower Project
DHP-I/II	Dasu Hydropower Project Stage I/Stage II
E&S	Environmental and Social
EBITDA	Earnings Before Interest, Taxes, Depreciation, and Amortization
ECNEC	Executive Committee of the National Economic Council
EFF	Extended Fund Facility
EMAP	Environmental Management Action Plan
EPRP	Emergency Preparedness and Response Plan
ERR	Economic Rate of Return
ESMR	Enhanced Self-Managed Relocation
FM	Financial Management
FY	Fiscal Year
GAP	Gender Action Plan
GDP	Gross Domestic Product
GHG	Greenhouse Gas
GoP	Government of Pakistan
GRM	Grievance Redress Mechanism
GRS	Grievance Redress Service
GWh	Gigawatt Hour
ha	Hectares
IBRD	International Bank for Reconstruction and Development
ICB	International Competitive Bidding
IDA	International Development Association
IGCEP	Indicative Generation Capacity Expansion Plan
IMF	International Monetary Fund
IPOE	International Panel of Experts
ISW	Islamabad West Substation
IUFR	Interim Unaudited Financial Report

KKH	Karakoram Highway
km	Kilometers
kV	Kilovolt
kWh	Kilowatt Hour
LADP	Local Area Development Plan
M&E	Monitoring and Evaluation
M&EC	Monitoring and Evaluation Consultant
MW	Megawatt
NTDC	National Transmission and Despatch Company
OHS	Occupational Health and Safety
OHSMP	Occupational Health and Safety Management Plan
PCG	Partial Credit Guarantee
PDO	Project Development Objective
PHAP	Public Health Action Plan
PKR	Pakistani Rupee
PSC	Project Steering Committee
RAP	Resettlement Action Plan
RAR	Right-bank Access Road
RCC	Roller Compacted Concrete
RLNG	Regasified Liquified Natural Gas
RV	Resettlement Village
S&R	Social and Resettlement
SBA	Stand-By Arrangement
SDG	Sustainable Development Goal
SDR	Special Drawing Rights
SMR	Self-Managed Relocation
SRMP	Social and Resettlement Management Plan
t	Tons
TL	Transmission Line
US$ / USD	United States Dollar
VO	Variation Order
WAPDA	Water and Power Development Authority

TABLE OF CONTENTS

I. BACKGROUND AND RATIONALE FOR ADDITIONAL FINANCING 7
II. DESCRIPTION OF ADDITIONAL FINANCING 15
III. KEY RISKS 16
IV. APPRAISAL SUMMARY 17
V. GRIEVANCE REDRESS 25
VI. SUMMARY TABLE OF CHANGES 26
VII. DETAILED CHANGE(S) 26
VIII. RESULTS FRAMEWORK AND MONITORING 30

BASIC INFORMATION – PARENT (Dasu Hydropower Stage I Project - P121507)

Country	Product Line	Team Leader(s)		
Pakistan	IBRD/IDA	Mats Johan Rikard Liden		
Project ID	Financing Instrument	Resp CC	Req CC	Practice Area (Lead)
P121507	Investment Project Financing	ISAE1 (9260)	SACPK (1539)	Energy & Extractives

Implementing Agency: Water and Power Development Authority (WAPDA), National Transmission and Despatch Company

Is this a regionally tagged project?
No

Bank/IFC Collaboration

No

Approval Date	Closing Date	Expected Guarantee Expiration Date	Original Environmental Assessment Category	Current EA Category
10-Jun-2014	30-Jun-2025		Full Assessment (A)	Full Assessment (A)

Financing & Implementation Modalities

[ ] Multiphase Programmatic Approach [MPA]	[ ] Contingent Emergency Response Component (CERC)
[ ] Series of Projects (SOP)	[ ] Fragile State(s)
[ ] Performance-Based Conditions (PBCs)	[ ] Small State(s)
[ ] Financial Intermediaries (FI)	[ ] Fragile within a Non-fragile Country
[ ] Project-Based Guarantee	[ ] Conflict
[ ] Deferred Drawdown	[ ] Responding to Natural or Man-made disaster
[ ] Alternate Procurement Arrangements (APA)	[ ] Hands-on Expanded Implementation Support (HEIS)

Development Objective(s)

The overall project development objective is to facilitate the expansion of electricity supply of hydro-power in Pakistan. The Project would also improve access to socio-economic services for local communities in the project area and build WAPDA's capacity to prepare future hydropower projects. This would be achieved by installing a 2,160 MW hydropower plant on the main Indus River, which can be expanded to 4,320 MW in future at very low cost. The Project is a "high-risk-high reward" operation aimed at providing low cost non-carbon renewable energy.

Ratings (from Parent ISR)

	Implementation					Latest ISR
	25-Oct-2021	16-Mar-2022	26-Oct-2022	20-Apr-2023	13-Dec-2023	14-May-2024
Progress towards achievement of PDO	S	S	S	S	S	S
Overall Implementation Progress (IP)	MS	MS	MS	MS	MS	MS
Overall Safeguards Rating	MS	MS	MS	MS	MS	MS
Overall Risk	H	H	H	H	H	H
Financial Management	MS	S	S	S	S	S
Project Management	MS	MS	MS	MS	MS	MS
Procurement	MS	S	S	S	S	S
Monitoring and Evaluation	MS	MS	MS	MS	MS	MS

BASIC INFORMATION – ADDITIONAL FINANCING (Second Additional Financing for Dasu Hydropower Stage I Project - P181423)

Project ID	Project Name	Additional Financing Type	Urgent Need or Capacity

P181423	Second Additional Financing for Dasu Hydropower Stage I Project	Cost Overrun/Financing Gap	Constraints No
Financing instrument Investment Project Financing	Product line IBRD/IDA	Approval Date 25-Jun-2024	
Projected Date of Full Disbursement 30-Apr-2029	Bank/IFC Collaboration No		
Is this a regionally tagged project? No			

Financing & Implementation Modalities

[ ] Series of Projects (SOP)	[ ] Fragile State(s)
[ ] Performance-Based Conditions (PBCs)	[ ] Small State(s)
[ ] Financial Intermediaries (FI)	[ ] Fragile within a Non-fragile Country
[ ] Project-Based Guarantee	[ ] Conflict
[ ] Deferred Drawdown	[ ] Responding to Natural or Man-made disaster
[ ] Alternate Procurement Arrangements (APA)	[ ] Hands-on Expanded Implementation Support (HEIS)
[ ] Contingent Emergency Response Component (CERC)	

Disbursement Summary (from Parent ISR)

Source of Funds	Net Commitments	Total Disbursed	Remaining Balance	Disbursed
IBRD	700.00	112.54	587.46	16 %
IDA	588.40	356.09	161.47	69 %
Grants				%

PROJECT FINANCING DATA – ADDITIONAL FINANCING (Second Additional Financing for Dasu Hydropower Stage I Project - P181423)

FINANCING DATA (US$, Millions)

SUMMARY (Total Financing)

	Current Financing	Proposed Additional Financing	Total Proposed Financing
Total Project Cost	4,694.80	160.60	4,855.40
Total Financing	2,738.70	2,116.70	4,855.40
of which IBRD/IDA	1,198.00	1,000.00	2,198.00
Financing Gap	1,956.10	-1,956.10	0.00

DETAILS - Additional Financing

World Bank Group Financing

International Bank for Reconstruction and Development (IBRD)	200.00
International Development Association (IDA)	800.00
IDA Credit	365.00
IDA Shorter Maturity Loan (SML)	435.00

Non-World Bank Group Financing

Counterpart Funding	125.00
Borrowing Agency	125.00
Commercial Financing	991.70
Unguaranteed Commercial Financing	991.70

IDA Resources (in US$, Millions)

	Credit Amount	Grant Amount	SML Amount	Guarantee Amount	Total Amount
Pakistan	365.00	0.00	435.00	0.00	800.00
National Performance-Based Allocations (PBA)	0.00	0.00	435.00	0.00	435.00

Scale-Up Window (SUW)	365.00	0.00	0.00	0.00	365.00
Total	**365.00**	**0.00**	**435.00**	**0.00**	**800.00**

COMPLIANCE

Policy

Does the project depart from the CPF in content or in other significant respects?

[ ] Yes [✓] No

Does the project require any other Policy waiver(s)?

[ ] Yes [✓] No

INSTITUTIONAL DATA

Practice Area (Lead)

Energy & Extractives

Contributing Practice Areas

Climate Change and Disaster Screening

This operation has been screened for short and long-term climate change and disaster risks

PROJECT TEAM

Bank Staff

Name	Role	Specialization	Unit
Mats Johan Rikard Liden	Team Leader (ADM Responsible)	TTL	IAEE3
Gunjan Gautam	Team Leader	Co-TTL	ISAE1
Haider Raza	Procurement Specialist (ADM Responsible)	Procurement	ESARU
Syed Wajahat Ali Shah	Procurement Specialist	Procurement	ESARU
Zhentu Liu	Procurement Specialist	Procurement	ESARU

Mirza Omer Baig	Financial Management Specialist (ADM Responsible)	Financial Management	ESAG1
Ahmad Imran Aslam	Environmental Specialist (ADM Responsible)	Environment	SSAEN
Imran-ul Haq	Social Specialist (ADM Responsible)	Social	SSAS1
Amna W. Mir	Team Member	Program Assistant	SACPK
Ayalew Kebede Belew	Team Member	Procurement	ESARU
Daisy Lopez Zita	Team Member	WFA	WFACS
Edward David James Nock	Team Member	OHS	ISAE1
Jean O Owino	Team Member	WFA	WFACS
Junko Funahashi	Counsel	Legal	LEGAS
Masood Ahmad	Team Member	Hydropower	SAEW3
Mohammad Omar Khalid	Team Member	Safeguards	SSAS1
Muhammad Ishaq Zahwal	Team Member	Financial Management	ESAG1
Patrice Claude Charles Caporossi	Team Member	Infrastructure Finance	IPGFG
Pranav Vaidya	Team Member	Gender	SSAS1
Shashank Shanker	Team Member	Infrastructure Finance	IPGFG
Tamar Morchiladze	Counsel	Legal	LEGAS
Vaqar Zakaria	Team Member	Biodiversity	ISAE1

Extended Team

Name	Title	Organization	Location

I. BACKGROUND AND RATIONALE FOR ADDITIONAL FINANCING

A. Introduction

1. **This Project Paper seeks the approval of Executive Directors to provide a second additional financing (AF) in the equivalent amount of US$1 billion to the Islamic Republic of Pakistan for the Dasu Hydropower Stage I (DHP-I) Project** (P121507; the Project). This AF was envisaged under the initial financing plan for the Project and will address a financing gap for construction costs for the hydropower facilities implemented by the Water and Power Development Authority (WAPDA). The proposed Second Additional Financing (AF-2) would be in three parts: (i) an IDA Performance-based Allocation Shorter Maturity Loan (PBA-SML) of US$435 million; (ii) an IDA Regular Scale-Up Window (SUW) credit of US$365 million; and (iii) an IBRD Loan of US$200 million. AF-2 includes an extension of the closing date of DHP-I (including the IDA Partial Credit Guarantee, P150756) to December 31, 2028. This extension will enable the completion of all ongoing activities under DHP-I, the possible use of the remaining US$250 million of the guarantee to raise additional commercial financing for the Project, and, ultimately, the achievement of the Project Development Objective (PDO). The restructuring does not include new activities. The PDO and components remain unchanged.

2. **The Dasu Hydropower Project (DHP) will have transformative positive impacts on the financial and environmental sustainability of the energy sector in Pakistan.** DHP utilizes one of the best hydropower sites in the world. With a very small footprint, the completed DHP will add at least 4,320[1] megawatts (MW) of renewable energy to green the Pakistani energy sector and lower the average electricity cost. DHP is being developed in stages. DHP-I, which is currently being developed, will have 2,160 MW capacity. DHP-I could save Pakistan an estimated US$1.8 billion annually, by replacing imported natural gas and offset around 5 million tons (t) of carbon dioxide (CO_2). The Dasu Hydropower Stage II Project (DHP-II) will add 2,160–3,240 MW from the same dam at a low cost. The fully completed DHP will offset over 8 million tCO_2. The annual economic benefit from DHP is estimated to be in the range of US$3–3.4 billion. The economic return for Pakistan from DHP-I remains significant at around 28 percent. Although there is a small increase in the cost and delay in completion of DHP-I, the cost of thermal generation that DHP-I will offset has also increased over the years.

3. **To address the high cost of electricity generation and inhibit the sector's circular debt build-up, the Government of Pakistan (GoP) has pledged to increase the share of hydropower and other renewable energy.** The GoP has adopted the Indicative Generation Capacity Expansion Plan (IGCEP), which aims to reverse the current dependence on fossil fuel and provide up to 60 percent electricity from renewable energy by 2031. DHP-I is part of IGCEP, is well aligned with the government's National Electricity Policy of 2021, and is a priority project for the GoP. The current average cost of electricity generation in Pakistan is US Cents 8.5/kilowatt hour (kWh) (2023). Once fully completed, DHP will replace thermal power and generate around 15 percent of the electricity supplied at an expected cost of US Cents 3/kWh, making it easier for the GoP to meet cost recovery and move the sector towards financial viability.

4. **DHP-I has been essential for WAPDA's institutional capacity building and ability to leverage private capital.** After nearly a decade of pause in new hydropower projects, WAPDA has regained invaluable experience by developing the Bank-financed DHP-I and Tarbela Fourth and Fifth Hydropower Extension Projects (P115893). Large international contractors are working for WAPDA; international

[1] The recent optimization by WAPDA and its engineers indicates that 5,400 MW is the optimal size for the full DHP. WAPDA will decide on increasing capacity of DHP during DHP Stage II.

consulting firms are assisting in construction supervision and project management; and remarkably, WAPDA has mobilized commercial financing in tandem with concessional financing from the Bank and other multilateral financing institutions for its large capital investment program. In DHP-I, WAPDA will mobilize up to US$1.10 equivalent in local and foreign currency from commercial lenders for every dollar financed by the Bank (Private Capital Mobilization is expected to be US$2,278 million at the completion of the project). The experience of managing construction, social, environmental, and financing challenges in DHP-I will help WAPDA in continuing the development of the large hydropower potential in the Indus River.

5. **This AF-2 was envisaged at appraisal of DHP-I in 2014.** DHP-I is a very large investment with long gestation and was planned in stages. The original IDA credit of US$588.4 million, focusing on preparatory works and environmental and social management for DHP-I, was approved by the Board of Directors on June 10, 2014, together with a partial credit guarantee (PCG) of US$460 million for starting up the main construction works of DHP-I.[2] The first AF of US$700 million from IBRD was approved on March 31, 2020, for the Dasu Transmission Line (TL) to be implemented by the National Transmission and Despatch Company (NTDC). The parent project in 2014 laid out an innovative financing strategy which envisaged a mix of IDA and commercial financing in a phased manner, adjusting the share of IDA and/or IBRD-financing based on the availability of commercial financing and the pace of implementation. In Pakistan's current macroeconomic environment, WAPDA's ability to mobilize additional foreign commercial financing is limited in the near term, thus it is seeking additional IDA and IBRD financing to complete DHP-I[3].

B. Country Context

6. **While there has been recent progress towards macroeconomic stabilization, risks remain high and faster growth will require substantial reform.** Real gross domestic product (GDP) growth contracted by 0.2 percent y-o-y in fiscal year (FY) 23. Accumulated economic imbalances, including high fiscal deficits and increasing debt, depleted Pakistan's buffers resulting in high vulnerability to shocks like the catastrophic floods in 2022, increasing world commodity prices, and tight global financing conditions. Repeated delays in implementing the International Monetary Fund (IMF) Extended Fund Facility (EFF) program and the associated decline in external financing inflows saw foreign reserves fall to critically low levels, amid high inflation and sharp depreciation. Following the expiry of the incomplete EFF program, a nine-month Stand-By Arrangement (SBA) was approved by the IMF, with the IMF Board approving the final review in April 2024. Under the SBA, exchange rate flexibility was restored, import controls were eased with some recovery in foreign exchange reserves, and new measures were introduced to contain the budgeted FY24 deficit. Nonetheless, risks remain high. Short-term stability depends on continued fiscal restraint and new external financing inflows. A new IMF program is currently being negotiated to support continued sound economic management, new official inflows, and structural reforms. Robust economic recovery over the medium term will require the steadfast implementation of much broader fiscal and economic reforms.

7. **Poverty reduction has slowed amid recent shocks, while growth has remained volatile and slow.** Pakistan made significant progress towards reducing poverty between 2001 and 2018 with the expansion of off-farm economic opportunities and increased inflow of remittances. However, rapid poverty reduction has not fully translated into improved socio-economic conditions, as human capital outcomes have

[2] The IDA guarantee support was approved under P150756 and G-2240 as part of DHP-I (P121507).
[3] The IDA credit under the parent project is fully committed and expected to be utilized by early 2025. Disbursement of the US$700 million IBRD loan stands at 16 percent and committed to finance the transmission line implemented by NTDC. This IBRD loan is not available for WAPDA for the hydropower component.

remained poor, with high levels of child stunting at 40 percent and learning poverty at 78 percent. Critical constraints—including persistent fiscal and current account deficits, protectionist trade policies, unproductive agriculture, a difficult business environment, a heavy state presence in the economy, and recurrent financial deficits in the energy sector—have led to slow and volatile growth. Progress with poverty reduction has recently slowed amid macroeconomic instability, the COVID-19 pandemic, and the 2022 catastrophic floods. The lower-middle income poverty rate is estimated at 40.1 percent (US$3.65/day 2017 purchasing power parity) for the year 2023/24, virtually the same as the poverty rate in 2018, with 7 million more Pakistanis living below the poverty line.

C. Sectoral and Institutional Context

8. **Pakistan's energy sector suffers from multiple challenges in achieving the Sustainable Development Goal of affordable, reliable, sustainable, and modern energy for all (SDG7**). Key challenges are: (i) high cost of electricity generation driven by high country risk premium for investments, over-dependence on fossil fuels, and fixed capacity payments; (ii) growing fiscal deficits due to energy prices that do not reflect costs, misaligned subsidies, and the poor performance and inefficiencies of the electricity and gas distribution companies; (iii) electricity and gas supply interruptions that stem from electricity transmission bottlenecks, aging equipment, and managed load-shedding of electricity and gas for commercial reasons; and (iv) persistent gaps in energy access, with significant rural-urban and regional disparities.

9. **These structural issues, together with poor planning, have resulted in lack of reliability of electricity and gas supply, as well as in the accumulation of large financial deficits of the sector, referred to as "circular debt".** Pakistan has the highest level of energy subsidies in South Asia, accounting for 2.6 percent of the country's GDP in 2020, two-thirds of which were for electricity consumption, and the rest for natural gas. Despite recent increases, the notified tariff continues to be below the cost recovery level, and 62 percent of residential consumers as well as all agriculture consumers remain subsidized (down from more than 90 percent a few years back). While tariffs don't cover costs, the state-owned electricity and gas distribution companies suffer from operational and technical losses. The result is that revenue collection does not cover the cost of energy supply.

10. **The circular debt has continued to accumulate, albeit having slowed in FY23. At the end of January 2024, it stood at US$9.48 billion (2.8 percent of GDP) in the electricity sector and US$8.6 billion in the gas sector (2.5 percent of GDP), creating barriers to future investment**. Large accumulations started in 2018 with addition of large, imported coal and imported gas power plants with "take-or-pay" contracts that have increased capacity payments by 50 percent and increased the country's exposure to international fossil fuel price volatility—as witnessed in 2022. The impact of persistent circular debt is a lack of investment in the energy sector, the inability of both sectors to operate at full capacity due to fuel shortages, and the difficulty of attracting investors to support future sector needs. The GoP has engaged in comprehensive sector reforms to contain and eventually stop the accumulation of circular debt.

11. **The proposed AF contributes to the Results Area 1: Energy under the Country Partnership Strategy (CPS).** The Project is consistent with the CPS FY15–19 (Report No. 84645-PK) discussed by the WB Board of Executive Directors on May 1, 2014, extended to FY20 under the corresponding May 2017 Performance and Learning Review (Report No. 113574), whose objectives remain relevant. The Project contributes to Outcome 1.1: *Reduced Load Shedding*. The CPS recognizes that the sector's circular debt contributes to load-shedding in the country. DHP-I will supply 12,225 GWh of electricity to reduce load-shedding. The Project also contributes to Outcome 1.2: *Reduced Cost of Electricity Production*. A new Country Partnership Framework (CPF) for a period between FY25-35 will be presented to the Board in September 2024.

D. Parent Project Description and Status

12. **DHP is a run-of-river hydropower generation project located on the Indus River.** Besides increasing Pakistan's clean and cheap hydropower capacity, the Project would also improve access to socio-economic services for local communities in the project area and build WAPDA's capacity to prepare future hydropower projects. It is located about 8 km from Dasu Town, the capital of the Upper Kohistan District of Khyber Pakhtunkhwa Province, and about 350 km from Islamabad. The installed capacity of DHP, which will be between 4,320–5,400 MW when completed, is being developed in stages. DHP-I will generate 12,225 GWh/year. DHP-II will add 9,260–11,400 GWh of electricity per year and is expected to be initiated when DHP-I nears completion.[4] DHP-I includes the main dam, powerhouse, electro-mechanical equipment, TL, ancillary works, land and resettlement costs, social and environmental management plans, project supervision, project management, and technical assistance. The construction of hydropower generation facilities (hydropower component) is implemented by WAPDA. The TL to connect DHP to the national grid (transmission component) is under NTDC.

13. **In addition to the IDA credit provided in 2014 and AF for the TL in 2020, a total of US$350 million and PKR 144 billion were raised from commercial banks for the hydropower component.** Utilizing US$210 million of the IDA PCG (G-2510), US$350 million was raised by WAPDA from Credit Suisse in 2017 for the construction costs of the hydropower main dam and powerhouse. Through the broad commitment to the Project, WAPDA raised PKR 144 billion in 2017 from local banks (US$1,400 million equivalent at the time). WAPDA raised the PKR loan without using IDA PCG. The remaining US$250 million of IDA PCG support will be utilized when market conditions are more conducive to raising commercial financing. As of December 31, 2023, a total equivalent of US$1,190 million has been utilized in DHP-I from all financing sources.

14. **DHP-I is a high-risk, high-reward Project. Some risks identified initially have unfortunately materialized, and despite the extensive preparation and studies, the Project was delayed for about seven years mainly due to three reasons:**

a. The securing of commercial foreign currency financing using the PCG took longer than expected, and the initial plan of undertaking procurement of the two large main works contracts (Main Hydraulic Infrastructure and Powerhouse) in parallel was not possible as contractors were reluctant to bid before financing was secured. Due to the large contract amounts, the procurement process was elaborate and extensive. Prequalification conferences and roadshows helped attract competent contractors and all major contracts were awarded at lower amounts than initial estimates. However, main contracts could not awarded until 2017, delaying the start of major works by more than two years.

b. Other delays were due to land acquisition and difficulties in working in the mountainous terrain, requiring major redesign. Land acquisition of large parts of privately-owned land required decisions by the Pakistan Federal Cabinet twice (in 2015 for original land compensation rates, and in 2019 for a rate adjustment). Consequently, land for the construction footprint only became available in early 2020. These technical and land acquisition problems have added about three to four years of delay.

[4] DHP-I has two power tunnels and six power units of 360 MW each. DHP-II will add two or three power tunnels, each adding 1,080 MW of capacity (with 3x360 MW power units). Some works of DHP-II, such as intakes, are being undertaken during DHP-I as they will be difficult to construct when DHP-I is operational. Construction for DHP-II will cover the powerhouse and waterways for two to three remaining tunnels and electro-mechanical equipment. Works for DHP-II are currently planned to start in 2026/27.

c. External factors including COVID-19, security issues, and extreme floods in 2022 have created disruptions to the construction activities, further delaying Project implementation.

15. **During the last years, the progress of DHP-I has improved significantly, major technical and social risks have been managed, and the path to Project completion is now open.** The land and revised designs for the hydropower component are available. All design changes have been reviewed and advised by the International Panel of Experts (IPOE). The Project implementation schedule has been revised and agreed between WAPDA, the Dasu Hydropower Consultant (DHC) as the Supervision Engineer, and the contractors. All major contracts (16 large works contracts), with a combined value of over US$4.1 billion equivalent, are under implementation. The diversion of the Indus River was achieved on February 18, 2023, taking the Project to the next phase. All Project start-up processes are complete. The first units are scheduled to be commissioned in FY27, seven years later than anticipated at appraisal of the Project.

16. **Despite the delays and variation orders (VOs), the total cost of the hydropower component will be about US$4,149.4 million**, **which is only +6.5 percent higher than the cost of US$3,897.7 million estimated at appraisal in 2014.** The estimated cost for the TL for evacuation of power has reduced and stands at US$706.0 million compared to US$797.1 million estimated during appraisal of the first AF in 2020. The total updated cost of DHP-I is US$4,855.4 million.

17. **The Project's progress towards achievement of the PDO is "Satisfactory"** as the construction of DHP-I's 2,160 MW is progressing well and will provide sizeable economic benefits for Pakistan. The overall Implementation Progress of the Project has been "Moderately Satisfactory" for the last three years after the major land acquisitions and procurements were completed. All the legal covenants that were due are complied with. The Financial Management (FM) and Procurement ratings are "Satisfactory". The Project remained compliant with the submission of acceptable audited financial statements and Interim Unaudited Financial Reports (IUFRs) to the Bank.

18. **The Overall Safeguards rating is "Moderately Satisfactory".** As expected for such a large infrastructure project, especially in a region with low socio-economic development and difficult geographic terrain, implementation of environmental and social (E&S) management plans has been challenging. WAPDA, supported by the DHC and the Bank team, has worked actively to address the safeguards challenges, applying adaptive management, and improving the E&S management plans while ensuring that these refinements remain within the principles agreed at the appraisal of the Project. AF-2 is prepared in accordance with the *Bank Procedure for Additional Financing for Investment Project Financing applying the World Bank Safeguards Policies (OPS5.03-PROC.231)* as the sole purpose of AF-2 is to address the financing gap in the ongoing contracts of DHP-I.

19. **WAPDA has effectively used adaptive management to resolve issues and to receive cooperation from local communities on resettlement and other social development initiatives while ensuring that the approach remains aligned with the scope of the approved SRMP.** WAPDA and the DHC have conducted a thorough review of the implementation of the E&S management plans so far, which is informing the continued execution of the Project. The due diligence reports on performance of the Social and Resettlement Management Plant (SRMP), the Environmental Management and Action Plan (EMAP), and the Occupational Health and Safety Management Plan (OHSMP) confirm that the challenges have been addressed. The Project has used adaptive management to accommodate changing site realities and address unforeseen natural events, community concerns, and Occupational Health and Safety (OHS) issues. It has maintained flexible and responsive strategies and adjusted to lessons learned throughout the Project lifecycle. A compensation package, which was determined through consultation and consensus with

project affected people, for land and other assets acquired has proven to be vital for resolving Project bottlenecks. For resettlement, affected people had two options: (i) relocation to Resettlement Villages (RVs) which are at higher elevation in Upper Kohistan but still in the vicinity of their old communities; and Self-Managed Relocation (SMR) compensation. Resettlement has no adverse impact on the livelihood of the affected people. WAPDA is continuously pursuing local area/community development and public health services as part of benefit-sharing programs. Several soft interventions such as scholarships and trainings have also played a key role. The Grievance Redress Mechanism (GRM) was adjusted to better align with local practices and culture, which has proven to be successful.

20. **The OHS challenges encountered in the Project during the first years of construction necessitated WAPDA to significantly improve the Project's capacity to manage OHS—a process that is continuously being pursued.** The importance of clear, comprehensive OHS policies and robust communication strategies was underscored and are ingrained in the planning documents. Regular updates and capacity-building initiatives are keeping the workforce informed and enhancing team competence in handling OHS matters. Stakeholder engagement and feedback mechanisms are continually improving OHS practices.

21. **The Project has already had a profound impact on the socio-economic conditions of the people in the Project area. It has disbursed US$185 million equivalent as compensation for land, trees, crops, houses, and other assets and resettlement assistance; and more than 3,000 local people are directly employed by the Project.** As shown by socio-economic surveys conducted for the SRMP by the independent monitoring and evaluation (M&E) consultant, quality of life and people's living standards have improved in comparison to the ex-ante conditions. New services and secondary industries are now common in the Project area. The socio-economic indicators are higher than before the Project and compared to adjacent areas. Adult literacy increased 30 percent since 2012, boys' schooling has increased by 16 percent, and girls' schooling by 70 percent. Project-affected households that have been relocated enroll 100 percent of the boys and 98 percent of the girls in schools, compared to 83 percent and 35 percent, respectively, for other households in the area. Household possessions have increased by 109 percent, and "pukka" houses (permanent and solid houses) have increased by 65 percent. The monthly average incomes of households have doubled. With increased awareness, less travel costs, and improved transport, visits to health facilities have also increased. Notably, gynecological consultations, which were previously almost non-existent in the very conservative communities of Dasu and Upper Kohistan, have substantially increased. The survey shows increase in food security and higher protein diets after the Project started.

E. Rationale for the Second Additional Financing

22. **The proposed AF-2 addresses a financing gap for the foreign currency expenditures in the hydropower component of DHP-I.** The first AF of US$700 million was approved in March 2020 to finance the transmission line component implemented by NTDC. These two AFs are consistent with the financing strategy for the Project, which was endorsed by the Board of Executive Directors in 2014. Since then, the need for additional financing from the Bank has actually reduced because WAPDA has been able to mobilize local PKR funding from domestic banks without any guarantee from the World Bank. However, the need for additional foreign currency financing from the Bank has materialized due to difficulties in raising commercial foreign financing in the present macroeconomic situation of Pakistan.

23. **In light of the current macroeconomic situation of the country and financing requirements of the Project, the financing plan in AF-2 is adjusted to manage foreign and domestic currency requirements without significantly changing the shares of concessional and commercial financing.** The PKR cost would

be financed from local loans mobilized by WAPDA/GoP and WAPDA equity, while World Bank financing would be used primarily for the foreign currency costs. Commercial financing will be approximately 50 percent of total cost of DHP-I. The projected costs for the hydropower component of the Project are provided in Table 1, which shows cost and funding requirements separately in PKR and US$ as each would be met from different sources. The projected cost of the hydropower component is estimated to be US$4,149.4 million as compared to the estimated cost of US$3,897.7 million in 2014. The projected cost includes contingencies that are estimated based on provisional sums and escalations provided in the ongoing contracts. The difference is due to cost increases in the preparatory works, primarily the relocation of Karakoram Highway (KKH). There is also a cost increase in supervision consultancy due to the prolonged duration of the Project. The cost increases in these components are offset to a large extent by savings in the other components, particularly in electro-mechanical works and in land acquisition.

Table 1: Projected Cost of Hydropower Component of DHP-I[5,6]

Hydropower Component by WAPDA	Appraised in 2014 US$ million	Projected Cost				
		PKR billion	US$ millon	Total US$ Equivalent million	Change Increase or Decrease(-) US$ million	% Change
A. Main Structure	1,479.7	**136.8**	**988.3**	**1,485.3**	5.58	0.4%
B. Power Generation Facilities						
B.1. Powerhouse civil works, intake, pressure tunnel, underground substation, etc.	755.4	**79.5**	**464.4**	**746.5**	(8.95)	-1.2%
B.2. Turbine, generation, and related equipment	642.4	51.90	338.00	502.90	(139.50)	-21.7%
Sub-total B	**1,397.8**	**131.4**	**802.4**	**1,249.4**	**(148.4)**	-10.6%
Sub-total A+B	**2,877.5**	**268.2**	**1,790.7**	**2,734.6**	**(142.87)**	-5.0%
C. Preparatory and Other Works	**344.8**	**118.77**	**332.52**	**797.36**	**452.56**	131.3%
D. Transmission Line is implemented by NTDC and discussed seperately					-	
E. Implementation of SRMP and EMAP, Dam Monitoring	**503.9**	**56.5**	**123.8**	**361.4**	**(142.48)**	-28.3%
F. Consultancies for Supervision and Monitoring	99.1	12.3	119.0	224.7	125.61	126.8%
G. Project Management, Technical Assistance, Trainings	72.4	6.5	8.0	31.2	(41.19)	-56.9%
Sub-total E to G	**675.4**	**75.3**	**250.8**	**617.3**	**(58.1)**	-8.6%
Total	**3,897.7**	**462.3**	**2,374.1**	**4,149.4**	**251.6**	6.5%

24. **The Project is estimated to need about PKR 462.3 billion and US$2,374.1 million for completion (Table 2).** Of the US$588.4 million provided under the parent IDA credits, about US$91 million has been "lost" due to changes in the SDR/US$ exchange rate, so only US$498 million is currently available for use. From the Credit Suisse loan of US$350 million, about US$338.5 million remains available for use for the Project (after upfront fees). The total funds available to finance the foreign currency cost is therefore US$836.5 million, bringing that to US$1,836.5 million with the proposed AF-2. This, combined with PKR financing already arranged by WAPDA, would be sufficient to meet the construction requirements for the next three years up to mid-2027. The remaining estimated foreign currency financing of US$537.6 million will need to be filled in the future by: (i) mobilizing a foreign currency loan of about US$400 million using the existing IDA PCG of US$250 million (once Pakistan's credit rating improves and macroeconomic

[5] This does not include the cost of the TL component implemented by NTDC, which explains the difference in costs compared to the total costs provided for the full Project in the Data Sheet. Since the transmission line is implemented by NTDC under separate legal agreements, the funds are not fungible between the hydropower and transmission components.

[6] US$ equivalent is based on historical exchange rates for the incurred expenditures and projected exchange rates for forecasted expenditures.

conditions allow); and (ii) a possible export credit agency-backed loan for the equipment. If commercial financing cannot be mobilized due to Pakistan's macroeconomic situation, the options to meet the remaining financing requirements would be: (i) an additional IBRD loan depending upon the country situation, or equivalent from other MDBs; or, possibly as a last resort, (ii) additional IDA support (to be determined in late 2026 or 2027). Adequate PKR funds are available for the next two years from the existing PKR loan and WAPDA equity. However, it is estimated that WAPDA would have to raise another PKR loan of about PKR 267.3 billion (US$991.6 equivalent). The PKR requirements have increased primarily because of high escalations stipulated in works contracts and depreciation of PKR against US$.

Table 2: Sequential Financing of Foreign and Local Currency Expenditures in DHP-I

Financing Requirements and Source of Funding for the Hydropower Component	
	US$ million
Foreign Currency Financing Requirement	**2,374.1**
IDA Credits 54980 and 54970 from Parent Project (2014)	498
Credit Suisse loan backed by IDA PCG of US$210 million from Parent Project (2014)	338.5
Proposed IDA credits and IBRD loan in AF-2 (2024)	1,000
Remaining financing requirement after AF-2 (2024)	537.6
Expected commercial loan backed by IDA PCG of US$250 million from Parent Project	400
Expected from export credit agency loan	137.6
	PKR billion
Local Currency Financing Requirement	**462.3**
Habib Bank Limited (HBL) led local bank consortium loan so far	144
WAPDA equity contribution so far	16
Remaining local currency financing requirement	302.3
Expected future WAPDA equity	35
Expected unguaranteed local currency loan	267.3

25. **IDA Regular SUW financing of US$365 million is included in AF-2 for the transformational DHP-I.** The Project is relevant in the current fiscal context of Pakistan as it will directly reduce the circular debt in the power sector. It is fully aligned with Green, Resilient and Inclusive Development (GRID) approach outlined in IDA20 and contributes to the IDA20 policy commitments on climate change and human capital. Clean energy from the Project helps mitigate climate change. Additionally, the Project has and will continue to improve the fragile situation in Upper-Kohistan, bringing public and private services to its communities. It is also creating employment opportunities for both men and women, and improving human capital through enhanced education and health services.

26. **Regular SUW resources for the Project would have little impact on Pakistan's overall debt risks** as : (i) the amount of Regular SUW (US365 million) is only 0.3 percent of Pakistan's total external debt of ~US$124 billion; (ii) the envisaged Regular SUW terms for the AF-2 would represent low-cost financing compared to commercial and other non-concessional resources; (iii) the long-term amortization of Regular SUW resources means that debt repayments would fall beyond the current period of elevated debt risks, with total debt ratios and external financing needs expected to stabilize over the medium term. Pakistan is in a difficult debt situation with high risks to debt sustainability, but these are mainly due to large upcoming commercial debt maturities. The country is also complying with the IDA Sustainable

Development Finance Policy and the IMF Debt Limits Policy. The ongoing IMF SBA is on track, with the final review which reached staff level agreement in March 2024. New international financing and inflows are expected, and large lenders have provided assurance to roll over maturing debt.

II. DESCRIPTION OF ADDITIONAL FINANCING

A. Description of Activities under AF-2

27. **AF-2 is designed to ensure no disruptions in works that are on the critical path for commissioning the power supply and will support the hydropower components of DHP-I.** It covers all activities under Components A, B, C, E, F, and G of the Project, i.e., the hydropower component.[7]

a. **Component A: Construction of the Main Hydraulic Structure on the Indus River (original cost US$1,479.7 million, updated cost US$1,485.3 million).** This component consists of the civil works for the main dam structure on the Indus River to raise the water level and thus create energy for running the power generating turbines and generators. A spillway would be built in the main hydraulic structure to pass the floods. Nine low level outlets will be built in the main structure and flushing tunnels will be built to flush the sediment coming from upstream, which may be deposited in the reservoir. The main dam structure would be constructed with roller compacted concrete (RCC).

b. **Component B: Power Generation Facilities (original cost US$1,397.8 million, updated cost US$1,249.4 million).** Civil works for the power generation facilities, including head race tunnels, powerhouse, tailrace tunnels, and associated infrastructure such as gates and other control structures are in Component B. Turbines, generations, and electro-mechanical equipment are also in this Component. Under DHP-I, waterways and powerhouse would be completed and equipment would be installed for a generation capacity of 2,160 MW—six units of 360 MW each.

c. **Component C: Preparatory Works (original cost US$344.8 million, updated cost US$797.4 million).** This comprises access roads, KKH relocation, construction of 132 kilovolt (kV) TL from Dubair to Dasu for construction power, project colony, offices, and on-site housing.

d. **Component E: Implementation of Social and Environmental Management Plans, and Glacial, Sediment River Monitoring (original cost US$503.9 million, updated cost US$361.4 million).** SRMP to address: (i) compensation for lost assets, resettlement; (ii) livelihood restoration and public health for the population affected by the Project infrastructure; and (iii) programs on gender and local area development in Kohistan. EMAP to address all construction-related environmental issues, indirect and cumulative impacts, development and implementation of programs for ecological conservation, fisheries and forestry management, and costs associated with monitoring and supervision of EMAP implementation. Component E also includes flood warning system, watershed, sediment, and river monitoring.

e. **Component F: Construction Supervision, Monitoring and Evaluation of the Project Impacts and Social and Environmental Management Plans (original cost US$99.1 million, updated cost US$224.7 million).** Construction supervision and support for Project implementation. It will cover procurement, contract administration, quality control, certification of payments, FM, preparation of any additional

[7] Component D comprises the 765 kV line for evacuation of the generated electricity implemented by the NTDC and is not supported by AF-2. The US$700 IBRD AF that was approved in March 2020 is covering this component.

designs, and bidding documents. Component F also finances M&E of the Project impacts and implementation of SRMP and EMAP.

f. **Component G: Project Management Support, Capacity Building of WAPDA, Technical Assistance and Training (original cost US$72.4 million, updated cost US$31.2 million).** Support for operation of the Project Management Unit, capacity building, incremental operating cost, and audits. Component G also includes institutional capacity building of WAPDA, IPOE, technical assistance, future project preparation, and strategic studies.

B. Changes to PDO, Results Frameworks, and Closing Date

28. **There will be no changes to the PDO or Project components.** The costs of the different components are updated as per the latest estimates. The results framework has been revised to incorporate indicators from the World Bank Group Corporate Scorecard FY24-30 and to update the targets and end target dates.

29. **The closing date for DHP-I will be extended to December 31, 2028.** With anticipated commissioning of DHP-I by 2027, it is recommended to have at least one year for closing the Defect Liability Period for the main contracts and to ensure all FM, contractual, and E&S obligations are met.

30. **There are no modifications to the institutional arrangements. Procurement and fiduciary management will continue to be under the responsibility of WAPDA for the hydropower component. There are no changes to the FM arrangements.** AF-2 funds will be disbursed under one disbursement category covering Components A, B, C, E, F, and G. AF-2 will finance eligible goods, works, consultants' services, training and workshops, and operating costs.

III. KEY RISKS

31. **The overall risk rating for the Project is High**.

32. **Political and Governance risk: Substantial.** While the GoP has demonstrated strong political commitment to the Project, sustained through several election cycles, the Project requires coordination across several layers of government. To manage cooperation from local governments and agencies, the Project has been receiving support through a high-level Project Steering Committee (PSC), with strong leadership representation from the federal and provincial governments. The PSC will continue to play an important role in making key high-level decisions and in ensuring that these decisions are implemented by the local governments and WAPDA.

33. **Macroeconomic risk: High.** The government continues to face a difficult macroeconomic situation, exacerbated by the 2022 floods. Significant risks include potential worsening of external conditions, further natural disasters, and a slowdown or reversals in much needed policy adjustments, particularly in the fiscal area. The credit rating of Pakistan affects WAPDA's ability to raise international commercial financing. Risks are partly mitigated by the World Bank support to ongoing fiscal and energy reforms, including continued technical assistance, as well as the IMF program and the IMF's engagement on critical structural reforms. However, if the poor macroeconomic situation of the country inhibits WAPDA's ability to raise commercial financing, alternative sources of financing, including additional financing from the World Bank or from other IFIs, will be necessary to meet the remaining financing requirements to complete the Project.

34. **Sector Strategies and Policies risk: Substantial.** While the Project is well aligned with the sector's strategy and policies, the prevailing circular debt in the sector may delay the payments to WAPDA for

power supply from the Central Power Purchasing Agency, the single buyer of electricity from large projects in Pakistan. Such delays will constrain WAPDA's ability to provide equity to the Project. Partially mitigating this risk is the engagement by the World Bank, the IMF, and the Asian Development Bank on improving the financial performance of the power and gas sectors in the country, with particular focus on performance of the distribution companies.

35. **Institutional Capacity for Implementation and Sustainability risk: High.** The decision-making process in the Project, involving government stakeholders at federal, provincial, and district level, can cause delays in implementing key project actions, that are important for implementation progress. This risk is addressed by proactive monitoring of key project actions by WAPDA leadership and PSC. Experience so far has shown that PSC has been effective in addressing government decision-making bottlenecks. Recent incidents, including tragic loss of life, highlight the security challenges of project implementation. The GoP and WAPDA are implementing a comprehensive security plan[8] that focuses on the protection of Project workers and assets which is being closely monitored.

36. **Fiduciary risk: Substantial.** At this stage, all major contracts have been signed, including contracts for the main civil and electro-mechanical works, and land for the hydropower component is fully acquired. However, risk of delays due to long processing of claims and disputes remains under these contracts. The activities to expedite processing of VOs and time extensions, strengthen the capacity of WAPDA to mitigate governance challenges, and improve contract management capacity will be continued. WAPDA is currently hiring an international consulting firm for its institutional assessment and reform, which will cover procurement and contract management procedures and practices.

37. **Environment and Social risk: High**. While the land acquisition process was successfully completed under the project, risks arise from labor influx, negative construction impacts, hazardous terrain and working conditions, right-of-way and land needed for Dasu TL, and the intersection of provincial, district, and traditional forms of governance. Comprehensive mitigation measures are included in the safeguard documents, including OHSMP, and WAPDA and the DHC are using adaptive management to address challenges and changes in the circumstances for E&S issues.

38. **Stakeholder risk: Substantial.** Stakeholder risk is mainly due to interruptions of works by the local communities due to requests for work opportunities. WAPDA is in regular contact with local communities, through consultations and discussions in the *jirgas*, as well as with other local stakeholders, ensuring that communication is open and transparent and that decisions are implemented. The World Bank team will continue to provide enhanced supervision and raise issues at the highest levels of provincial and federal government and functionaries to support the implementing agencies to resolve the issues. The Project's GRM and communication plan also help in mitigating stakeholder risk.

IV. APPRAISAL SUMMARY

A. Economic and Financial Analysis

39. **The economic analysis at the time of appraisal showed the Project to be cost-effective with a baseline economic rate of return (ERR) of 25 percent against the avoided higher cost of thermal**

[8] The security plan includes Standard Operating Procedures for all works, transports to Dasu and in between work areas, and protection of camps, work sites, and offices. It includes roles and responsibilities of security staffs, WAPDA, and contractors, as well as required code of conduct, education, and trainings of security staffs.

generation.[9] The sensitivity analysis undertaken for the Project accounted for various plausible risks such as construction delays, cost overruns, reduction in world oil prices, and delays in the Project operation.

40. **The ERR of DHP-I is not significantly affected by the additional cost and expected delays (Table 3).** The increase in cost of thermal generation, particularly the cost of Regasified Liquified Natural Gas (RLNG), counterbalances the slight increase in cost and delay; and the updated economic analysis shows a return of around 25 percent without any positive externalities and 28 percent with local and global environmental benefits from DHP-I. The returns on DHP-I and DHP-II, assessed together, increases to 26 percent and 29 percent, without and with positive externalities. The levelized cost of electricity from DHP-I and DHP-II are US Cents 2.1/kWh and 1.7/kWh, respectively, compared to levelized cost of RLNG at US Cents 14–15/kWh.[10]

41. **The inexpensive electricity from DHP-I will continue to keep the average WAPDA tariff low.** The energy output from DHP-I is 12,225 GWh annually. The actual tariff for DHP-I can be only calculated when the remaining financing requirements for foreign and domestic funds are met by WAPDA through loans and equity investment. The prevailing tariff framework allows WAPDA to recover the interest during construction and receive a return on equity during the construction phase to ensure debt servicing and reinvestment in the projects, including DHP-I. During the operation of DHP-I, the tariff framework allows WAPDA to generate revenue for debt servicing, operation and maintenance, and a modest return on equity. WAPDA's average tariff was around US Cents 1.85/kWh in 2022. Analysis of WAPDA's institutional financial planning reveals that the cost of DHP-I will only have a nominal impact on WAPDA's average tariff. Despite its large capital investment program, WAPDA's average tariff will remain below US Cent 3/kWh, which is significantly lower than the average cost of generation in Pakistan (US Cents 8.5/kWh in 2023). DHP-I is currently financed by the long tenure concessional credits from IDA along with the short tenure international and domestic commercial debts. With the proposed AF-2—of US$ 1 billion, comprising IDA SML and Regular SUW credits and an IBRD loan, and subsequent commercial debt that will be raised by WAPDA, the financing mix for DHP-I will continue to be balanced with concessional and commercial funds. The low tariff from DHP-I will not only contribute to WAPDA's financial sustainability but also lower the overall cost of generation in Pakistan.

42. **WAPDA's financial outlook is positive.** WAPDA is financially stable. Strategically, it is the most important state-owned enterprise in the Pakistani power sector. It is the country's largest hydropower supplier operating 9.4 gigawatts of hydropower capacity that represents over 23 percent of the nation's total dependable installed capacity. Underpinned by a well-established tariff framework, based on cost recovery with 95 percent of revenue calculated on the capacity availability, WAPDA's historic operating performance has been steady as it maintained stable earnings before interest, taxes, depreciation, and amortization (EBITDA) margins of 70–75 percent and is projected to maintain EBITDA margins of over 75 percent going forward. In May 2021, when Pakistan's macroeconomic situation was relatively stable,

[9] Discount rate of 5 percent is based on Bank Guidance on Discounting Costs and Benefits in Economic Analysis of World Bank Projects. The historic growth rate of GPD per capita in Pakistan is around 2.5 percent. Based on the Guidance, two times the growth rate is taken as the discount rate. Economic costs do not include taxes; and a Standard Conversion Factor of 0.9 for the PKR costs is used, consistent with analysis in the Parent Project.

[10] The methodology for benefit-cost analysis with temporal discounting has limitations in capturing the benefits of large infrastructure projects like DHP, where the construction period is long but energy output is large and for a long period. If DHP-II is assessed as a separate project starting in 2027, the returns from additional 9,260 GWh generated by DHP-II at economic cost of US$1.15 billion will be significantly higher. Experience also shows that hydropower plants continue to operate for over 70 years and generate benefits for electricity consumers and the country. For instance, hydropower plants that were built in the 1970s in the Tarbela Complex continue to deliver power with nominal operation and maintenance costs.

WAPDA successfully raised US$500 million through its inaugural 10-year, dollar-denominated Green Eurobond at a competitive rate of 7.5 percent. This signifies confidence among global investors on WAPDA's credit strength.

Table 3: Economic Analysis

	Dasu Hydropower Project Stage I - Economic Analysis			
1	Discount rate		5.0%	
2	Baseline cost of RLNG Generation	[US Cent/kWh]	14	
			Stage I	**Stage I and II**
3	Installed Capacity	[MW]	2160.0	4320.0
	Economic Rate of Return (ERR)			
4	**ERR**	%	**24.6%**	**25.9%**
5	ERR+local externalities	%	25.0%	26.2%
6	ERR+local+GHG@BankGuidanceValues	%	28.0%	29.3%
7	**Levelized Economic Cost of Generation**	**[US Cents/kWh]**	**2.1**	**1.7**
8	*Levelized Avoided Cost*	*[US Cents/kWh]*	*14.8*	15
	Costs			
9	Economic Capital Cost (2014-2028)	[US$m]	3192.7	
10	Economic Capital Cost (2028-2032)	[US$m]		1,155.0
11	Annual O&M	[US$m]	32	43
	Benefits		*Till 2057*	*Till 2062*
12	*Annual Energy Generation*	[GWh]	12,225	21,485
13	Average Annual Avoided Cost of Generation	[US$m]	1,840	3,083
	Net Present Value (NPV)		*Till 2057*	*Till 2062*
14	NPV (before environmental benefits)	[US$m]	12,824	22,229
15	NPV of local environmental benefits	[US$m]	691	1,427
16	environmental benefits	[US$m]	**4,962**	**8,193**
17	**Total NPV**		18,477	31,849
18	Lifetime Emissions Avoided	1,000 tons	144,404	277,077

Note: O&M = operation and maintenance.

43. **In the medium term, while WAPDA will have medium to high leverage to finance its large capital investment program, the risks will subside when the larger generation assets are commissioned from FY27 onwards.** WAPDA has a sizeable capital investment program for the next decade—of over US$10 billion—to double its generation capacity and is expected to finance it through a mix of government grant and concessional and commercial debt. The long-term debt-to-EBITDA ratio is expected to be between 5.7-6.0x for FY24–27 when several large projects are under construction and decline thereafter to 4.8x in FY30.

B. Technical Design

44. **All major technical designs have been completed; redesigns addressing the hydrological, geological, and OHS risks have also been completed, and an effective Project implementation arrangement with the DHC and IPOE supporting WAPDA on technical issues is in place.** Major changes had to be made to the river diversion scheme to: (i) increase the protection against floods for construction of dam foundation from 1.3 years return period flood to 5 years return period; and (ii) increase discharge

capacity of the diversion tunnels to address risks due to glacial debris flow in 2022 into the Indus River at the Project site. The redesign of the KKH has been completed and large VOs that were necessary to cover its redesigned scope have been issued. The original open-cut design of the relocated KKH was not possible due to steep slopes, the need for traffic management on the existing KKH, and higher standards of OHS applied under the Project. Revised designs consisting of tunnels and bridges have been completed; construction is proceeding and is being monitored carefully. The DHC has a comprehensive technical design team assigned to the Project, and the IPOE is actively engaged in design reviews.

45. The risks to the Project from climate change and natural disasters is addressed through technical engineering design of the hydropower and transmission components. The engineering designs assess the seismic risks and mitigate them. The impact of climate change in the hydrology of the Indus River cannot be accurately predicted; nonetheless, increase in snow melt and rainfall in the short to medium term will increase the electricity output from the Project. Flood risk is managed through design of the river diversion scheme and the main dam. Extremely high temperatures decrease the current carrying capacity of the conductors in the TL; however, Dasu TL is already designed for operation at 765 kV to reduce losses and increase electricity evacuation capacity. Landslides are common on the KKH and this may affect the Project during the construction period. Measures are in place to manage landslides, including cooperation with National Highway Authority for the main KKH and with contractors on the Project's access roads. The preparatory works, such as colonies and camps in the Project, and social schemes, such as schools, health facilities, and street lighting, use small solar photovoltaic systems and energy efficient design and materials to further adapt to and manage risks from climate change.

C. Financial Management

46. **The Project's FM arrangements are being implemented effectively and continue to provide assurance on the use of the Bank financing for the intended purposes.** Funds are being disbursed to the Project's DA seamlessly, FM staffing arrangements are adequate, and WAPDA is submitting acceptable financial reports (IUFRs and audit reports) to the Bank within the timelines stipulated in the legal agreements. There are no overdue audit reports or any ineligible expenditure with respect to the Project.

D. Procurement

47. **AF-2 will be used to address the financing gaps in existing contracts under the hydropower component of the Project without any change in scope and modifications to the institutional arrangements.** New procurements, if any, will follow the World Bank Procurement Regulations for Investment Project Financing Borrowers (July 2016, Revised September 2023). Despite the delays encountered, there is now a considerable potential to accelerate progress as the major contracts have been signed and the key works sites for the main dam and powerhouse are under the contractor's control. The procurement and contract management capacity of WAPDA has been improving. There is a need, however, to continue strengthening the capacity of WAPDA to mitigate residual governance risks and expedite Project implementation. A series of VOs and extension of time are expected to compensate the already occurred delays and design changes, which require proactive identification and timely processing. The DHC will continue to support WAPDA in procurement and contract management. DHC will also screen future procurements using red flags, that are similar to those used in INT investigations, and implement additional due diligence measures to mitigate fiduciary risks. In addition, WAPDA is hiring an Institutional Assessment and Reform Consultant to provide recommendations for improving WAPDA's internal processes, with a particular focus on procurement. The World Bank team is also providing additional support to the Project through procurement and contract amendment reviews.

E. Legal and Operational Policy

48. **OP 7.50 was triggered for the original Project as the Indus River system constitutes an international waterway as per the Policy.** The Bank notified the other riparian countries, Afghanistan, China, and India, on behalf of Pakistan, and the notification process was finalized in accordance with Bank policy. The Project does not cause appreciable harm to the riparian countries. The notification process carried out for the original Project remains valid for the activities financed under AF-2, since it covers a financing gap and the Project design has not changed.

F. Social

49. **The Project was categorized as A and AF-2 does not change the safeguard category. No new policy is triggered.** AF-2 is set for addressing financing gaps without any change in scope. The policies triggered when the Project originally went to the Board included OP/BP 4.01, Environmental Assessment; OP 4.04, Natural Habitats; OP 4.11, Physical Cultural Resources; OP 4.12, Involuntary Resettlement; OP 4.36, Forests; OP 4.37, Safety of Dams; and OP 7.50, Projects in International Waterways.

50. **The SRMP already prepared, reviewed, and cleared by the Bank remains applicable.** No new safeguard instruments have been prepared for AF-2 and adaptive management strategies adopted to overcome implementation challenges have been documented in the Mission Notes, Aide Memoires, and SRMP Due Diligence Report. After delays during initial years, implementation of the SRMP has gained momentum, now has well-established institutional arrangements on the ground, and shows good implementation progress. Deploying and maintaining a strong Social and Resettlement (S&R) team of about 150 staff is one of the key reasons for progress made on the SRMP. Benefit sharing through Local Areas Development Plans (LADPs) and Public Health Action Plans (PHAPs) included in the SRMP were initially being designed and supervised by the DHC. Now a new consulting firm has been hired to provide dedicated support to design and implement the LADPs and PHAPs. An independent M&E firm also has all social staff onboard led by an experienced international S&R team lead.

51. **Land acquisition has been completed and resettlement is proceeding well.** Land acquisition for the main dam, reservoir, KKH, Right-bank Access Road (RAR), and other preparatory works has been completed and a total of 5,031 acres of land has been acquired. Undisputed compensation has been disbursed to the Project-affected people. Resettlement has also accelerated. The resettlement strategy in DHP-I includes both relocation to RVs as well as SMR. About 3,189 households are affected, out of which 219 have opted to move to RVs and seven sites are being developed. Two resettlement sites have been completed and their handing over to those affected has commenced. The remaining sites are expected to be finalized soon. SMR faced challenges but good progress has been made during the last six months. About 2,970 affected households have opted for self-relocation. Out of these, about 1,529 households have received SMR payments and have moved on self-relocation to higher elevation or down country to Mansehra and Abbottabad. SMR payments have been completed to all affected households in the construction areas and they have already self-relocated. Relocation of 11 schools and one basic health unit in the reservoir area is also progressing well.

52. **The Project currently employs more than 3,000 workers from local communities, and the most common demand of these communities is to hire more local labor.** These demands are mostly met by the Project to promote local employment; however, in cases where technical workforce is needed, it is inevitable to engage specialists from outside, which can result in disruption of works. This challenge is being managed through continuous engagement of the District Administration, WAPDA, and higher levels of government with communities though *jirgas* and meetings, which has proven effective. To prevent

potential risks from labor influx, proactive measures have been taken by strengthening the contractors' obligations and capacity to address HIV/AIDS, public health, and safety risks. All contractors have prepared and are implementing a Code of Conduct (CoC), and training/sensitization on gender awareness is provided to contractors and security personnel.

53. **Implementation of benefit sharing through the LADP and the PHAP has accelerated during the past two years.** The area is transforming, socio-economic conditions are improving, and the Project's multipliers impact is much higher than usual for such projects. The LADP implementation has taken longer than anticipated. Getting agreement from communities on schemes and interventions to be implemented under the LADP and PHAP was a challenge, which WAPDA has been able to overcome. With implementation started, a total of 69 community development projects have to date been identified in consultation with concerned communities and local administration. These mainly include roads, irrigation schemes, schools, medical facilities, mosques, bridges, small solar systems, procurement of furniture, computers, and developing science laboratories and libraries. Seven of these schemes are under construction, 20 have already been completed, and several are at different stages of design and bidding. The local area and community development projects have increased the sense of "ownership" of the Project by the Upper Kohistani community. Soft interventions have also played a vital role in getting community support. These include student scholarships and free schools pick and drop facility. Several health camps have been conducted in the Project area, which particularly benefitted women and children.

G. Environment (including OHS and biodiversity)

54. **The EMAP already prepared, reviewed, and cleared by the Bank remains applicable.** EMAP (a detailed management plan prepared at the time of Project approval) as well as OHSMPs (prepared after first AF in 2020) remains valid and applicable to the Project. In addition, WAPDA also updated the environmental baseline based on primary data collected during a year-round study. This information was used to develop detailed management plans for aquatic ecology and fisheries, terrestrial ecology, watershed, wildlife management, forestry and avifauna, and physical cultural resources. The implementation of these management plans is being initiated by WAPDA and the provincial departments. The Project is well-resourced to respond to emergencies in accordance with the Emergency Preparedness and Response Plan (EPRP), which is putting in place systems to manage Project traffic all along KKH as well as within the Project area.

55. **To address challenges faced over the years during implementation, institutional arrangements were strengthened for environmental management, and safeguard instruments were modified as and when required.** At present there is a team of about 150 professionals overlooking compliance and enforcement of EMAP as well as OHS and biodiversity management plans. It is expected that this team would further increase as the workload becomes more challenging and complex. Changing the Project risks profile and scale of activities requires evolution in enforcement mechanisms. More recently, WAPDA created a biodiversity team and enhanced the role of the DHC in implementation of biodiversity management plans.

56. **WAPDA and the DHC have successfully established robust OHS systems comprising processes and Standard Operating Procedures at site. The OHS Action Plan and OHS Amendment in the DHC contract were instrumental in bringing about a behavioral change.** Introduction of OHS leading and lagging indicators have been used effectively to steer the Project towards higher safety standards. Procedures such as permit to work, log-out/tagout, matrix of consequences, and risk assessments have helped to control risks at the Project sites. Communications systems are being used to mitigate risks in real

time. The contractors are now generally complying with OHS procedures; however, there are occasional lapses in implementation with severe repercussions, including fatalities. In such cases, the response and corrective action from the DHC and contractors have been both swift and strong, which has consequences for the contractors' staff (terminations, warnings) as well as financial impact (standdown, suspension of works, payment stoppages) and reputational ramifications for the contractors. All this has resulted in behavioral change whereby Project staff now takes OHS very seriously.

57. **Implementation so far has shown proactive, collaborative, and flexible environmental management approaches.** The Project team responded well to unprecedented flash floods that completely changed the site topography at certain locations. It also demonstrated the resilience of the EPRP plan. Resource-efficient and cleaner production techniques are being used to control pollution. The main RCC crusher plant is going to be an enclosed facility to reduce dust and noise levels. Wastewater is being reused for suppressing dust and waste segregation is rigorously enforced. Recyclable materials are sold to local vendors or returned to original manufacturers. Initiatives such as welfare audits of contractors' camps resulted in improving environmental conditions and welfare facilities in the camps.

58. **WAPDA and the DHC have capable resource and technical experts who have taken initiatives to kick-start implementation of the Biodiversity Management Plans.** The Project achieved a major milestone by undertaking primary data collection and a year-round baseline survey. This was the first time that primary data on biodiversity and physical cultural resources was collected from a wide area—from Tarbela to Railkot Bridge. Practical approaches for implementing the biodiversity plans are important and WAPDA has hired an international biodiversity expert to accelerate biodiversity activities. WAPDA has reassigned responsibilities of some of the safeguard staff and hired technical experts to oversee progress. A consolidated action plan is under preparation and WAPDA has invoked provisions in the existing works contracts of the contractors for tree plantations. Principle agreements have been reached with the provincial Archaeology Department for renovation of an ancient mosque in the Project area. Similarly, an understanding has been reached for interventions in a local community-managed wildlife sanctuary.

H. Gender

59. **The Gender Action Plan (GAP) of the Parent Project was designed to elevate human capital and increase economic opportunities for women and girls in Upper Kohistan.** Upper Kohistan is a conservative tribal society in which women are rarely seen in public without a male family member present. Prior to the Project, women had limited access to health, livelihood, and education opportunities. The Project has undertaken 44 community sensitization initiatives on gender issues. This includes four exposure visits for almost 100 local religious and tribal leaders. The Project improved health and hygiene for women by: (i) establishing free healthcare clinics/camps with women doctors/nurses; (ii) training 35 local female health visitors; and (iii) organizing health and hygiene awareness programs. To date, over 11,435 people have been treated at the health centers, out of which 36 percent were women and 35 percent were children The Project has also promoted education and livelihood opportunities for women in the Project area. Twenty-four local women completed the pilot course, where they also learned basic literacy and mathematics. Other initiatives include female-only van transportation services and a scholarship program for girls. A Community Learning Center has been established to provide livelihood training and 10-month literacy courses for women. These gender activities will continue under AF-2.

60. **The Project has already achieved and surpassed its gender indicator targets.** An update to the baseline was conducted in 2023, which found positive developments for women and girls in the Project area due to various gender and local development initiatives. Currently, 43 percent of women in the Project

area are using health facilities (0 percent baseline, 15 percent target) and 30 percent are engaged in income generating activities (15 percent baseline, 20 percent target). Under AF-2, these achievements will be maintained through continued implementation of the GAP. The result framework reflects the revised targets.

61. **The Project and AF-2 have also been screened for sexual exploitation and abuse/sexual harassment risks, which found a moderate risk for civil works and low risk for the local community development activities.** The Project has strong and effective mitigation measures and a GRM in place. There are regular refresher trainings on: (i) CoC for all Project workers and stakeholders; and (ii) gender issues. To date, over 208 such trainings have been conducted for over 10,880 Project workers, security personnel, and the local community.

I. Climate Co-Benefits

62. **Greenhouse gas (GHG) accounting and climate co-benefits.** GHG emission changes are those that result from: (i) switching fuels at the point of generation; (ii) clearing land for transmission; and (iii) creating a reservoir. Upon completion of DHP-I, the hydropower plant will generate 12,225 GWh per year, which will feed into a system that otherwise relies on fossil fuels for power generation. It is assumed that the power generated by DHP-I will displace power generated with natural gas, with an emissions factor of 0.38 $kgCO_2/kWh$, thereby avoiding 4.81 million tCO_2/year. The right of way along the 255 km distance of the TL requires 20 ha of land, which is generally arid with limited vegetation. With an assumed biomass density of 147 tCO_2e/ha, the emissions increase from land clearing is 2,940 tCO_2e/year. The GHG impact of creating a reservoir is calculated considering the one-time emissions from flooding land at 8,050 tCO_2e, the annual absorption of the emissions by the reservoir at -1,356 tCO_2e/year, and the lost absorption of emissions from the displaced forest growth carbon sink at -141 tCO_2/year. The net GHG saving over an assumed 30-year economic life period is thus 144.4 million tCO_2. AF-2 addresses the financing gap in the hydropower component, which is an eligible activity for "generation of renewable energy with low lifecycle GHG emissions to supply electricity" listed in the Common Principles for Climate Mitigation Finance Tracking (October 2021).[11]

J. Citizen Engagement and Communications

63. **The Project design is based on strong citizen and community engagement and these principles are steering Project implementation.** The citizen engagement for the Project will continue through the implementation of the Public Consultation and Participation Plan and the communication strategy. Citizen engagement has several mechanisms: (i) the consultation process for the Environmental and Social Impact Assessment and Resettlement Action Plant (RAP); (ii) the establishment of Project-level GRM to improve engagement with Project-affected people and communities; (iii) consultations to design and implement the LADP and PHAP; and (iv) continuous ongoing community consultations to improve implementation and resolve challenges. Progress on both mechanisms is monitored through indicators in the results framework.

64. **Extensive consultations have been carried out with communities during design and implementation and the GRM has been improved to align with existing cultural and social practices.** More than 5,000 consultations have been carried out during Project design and implementation to date, which are in addition to the informal community engagements taking place on a daily basis at different

[11] African Development Bank, Asian Development Bank, European Bank for Reconstruction and Development, European Investment Bank, Inter-American Development Bank, International Finance Corporation, and World Bank. *Common Principles for Climate Mitigation Finance Tracking.* Version 4–5 December 2023.

levels. The GRM has been improved and is functioning well. An independent chair who is well respected by the community and has gained the trust of communities through independent decision-making process has been hired to head Grievance Redressal Committee. Grievances are addressed in a timely manner and have been resolved at 100 percent.

65. **WAPDA has a communications team, disseminating all communications on the Project with internal and external stakeholders.** The Project has an existing communications strategy, comprising social media, mobile phones, and radio. The Project has an operational website that is updated regularly, and a digital display screen has been installed in the area for communication. WAPDA carries out media analyses to assess the reach of different publications and TV and radio stations among target audiences, to understand perceptions in the media, and to develop the most efficient and effective media strategy going forward.

V. GRIEVANCE REDRESS

66. **Grievance Redress.** Communities and individuals who believe that they are adversely affected by a project supported by the World Bank may submit complaints to existing project-level grievance mechanisms or the Bank's Grievance Redress Service (GRS). The GRS ensures that complaints received are promptly reviewed in order to address project-related concerns. Project affected communities and individuals may submit their complaint to the Bank's independent Accountability Mechanism (AM). The AM houses the Inspection Panel, which determines whether harm occurred, or could occur, as a result of Bank non-compliance with its policies and procedures, and the Dispute Resolution Service, which provides communities and borrowers with the opportunity to address complaints through dispute resolution. Complaints may be submitted to the AM at any time after concerns have been brought directly to the attention of Bank Management and after Management has been given an opportunity to respond. For information on how to submit complaints to the Bank's Grievance Redress Service (GRS), please visit http://www.worldbank.org/GRS. For information on how to submit complaints to the Bank's Accountability Mechanism, please visit https://accountability.worldbank.org.

VI. SUMMARY TABLE OF CHANGES

	Changed	Not Changed
Results Framework	✓	
Components and Cost	✓	
Loan Closing Date(s)	✓	
Implementing Agency		✓
Project's Development Objectives		✓
Cancellations Proposed		✓
Reallocation between Disbursement Categories		✓
Disbursements Arrangements		✓
Safeguard Policies Triggered		✓
EA category		✓
Legal Covenants		✓
Institutional Arrangements		✓
Financial Management		✓
Procurement		✓
Other Change(s)		✓

VII. DETAILED CHANGE(S)

COMPONENTS

Current Component Name	Current Cost (US$, millions)	Action	Proposed Component Name	Proposed Cost (US$, millions)
Component A: Construction of the Main Hydraulic Structure on the Indus River	1,479.70	Revised	Component A: Construction of the Main Hydraulic	1,485.30

(of which IDA $10.0 million)			Structure on the Indus River	
Component B: Power Generation Facilities	1,397.80	Revised	Component B: Power Generation Facilities	1,249.40
Component C: Preparatory Works (of which IDA $183.9 million)	344.80	Revised	Component C: Preparatory Works	797.40
Component D: Transmission Line (of which IDA $15.0 million, IBRD $700million)	797.10	Revised	Component D: Transmission Line	706.00
Component E: Implementation of Social and Environmental Management Plans, and Glacial, Sediment River Monitoring (of which IDA $266. 5 million)	503.90	Revised	Component E: Implementation of Social and Environmental Management Plans, and Glacial, Sediment River Monitoring	361.40
Component F: Construction Supervision, Monitoring and Evaluation of the Project Impacts and Social and Environmental Management Plan s (of which IDA $53.0 million)	99.10	Revised	Component F: Construction Supervision, Monitoring and Evaluation of the Project Impacts and Social and Environmental Management Plans	224.70
Component G: Project Management Support, Capacity Building of WAPDA, Technical Assistance and Training (of which IDA $60.0 million)	72.40	Revised	Component G: Project Management Support, Capacity Building of WAPDA, Technical Assistance and Training	31.20
TOTAL	**4,694.80**			**4,855.40**

LOAN CLOSING DATE(S)

Ln/Cr/Tf	Status	Original Closing	Current Closing(s)	Proposed Closing	Proposed Deadline for Withdrawal Applications
IBRD-90760	Effective	31-May-2024	30-Jun-2025	31-Dec-2028	30-Apr-2029
IDA-54970	Effective	30-Jun-2022	31-May-2025	31-Dec-2028	30-Apr-2029
IDA-54980	Effective	30-Jun-2022	31-May-2024	31-Dec-2028	30-Apr-2029

Expected Disbursements (in US$)

Fiscal Year	Annual	Cumulative
2014	0.00	0.00
2015	8,033,170.00	8,033,170.00
2016	21,065,460.00	29,098,630.00
2017	31,853,005.00	60,951,635.00
2018	40,189,580.00	101,141,215.00
2019	55,359,830.00	156,501,045.00
2020	57,170,655.00	213,671,700.00
2021	58,445,295.00	272,116,995.00
2022	54,161,465.00	326,278,460.00
2023	49,338,060.00	375,616,520.00
2024	44,939,535.00	420,556,055.00
2025	39,823,460.00	460,379,515.00
2026	35,079,155.00	495,458,670.00
2027	30,290,215.00	525,748,885.00
2028	29,861,945.00	555,610,830.00
2029	9,389,170.00	565,000,000.00

SYSTEMATIC OPERATIONS RISK-RATING TOOL (SORT)

Risk Category	Latest ISR Rating	Current Rating
Political and Governance	Substantial	Substantial
Macroeconomic	High	High
Sector Strategies and Policies	Substantial	Substantial
Technical Design of Project or Program	Moderate	Moderate
Institutional Capacity for Implementation and	High	High

Sustainability		
Fiduciary	Substantial	Substantial
Environment and Social	High	High
Stakeholders	Substantial	Substantial
Other	Substantial	Moderate
Overall	High	High

LEGAL COVENANTS – Second Additional Financing for Dasu Hydropower Stage I Project (P181423)

Sections and Description
No information available

Conditions

VIII. RESULTS FRAMEWORK AND MONITORING

Results Framework

COUNTRY: Pakistan

Second Additional Financing for Dasu Hydropower Stage I Project

Project Development Objective(s)

The overall project development objective is to facilitate the expansion of electricity supply of hydro-power in Pakistan. The Project would also improve access to socio-economic services for local communities in the project area and build WAPDA's capacity to prepare future hydropower projects. This would be achieved by installing a 2,160 MW hydropower plant on the main Indus River, which can be expanded to 4,320 MW in future at very low cost. The Project is a "high-risk-high reward" operation aimed at providing low cost non-carbon renewable energy.

Project Development Objective Indicators by Objectives/ Outcomes

Indicator Name	PBC	Baseline	End Target
To facilitate the expansion of electricity supply of hydro-power in Pakistan			
Generation Capacity of Hydropower constructed or rehabilitated under the project (Megawatt)		0.00	2,160.00
Action: This indicator has been Marked for Deletion			
Generation Capacity of Hydropower constructed under the project (Megawatt)		0.00	2,160.00
Action: This indicator has been Marked for Deletion			
Annual electricity supplied with renewable energy (Gigawatt-hour (GWh))		0.00	12,225.00

Indicator Name	PBC	Baseline	End Target
Action: This indicator has been Revised	***Rationale:*** ***End target updated.***		
Renewable Energy Capacity Enabled (Megawatt)		0.00	4,320.00
Action: This indicator is New	***Rationale:*** ***Indicator changed to align with World Bank Group Scorecard FY24-30.***		
Renewable Energy Capacity Enabled through Direct Support (Megawatt)		0.00	2,160.00
Action: This indicator is New	***Rationale:*** ***Sub-indicator changed to align with World Bank Group Scorecard FY24-30.***		
Renewable Energy Capacity Enabled through Indirect Support (Megawatt)		0.00	2,160.00
Action: This indicator is New	***Rationale:*** ***Sub-indicator changed to align with World Bank Group Scorecard FY24-30.***		
To improve access to socio-economic services for local communities in the project area			
Number of additional people in the project area with improved socio-economic services (Number)		0.00	20,000.00
To build WAPDA's capacity to prepare future hydropower			
Number of large hydropower project on the Indus River prepared by WAPDA (Number)		0.00	1.00

Intermediate Results Indicators by Components

Indicator Name	PBC	Baseline	End Target
Component A: Construction of the Main Hydraulic Structure on the Indus River *(Action: This Component has been Revised)*			
Construction of main hydraulic structure (Percentage)		0.00	100.00
Total Private Capital Mobilized (cumulative figures in million) (Amount(USD))		0.00	2,415.00
Action: This indicator has been Revised	***Rationale:*** ***End-target date changed***		
Component B: Power Generation Facilities			
Construction of intake, waterways and power house (Percentage)		0.00	100.00
Number of 360 MW power units installed (Number)		0.00	6.00
Component C: Preparatory Works *(Action: This Component has been Revised)*			
Construction of RAR-01 KKH-01, TL-132 Power line, PC-01 colony (Percentage)		0.00	100.00
Action: This indicator has been Revised	***Rationale:*** ***End target date adjusted.***		
Component D: Transmission Line *(Action: This Component has been Revised)*			
Double Circuit Transmission Line constructed (Kilometers)		0.00	255.00

Indicator Name	PBC	Baseline	End Target
Action: This indicator has been Revised	***Rationale:*** ***End target date changed.***		
Transmission Line Constructed (Kilometers)		0.00	255.00
Action: This indicator has been Revised	***Rationale:*** ***End target date changed.***		
Component E: Social and Environmental Management Plans, and Glacial, Sediment River Monitoring *(Action: This Component has been Revised)*			
Implementation of SRMP and EMAP (Percentage)		0.00	100.00
Action: This indicator has been Revised	***Rationale:*** ***End target date changed.***		
Percentage of agreed local development plan implemented (Percentage)		0.00	100.00
Action: This indicator has been Revised	***Rationale:*** ***End target date changed.***		
Percentage of affected persons participating in consultations who consider their suggestions have been taken into account (Percentage)		0.00	40.00
Action: This indicator has been Revised	***Rationale:*** ***End target date changed.***		
% of women using health facilities in project areas (Percentage)		0.00	43.00

Indicator Name	PBC	Baseline	End Target
Action: This indicator has been Revised	***Rationale:*** ***Indicator target revised upward to capture the result achieved till November 2023. The target is to maintain this achievement till the revised end target date.***		
Percentage of women engaged in income generated activities in the project area (Percentage)		15.00	30.00
Action: This indicator has been Revised	***Rationale:*** ***Indicator target revised upward to capture the result achieved till November 2023. The target is to maintain this achievement till the revised end target date.***		
Percentage of grievances redressed/resolved (Percentage)		0.00	70.00
Action: This indicator has been Revised	***Rationale:*** ***End target date changed.***		
Number of training and awareness sessions on codes of conduct (Number)		0.00	300.00
Action: This indicator has been Revised	***Rationale:*** ***Indicator target revised upward taking into account the result achieved till March 2024. The end target date changed.***		
Component G:Project Management, Capacity Building, Technical Assistance, Future Project Preparation *(Action: This Component has been Revised)*			
Hydropower Project with detailed design, environmental and social safeguards studies completed (Number)		0.00	1.00
Capacity Building of WAPDA (Percentage)		0.00	100.00

Monitoring & Evaluation Plan: PDO Indicators					
Indicator Name	**Definition/Description**	**Frequency**	**Datasource**	**Methodology for Data Collection**	**Responsibility for Data Collection**
Generation Capacity of Hydropower constructed or rehabilitated under the project	This indicator measures the capacity of hydropower constructed or rehabilitated under the project. For indicators measuring access provided to households or through community connections, refer to "T&D of electricity" (LT) sector code. The baseline value is expected to be zero.	Annually	Project report, M&E		WAPDA, Monitoring & Evaluation Consultants
Generation Capacity of Hydropower constructed under the project					
Annual electricity supplied with renewable energy	Facilitate the expansion of electricity supply of hydro-power in Pakistan.	Annually	Project reports, monitoring reports by monitoring and evaluation consultants (M&ECs)	Project Progress Reports	WAPDA, M&ECs
Renewable Energy Capacity Enabled	Total installed capacity of DHP-I and DHP-II. The Project directly enables	Semi-Annual	Project Progress Reports.	Project Progress Reports.	WAPDA.

	2,160 MW from DHP-I and indirectly enables 2,160 MW from DHP-II.				
Renewable Energy Capacity Enabled through Direct Support	Generation capacity that will be installed by DHP-I.	Semi-annual	Project Progress Reports	Project Progress Reports	WAPDA
Renewable Energy Capacity Enabled through Indirect Support	Generation capacity of DHP-II, which is enabled by the Project.	Semi-annual	Project Progress Reports	Project Progress Reports	WAPDA
Number of additional people in the project area with improved socio-economic services	A total of 5,022 acres of land benefitting about 2,500 households have been paid land compensation. A total of 172 acres land is taken on lease for five years for project activities benefiting 281 local persons. A total of 1,505 households have been paid enhanced self-relocation package. About 2,861 local people are employed by the Dasu Project. The first scheme under the Local Area Development Plan (LADP) has deployed solar lights in Kamila and	Annually	Project reports, monitoring reports by M&ECs	M&ECs Reports	WAPDA, Monitoring & Evaluation Consultants

	Dasu Towns benefiting 5,037 of community members. The Public Health Action Plan (PHAP) team, supported by the Project, have conducted 10 medical camps in the DHPP area benefitting 11,435 of people. In total, 4,001 of children, 3,287 of men, and 4,147 of women have benefitted from medical camps carried out between Feb, 2017 to Oct, 2023. About 760 school children are provided free and safe bus transport to and from school on a daily basis, out of which approximately 150 female students are benefiting from this facility. A total of 48 local Ulamas were trained in two groups / sessions at Dawa Academy, International Islamic University Islamabad. Approximately 289 local youngsters were				

	trained in various traits under 10 batches during 2012-2023.				
Number of large hydropower project on the Indus River prepared by WAPDA	Build WAPDA's capacity to prepare future hydro power projects	Annually	Project Report, M&E		WAPDA, Monitoring & Evaluation Consultants

Monitoring & Evaluation Plan: Intermediate Results Indicators					
Indicator Name	**Definition/Description**	**Frequency**	**Datasource**	**Methodology for Data Collection**	**Responsibility for Data Collection**
Construction of main hydraulic structure	Unit of measure shown as percentage is percent progress in the construction	Annually	Project reports, monitoring reports by M&ECs		WAPDA, Supervision, Moniitoring & Evaluation Consultants
Total Private Capital Mobilized (cumulative figures in million)	Commercial financing mobilized by WAPDA.	Annually	Project Reports	Project Reports	WAPDA
Construction of intake, waterways and power house	Unit of measure shown as percentage is percent progress in the construction	Annually	Project reports, monitoring reports by M&ECs		WAPDA, Monitoring & Evaluation Consultants
Number of 360 MW power units installed		Annually	Project reports, monitoring reports by		WAPDA, Monitoring & Evaluation Consultants

			M&ECs		
Construction of RAR-01 KKH-01, TL-132 Power line, PC-01 colony	Unit of measure shown as percentage is percent progress in the construction	Annually	Project reports, monitoring reports by M&ECs		WAPDA, Monitoring & Evaluation Consultants
Double Circuit Transmission Line constructed		Annually	Project reports, monitoring reports by M&ECs		NTDC, Monitoring & Evaluation Consultants
Transmission Line Constructed					
Implementation of SRMP and EMAP	Percent completion	Annually	Project reports, monitoring reports by M&ECs		NTDC, Monitoring & Evaluation Consultants
Percentage of agreed local development plan implemented		Annually	Project reports, monitoring reports by M&ECs		WAPDA, Monitoring & Evaluation Consultants
Percentage of affected persons participating in consultations who consider their suggestions have been taken into account	Measure the number of people that participated in Citizen Consultation meetings and fee their views were taken into account during implementation by WAPDA	Annually	Project Reports, M&E		WAPDA, NTDC, M&E Consultant
% of women using health facilities in		Annually	Project		WAPDA, NTDC, M&E

project areas			Reports, M&E		Consultant
Percentage of women engaged in income generated activities in the project area	The percentage of women working by the end of the project across the two provinces related to directly to the project.	Annually	Project Reports, M&E		WAPDA, NTDC, M&E Consultant
Percentage of grievances redressed/resolved	Share of grievances resolved.	Annually	Project Reports, M&E	Project Reports, M&E	WAPDA, NTDC, M&E Consultant
Number of training and awareness sessions on codes of conduct		Annually	Project Reports, M&E Reports		Supervision Consultant, M&E Consultant
Hydropower Project with detailed design, environmental and social safeguards studies completed		Annually	Project Reports M&E		WAPDA, Monitoring & Evaluation Consultants
Capacity Building of WAPDA	Percent completion of capacity building.	Annually	Project Report, M&E		WAPDA, Monitoring & Evaluation Consultants