



Report and Recommendation of the President to the Board of Directors

Project Number: 47929-001
April 2015

Proposed Loan and Administration of Loan Mira Power Limited Gulpur Hydropower Project (Pakistan)

This is an abbreviated version of the document approved by ADB's Board of Directors that excludes information that is subject to exceptions to disclosure set forth in ADB's Public Communications Policy 2011.

Asian Development Bank

CURRENCY EQUIVALENTS

(as of 18 February 2015)

Currency unit	–	Pakistan rupee/s (PRe/PRs)
PRe1.00	=	\$0.0098
\$1.00	=	PRs101.57

ABBREVIATIONS

ADB	–	Asian Development Bank
EPC	–	engineering, procurement, and construction
IPP	–	independent power producer
KEPCO	–	Korea Electric Power Corporation
KOSEP	–	Korea South East Power Co. Ltd.
LARP	–	land acquisition and resettlement plan
MPL	–	Mira Power Limited
NPMP	–	national park management plan
NSO	–	nonsovereign operation
O&M	–	operation and maintenance
PPA	–	power purchase agreement
PIIB	–	Private Power and Infrastructure Board

WEIGHTS AND MEASURES

GWh	–	gigawatt-hours
MW	–	Megawatt

NOTES

- (i) The fiscal year (FY) of the Government of Pakistan ends on 30 June.
- (ii) In this report, "\$" refers to US dollars.

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PROJECT AT A GLANCE

1. Basic Data		Project Number: 47929-001	
Project Name	Gulpur Hydropower Project	Department /Division	PSOD/PSIF1
Country	Pakistan		
2. Sector		ADB Financing (\$ million)	
✓ Energy	Subsector(s) Large hydropower generation		65.00
		Total	65.00
3. Strategic Agenda		Climate Change Information	
Inclusive economic growth (IEG)	Pillar 1: Economic opportunities, including jobs, created and expanded Eco-efficiency	Climate Change impact on the Project	Low
Environmentally sustainable growth (ESG)			
4. Drivers of Change		Gender Equity and Mainstreaming	
Partnerships (PAR)	Bilateral institutions (not client government) Commercial cofinancing International finance institutions (IFI) Private Sector Promotion of private sector investment	No gender elements (NGE)	✓
Private sector development (PSD)			
5. Poverty Targeting		Location Impact	
Project directly targets poverty	No	Nation-wide	High
6. Nonsovereign Operation Risk Rating			
Obligor Name		Implied Project Rating	Final Project Rating
Mira Power Limited		NSO12	NSO12
7. Safeguard Categorization Environment: A Involuntary Resettlement: A Indigenous Peoples: C			
8. Financing			
Modality and Sources		Amount (\$ million)	
ADB		65.00	
Nonsovereign LIBOR Based Loan: Ordinary capital resources		65.00	
B-Loans		0.00	
None		0.00	
Official Cofinancing^a		0.00	
None		0.00	
Others^b		302.40	
Total		367.40	
9. Effective Development Cooperation			
Use of country procurement systems		Yes	
Use of country public financial management systems		Yes	

^a Concessional financing from external sources.

^b Derived by deducting ADB financing, B Loans and Official Cofinancing from Project Total Cost.

I. THE PROPOSAL

1. I submit for your approval the following report and recommendation on a proposed loan of up to \$65 million to Mira Power Limited (MPL) for the Gulpur Hydropower Project in Pakistan.¹

II. THE PROJECT

A. Project Identification and Description

1. Project Identification

2. Acute energy deficits have been one of the major constraints and bottlenecks to economic growth in Pakistan. To ensure a sustainable supply of energy, the Government of Pakistan has launched a number of initiatives for promoting private sector participation in the country's infrastructure, with a major focus on the energy sector. As part of these efforts, a number of energy policies were introduced and have resulted in significant (albeit insufficient) investment from the private sector. As of FY2013, 11,681 megawatts (MW) or 49.4% of the country's installed power capacity was owned and operated by private sector investors.² The project is one of the earlier hydropower projects identified under the Power Policy (2002) by the Private Power and Infrastructure Board (PPIB)—the national institution entrusted with bringing private investment into Pakistan's energy sector. The project's detailed feasibility study was approved by the PPIB in April 2006.

3. KOSEP approached ADB in early 2012 for financing given (i) ADB's record in supporting the country's first two hydro independent power producers (IPPs) in Pakistan—New Bong Escape Hydropower and Patrind Hydropower,³ (ii) the relatively large project debt requirement, and (iii) local banks' current reluctance to provide long-term limited recourse project finance (caused by asset–liability mismatch concerns).

2. Project Design

4. The project involves the construction and operation of a 102 MW run-of-river hydroelectric power generation facility on the Poonch River, 28 kilometers upstream of the Mangla reservoir, country's second largest storage reservoir. The project will be developed under the Power Policy (2002) and will be undertaken on a build–own–operate–transfer basis for 30 years from the commercial operations date. Keeping in view the hydrology data (and variation therein) for Poonch River, the average annual energy generation will be 465 Gwh, and electricity will be evacuated through the existing Kotli–Dhudial 132-kilovolt single-circuit transmission line passing over the project site.

3. The Borrower and Sponsors

5. MPL, the borrower, is a special purpose vehicle that has the right to develop the project. MPL is owned by KOSEP (76%), Daelim (18%), and Lotte (6%). MPL's chief executive officer is deputed from KOSEP and is responsible for the day-to-day affairs of MPL under the supervision

¹ The design and monitoring framework is in Appendix 1.

² National Electric Power Regulatory Authority. 2014. *State of the Industry Report 2013*. Islamabad.

³ ADB. 2005. *Report and Recommendation of the President to the Board of Directors: Proposed Loan to Laraib Energy Limited for the New Bong Escape Hydropower Project in Pakistan*. Manila; ADB. 2011. *Report and Recommendation of the President to the Board of Directors: Proposed Loan to Patrind Hydropower Project in Pakistan*. Manila.

of a board of directors (representing each shareholder). The chief executive officer is supported by professionals in project development, engineering, finance, and regulatory affairs.

B. Development Impacts, Outcome, and Outputs

1. Impacts

6. The successful development of the project will contribute to (i) improved power supply in Pakistan, (ii) a diversified power generation mix, and (iii) increased investments by the private sector in renewable energy projects in Pakistan. The project will help alleviate Pakistan's severe power shortage, which hampers the country's economic growth and efforts to reduce poverty. Successful implementation of the project will also foster confidence among potential investors and lenders, and promote further private sector investment in renewable energy and power.

2. Outcome

7. The outcome of the project will be increased supply of cleaner hydropower from indigenous energy sources. The project will generate an additional 465 gigawatt-hours of electricity annually by using indigenous water resources, and the tariff for electricity supplied by the project will be lower than that for plants that use imported fuel and other renewable energy sources such as wind and solar energy. The project will also avoid greenhouse gas emissions of about 253,797 tons of carbon dioxide equivalent per year.

3. Outputs

8. The outputs of the project will be the net additional installed power generation capacity of 102 MW, which is equivalent to about 1.8% of the power shortfall in the country.

C. Alignment with ADB Strategy and Operations

1. Consistency with Strategy 2020 and Country Strategy

9. The project is consistent with the Midterm Review of Strategy 2020 with its focus on inclusive economic growth, environmentally sustainable growth, private sector development and operations, environment and climate change, and infrastructure development.⁴ ADB's support for the project is in line with the country partnership strategy for Pakistan, 2009–2013, which emphasizes energy sector development, private sector participation in infrastructure development, and expansion of ADB's private sector operations in the energy sector.⁵ The project is a logical outcome of ADB's development and reform efforts in Pakistan's energy sector, which have been designed to promote a well-regulated, market-oriented power industry, particularly when the country faces challenges in attracting commercial financing. Energy infrastructure has featured prominently in ADB's private sector operations in Pakistan.

2. Consistency with Sector Strategy

10. The project is in line with ADB's Energy Policy, particularly with one of its three pillars—maximizing access to energy for all.⁶ The project will add power generation capacity and

⁴ ADB. 2014. *Midterm Review of Strategy 2020: Meeting the Challenges of a Transforming Asia and Pacific*. Manila.

⁵ ADB. 2009. *Country Partnership Strategy: Pakistan, 2009–2013*. Manila.

⁶ ADB. 2009. *Energy Policy*. Manila.

increase the reliability of electricity supplies in a country facing a severe power shortage. The electricity tariff for the project will be significantly lower than the average price of power in the country, and will not be affected by the volatility of the international fuel market, which impacts much of the existing thermal power generation capacity in the country. The project will promote the use of indigenous and renewable resources, and will contribute to the country's energy security. The project will help ADB meet its commitment to undertake clean energy investments of at least \$2 billion per year.

3. Lessons from Previous Operations

11. ADB has taken the lead in supporting the government's initiatives to attract private capital into the energy (especially renewable energy) sector; and has been instrumental in pioneering many transactions, keeping in view local banks' long-term lending constraints and their reluctance to finance renewable energy initiatives. ADB financed the first two private hydropower projects in Pakistan: the 84 MW New Bong Escape and the 147 MW Patrind hydropower projects (footnote 3). ADB also financed Pakistan's first three private wind power projects: Zorlu Enerji (56 MW) and Foundation Wind Energy I (50 MW) and II (50 MW).⁷ ADB's participation in these projects not only provided much-needed long-term debt (which is crucial for infrastructure development), but also acted as a catalyst to raise foreign and local financing. The project also fully compliments ADB sovereign operation's support for energy sector reforms that target fuel mix diversification in the power sector through renewable energy resources.⁸

D. Project Cost and Financing Plan

12. The project is estimated to cost \$367.4 million, including contingencies. Table 1 presents the breakdown of project costs and Table 2 identifies corresponding sources of funds.

Table 1: Project Cost Estimates

Item	Amount (\$ million)	Share of Total (%)
Engineering, procurement, and construction costs (civil and electromechanical works)	240.9	65.6
Project development costs (feasibility studies, engineering, advisors, and overheads)	35.4	9.6
Operation and maintenance mobilization costs	2.5	0.7
Custom duties	4.0	1.1
Land resettlement and acquisition costs	4.0	1.1
Environment (environmental studies, compliance and monitoring, fish hatchery)	1.6	0.4
Insurance	4.8	1.3
Lenders' costs (lenders fees, advisors)	7.3	2.0
Total Base Case Project Costs	300.5	81.8
Contingencies (material and tunnel cost escalation, resettlement costs, and duties)	34.1	9.3
Interest during construction	32.8	8.9
Total Project Cost	367.4	100.0

Source: Mira Power Limited.

⁷ ADB. 2010. *Report and Recommendation of the President to the Board of Directors: Proposed Loan for Zorlu Enerji Power Project in Pakistan*. Manila; ADB. 2011. *Report and Recommendation of the President to the Board of Directors: Proposed Partial Credit Guarantees for Foundation Wind Energy I and II Projects in Pakistan*. Manila.

⁸ ADB. 2006. *Report and Recommendation of the President to the Board of Director: Proposed Multitranche Financing Facility and Technical Grant to Islamic Republic of Pakistan for Renewable Energy Development Sector Investment Program*. Manila.

Table 2: Financing Plan

Source	Amount (\$ million)	Share of Total (%)
A. Equity		
Korea South East Power Company Limited	69.8	19.0
Daelim	16.5	4.5
Lotte	5.5	1.5
Subtotal (A)	91.9	25.0
B. Loans		
Asian Development Bank	65.0	17.6
The Export–Import Bank of Korea	88.8	24.2
International Finance Corporation (A-loan)	60.0	16.3
International Finance Corporation (B-loans and/or parallel cofinancing) ^a	61.8	16.8
Subtotal (B)	275.6	75.0
Total (A+B)	367.4	100.0

Notes: Numbers and percentages may not sum precisely because of rounding.

^a IFC can reduce its exposure to \$50 million in case it can line up more B Loans and/or parallel cofinancing.

Source: Mira Power Limited.

III. THE PROPOSED ADB ASSISTANCE

A. The Assistance

13. ADB's proposed assistance comprises a direct loan of up to \$65 million from ADB's ordinary capital resources.

B. Value Added by ADB Assistance

14. ADB funding is needed for this critical energy asset as long-term limited recourse financing is not readily available in Pakistan's market. International commercial banks are not active in Pakistan (infact most have left the market altogether; others are scaling down their presence) and local banks have severe lending constraints. ADB has a strong presence through its public and private sector operations in the country; International Monetary Fund regularly consults with ADB on country's energy related reforms. As the project involves multiple layers of government entities, ADB's presence helps reassure the international sponsors that the government entities will continue to support the project in the long term. Lastly, ADB has invested considerable resources in the project to ensure compliance with high environment and social safeguard standards and to mitigate climate-related risks, which are described in detail in paras 16-20.

IV. POLICY COMPLIANCE

A. Safeguards and Social Dimensions

15. In compliance with ADB's Safeguard Policy Statement (2009), the project is classified category A for environment and involuntary resettlement, and category C for indigenous peoples. The potential environmental and social impacts of the project have been identified; and effective measures to avoid, minimize, mitigate, and compensate for the adverse impacts are incorporated in the safeguard reports and plans. The institutional capacity and commitment of MPL to manage the project's social and environmental risks are deemed adequate.

16. **Environment.** The current dam site was selected to minimize environmental and social adverse impacts on the area. A 66-meter high concrete gravity dam will be constructed to divert water from 700 meters of the river section, which will create a 292-hectare reservoir. The

construction will take 55 months to complete and will excavate 1 million cubic meters of soil and rock to meet the requirement of rock-fill at cofferdams and stone pitching. However, the bulk of the excavated material will be deposited in the spoil tip area at the project site. The project is located in a critical habitat of two endangered fish species of conservation importance in the affected rivers: Mahseer *Tor putitora* and *Glyptothorax kashmirensis* Catfish. Both species are listed as endangered and critically endangered in the International Union for Conservation of Nature Red List. The local fisheries and wildlife department will formalize its commitment to establish the national park management plan (NPMP) by signing a cooperation agreement with MPL to provide technical and financial support. The plan includes zoning for river sections through consultations with local communities and stakeholders to provide solutions that combine environmental protection and economic development to ensure the sustainability of the critical habitat. It is highly likely that the NPMP would not be developed without MPL's support because of the financial constraints of local authorities.

17. One of the key components of the NPMP is the biodiversity action plan (BAP), which has been developed to meet ADB's safeguard requirements for projects in critical habitat. The BAP will ensure that Mahseer species living in upstream of the dam are able to migrate to breed at spawning grounds in upstream tributaries. Commercial hatcheries will seed fish downstream of the dam, as migration will not be possible from downstream. The Catfish will continue to spawn across the river. Therefore, there will not be measurable adverse impacts on the river's high biodiversity value if present aquatic environmental conditions are preserved outside the project footprint. The BAP will avoid further reduction in population of these two species and will address any residual adverse environmental impact associated with the project. Moreover, NPMP will regulate future infrastructure development activities in the Poonch River through zoning to ensure environmental sustainability of the critical habitat. Climate change risk assessment recommends continuous river flow measurement to ensure safe dam operations, as well as periodical monitoring of precipitation within the catchment area.

18. **Social safeguards.** The project will affect 277 households, of which 166 households (including four households requiring physical relocation) will lose 10% or more of their productive assets and the remaining 111 households will lose less than 10% of their assets. A land acquisition and resettlement plan (LARP) was prepared to address these impacts. Key measures include payment of cash compensation based on negotiated rates (which are higher than the prevailing market value) plus a 15% compulsory acquisition surcharge, and implementation of livelihood programs in consultation with affected people. Information disclosure and consultations with affected people were conducted in accordance with ADB requirements. People affected by land acquisition have also been notified in accordance with the Land Acquisition Act, 1897, and Land Acquisition Rules (1994). Key information from the LARP such as eligibility, entitlements, and the schedule of LARP implementation was disclosed during consultations in April 2014. External monitoring arrangements and grievance mechanisms are in place. No official census has been carried out to ascertain the ethnicity of people in Kotli district but estimates suggest that major tribes in the project area are Awan, Syed, Gujar, Jat, Rajput, and Sudhan. These tribes do not meet the criteria set in the Safeguard Policy Statement to be considered as indigenous peoples and no impact on them by the project is expected.

19. **Other social dimensions.** MPL will comply with ADB's Social Protection Strategy¹⁰ and report regularly to ADB on its compliance (including contractors) with national labor laws and adherence to internationally recognized core labor standards. MPL will implement the gender

¹⁰ ADB. 2003. *Social Protection*. Manila (adopted in 2001).

measures to ensure women from affected households have access to project benefits, including regular consultation and training of women and engagement of a female community welfare officer. Specific activities and targets for women from the larger community will be set once MPL's corporate social responsibility program is designed. In the absence of such targets, the project is classified as having no gender elements.

B. Anticorruption Policy

20. MPL and the sponsors were advised of ADB's policy of implementing best international practice relating to combating corruption, money laundering, and the financing of terrorism.¹¹ ADB will ensure that the investment documentation includes appropriate provisions prohibiting corruption, money laundering, and the financing of terrorism, and remedies for ADB in the event of noncompliance.

C. Investment Limitations

21. The proposed loan is within the medium-term, country, industry, group, and single-project exposure limits for nonsovereign investments.

D. Assurances

22. Consistent with the Agreement Establishing the Asian Development Bank, no funding will be disbursed until ADB is satisfied that the principles enumerated under Article 14 have been met. ADB will enter into suitable finance documentation, in form and substance satisfactory to ADB, following approval of the proposed assistance by the ADB Board of Directors.¹²

V. RECOMMENDATION

23. I am satisfied that the proposed loan would comply with the Articles of Agreement of the Asian Development Bank (ADB) and recommend that the Board approve the loan of up to \$65,000,000 to Mira Power Limited for the Gulpur Hydropower Project in Pakistan from ADB's ordinary capital resources, with such terms and conditions as are substantially in accordance with those set forth in this report, and as may be reported to the Board.

Takehiko Nakao
President

April 2015

¹¹ ADB. 2003. *Enhancing the Asian Development Bank's Role in Combating Money Laundering and the Financing of Terrorism*. Manila.

¹² ADB. 1966. *Agreement Establishing the Asian Development Bank*. Manila.

DESIGN AND MONITORING FRAMEWORK

Design Summary	Performance Targets and/or Indicators with Baselines	Data Sources and/or Reporting Mechanisms	Assumptions and Risks
<p>Impacts</p> <p>Improved power supply in Pakistan</p> <p>Diversified power generation mix</p> <p>Increased investments by the private sector in renewable energy projects in Pakistan</p>	<p>Peak power shortages will be reduced to at least 15% of generation capability by 2025 (FY2012 baseline: 50%)</p> <p>Hydropower accounts for at least 45% of installed capacity by 2027 (FY2013 baseline: 29%)</p> <p>Installed private sector power generation capacity from renewable resources increased to 10% by 2025 (FY2012 baseline: <1%)</p>	<p>NEPRA state of industry reports</p>	<p>Assumptions</p> <p>The government continues to facilitate tariffs that provide reasonable returns to private investors</p> <p>The policy framework for private sector hydropower projects remains stable</p> <p>Risks</p> <p>Deterioration in the macroeconomic and/or political climate in Pakistan</p>
<p>Outcome</p> <p>Increased supply of cleaner hydropower from indigenous energy resources</p>	<p>Generation of 465 gigawatt-hours of electricity per annum starting 2020</p> <p>Annual greenhouse gas emissions avoided of 253,797 tons of carbon dioxide equivalent starting 2020</p> <p>100 full-time equivalent people locally employed during operations from 2020 onward</p>	<p>NEPRA state of industry reports</p> <p>Project annual monitoring reports and other applicable data sources</p> <p>Development effectiveness monitoring reports</p>	<p>Assumptions</p> <p>Sufficient water resources, reliable transmission and distribution network</p> <p>Current tariff structure is maintained</p> <p>Risk</p> <p>Delays in payments by the government</p>

<p>Output</p> <p>A 102 MW hydropower project built and commissioned by the private sector</p>	<p>Construction of 102 MW hydropower project is completed by 2019</p> <p>Project is commissioned by 2019</p> <p>Locally purchased goods and services amount to \$150 million by 2019</p> <p>750 full-time equivalent people employed during construction</p> <p>Applicable environmental and social mitigation measures implemented consistent with safeguard documents</p>	<p>NEPRA state of industry reports</p> <p>Project annual monitoring reports and other applicable data sources</p> <p>Environment and social management systems reports</p> <p>Unaudited and audited MPL financial statements</p> <p>Development effectiveness monitoring reports</p>	<p>Assumptions</p> <p>The project is constructed and commissioned as scheduled</p> <p>Robust safeguard management plans are developed and implemented by MPL</p>
<p>Activities with Milestones</p> <p>1. A 102 MW hydropower project built and commissioned by the private sector</p> <p> 1.1. Financial close expected by end April 2015</p> <p> 1.2 Commencement of up-front civil works by September 2014</p> <p> 1.3 Full commissioning 47 months after financial close by March 2019</p>		<p>Inputs</p> <p>ADB: \$65 million</p> <p>IFC A-loan: \$60 million</p> <p>IFC B-loans: \$61.8 million</p> <p>KEXIM: \$88.8 million</p> <p>Total debt: \$275.6 million</p> <p>Sponsor's minimum equity contribution: \$91.9 million</p>	

ADB = Asian Development Bank, FY = fiscal year, IFC = International Finance Corporation, KEXIM = Export-Import Bank of Korea, MPL = Mira Power Limited, MW = megawatt, NEPRA = National Electric Power Regulatory Authority. Sources: Asian Development Bank.