

Environmental Monitoring Report

Reporting Period: September 2020-December 2021
March 2022

Pakistan: Balakot Hydropower Development Project

Prepared by Project Implementation Unit, Pakhtunkhwa Energy Development Organization, and Energy and Power Department, Government of Khyber Pakhtunkhwa, for the Asian Development Bank.

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ABBREVIATIONS

ADB	Asian Development Bank
CM	Construction Manager
CSSP	Construction Safety and Security Plan
EIA	Environmental Impact Assessment
EMP	Environmental Management Plan
EPA	Environmental Protection Agency
ERT	Emergency Response Team
EE	Environment Expert
GOP	Government of Pakistan
HSE	Health, Safety and Environment
km	Kilometer
L/S	Left Side
NEQS	National Environmental Quality Standards
NOC	No Objection Certificate
OHS	Occupational Health and Safety
PD	Project Director
PEDO	Pakhtunkhwa Energy Development Organization
PIU	Project Implementation Unit
PM	Project Manager
PMC	Project Management Consultants
R/S	Right Side
ROW	Right of Way
SOPs	Standard Operating Procedures
SSEMP	Site Specific Environmental Management Plan

1 INTRODUCTION

1.1 Preamble

1. This Semi-annual Environmental Monitoring Report (SAEMR) has been prepared for Balakot Hydropower Project (300MW) in compliance with the Consultancy Contract requirements.
2. This is the first SAEMR, covering activities carried out under the project environmental portfolio during the period from September 2020 to December 2021.

1.2 Headline Information

3. During the reporting period, the project detail design and preparation of various EHS plans by the EPC Contractor remained in progress whereas no construction activities were carried out at Site being not planned under the conditions of contract.
4. In pursuance of the conditions of contract, construction activities will commence upon possession of Site and after approval of the Project Basic Design.
5. Sequel to the above, no construction related environmental safeguard activities were supervised/monitored during the reporting period.

2 PROJECT DESCRIPTION

2.1 Project Description

6. Balakot Hydropower Project (300MW) is run-of-the river scheme to be constructed on the Kunhar River in its 12 kilometer (km) stretch from Paras to Sangar village in District Mansehra. Upon completion, 1143GWh clean energy will be added to the National Grid.
7. The dam site is located in Paras village while powerhouse site is identified near the Kappi Gali village, about 29 and 10 km upstream of the Balakot town respectively. The headrace tunnel, extending approximately 9.1 km, will divert water from the dam to the powerhouse to generate 300MW electricity. Project residential colony is identified in Sangar village.
8. Access road to the dam and power intake is proposed to off take from National Highway (N-15), on the left side of the Kunhar River in Paras village.
9. Project location map and project setting are presented in **Figures 2.1 to 2.4** whereas project salient features are given in **Table 2.1**.

Table 2.1: Brief Salient Features

1. Hydrology and Design Flows	
River	Kunhar
Catchment area at dam site (km ²)	1939
Design Discharge (m ³ /s)	154
Design Flood (m ³ /s) T= 10 000 years	3500
Probable Maximum Flood (m ³ /s)	5000
2. Reservoir	
Normal Operation Level (NOL)	1288.0
Minimum Operation Level (MOL)	1283.0
Surface area (at MOL) (km ²)	0.28
Length of Reservoir (at NOL) (km)	2.20
Gross storage capacity (at NOL) (x10 ⁶ m ³)	3.56
Live storage (at NOL) (x10 ⁶ m ³)	1.20
3. Dam Structure	
Type	Concrete Gravity Arch
Dam crest elevation (masl)	1292.0
Maximum height above river bed (m)	35.0
Maximum height above foundation (m)	58.0
Crest length (m)	130.0
4. Spillways and Low Level Outlets / Flushing Sluices	

Spillway type	Upper Gated Ogee Crest Spillway + low level Gated Spillway
Upper spillway crest elevation (masl)	1278.0
Upper spillway gates No. and type	3 (radial gates)
Upper spillway gates size (W x H) (m)	11 x 10
Low level spillway invert elevation (masl)	1258.0
Low level spillway gates no. and type	2 (sluice gates)
Low level spillway size (WxH) (m)	6 x 8
5. Sediment Management	
Sediment Bypass Tunnel type	Gated Intake followed by Archway Tunnel
Intake size (WxH)(m)	7.5 x 4.5
Inlet invert elevation (masl)	1261.0
Tunnel cross section (W x H) (m)	archway (7.5 x 8.0)
Tunnel length (m)	650
Tunnel slope (%)	1.5
Outlet invert elevation (masl)	1248.0
Submerged guiding structure crest elevation (masl)	1272.0
Submerged weir/guiding structure height (m)	21 (estimated maximum above foundation)
6. River Diversion	
Construction Flood (T= 20 years) (m ³ /s)	900
Diversion type	Openings left in the dam body for the low level spillway and a left bank diversion tunnel (which will be further converted to the sediment bypass tunnel)
Upstream Cofferdam type	concrete gravity solution (which will be further converted to guiding structure)
Upstream Cofferdam crest elevation (masl)	1272.0
Downstream Cofferdam type	concrete gravity solution
Downstream Cofferdam crest elevation (masl)	1252.5
Diversion tunnel type	archway (concrete lined)
Diversion tunnel no. (-)	1
Diversion tunnel size (WxH) (m)	archway (7.5 x 8.0)
Diversion tunnel length (m)	650
Diversion tunnel slope (%)	1.5
Diversion tunnel inlet invert El. (masl)	1261.0
Diversion tunnel outlet invert El. (masl)	1248.0
7. Power Intake Structure	
Intake type	Horizontal intake
Trash rack No.	4
Trash rack size (W x H) (m)	8 x 10

Service gates No.	2
Service gates size (W x H) (m)	4 x 8
Intake crest elevation (masl).	1271
8. Headrace Tunnel	
Tunnel section	Circular concrete lined (8.0 m inner diameter)
Length up to surge tank (m)	9137
Tunnel slope (%)	0.56%
9. Upstream Surge Shaft	
Type	Concrete lined circular surge shaft
Internal diameter (m)	14.5
Surge shaft height (m)	122
Surge shaft bottom elevation (masl)	1220.0
10. Pressure Tunnel/Shaft and Penstock	
Pressure tunnel/shaft main section type and size	Steel lined circular cross section (5.6 m internal diameter)
Pressure tunnel/shaft length (m)	152
Penstock length (m)	88
Branch Section Type	Manifold (3 branches)
Size of each branch (m)	3.2 m internal diameter conduits
Max. Length of branch (m)	~30
11. Powerhouse and Substation	
Powerhouse type	Conventional underground cavern
Main cavern general dimensions (LxWxH) (m)	71 x 20 x 34
Turbine type	Francis
No. of units	3
Turbine axis elevation (masl)	1054.0
No. of generators	3
Transformer / Substation type	Underground cavern (adjacent to the main powerhouse cavern)
Transformer cavern general dimensions (LxWxH) (m)	88 x 14 x 20
12. Downstream Surge Shaft	
Type	Concrete lined circular surge shaft
Internal diameter (m)	3
Surge shaft height (m)	244
Surge shaft bottom elevation (masl)	1055.0
13. Tailrace	
Type	Circular tunnel with transition to an archway section at the final length and Outlet portal
Tunnel section	Circular concrete lined (8.0 m diameter)
Length up to the final transition section (m)	1515

Tunnel slope up to the final transition section (%)	0.23% (ascending slope)
Tunnel final section	Archway concrete lined section (8.0 W x 8.0 H)
Length from transition to outlet (m)	50
Tunnel slope up to the outlet portal (%)	15% (ascending slope)
14. Power and Energy	
Gross Head (m)	229.0
Design Net Head (m)	217.6
Installed plant capacity (MW)	300 (at the generator)
Mean annual energy (GWh)	1143 (average of 55 years)
15. Project Access Facilities	
Access road to dam and related structures (length)	550 m (Off taking from National Highway N-15 at the left side of Kunhar River, near Paras village)
Access road to sediment by-pass tunnel (length)	440 m (from dam bridge deck up to sediment by-pass tunnel intake)

Figure 2.1: Project Location in District Mansehra

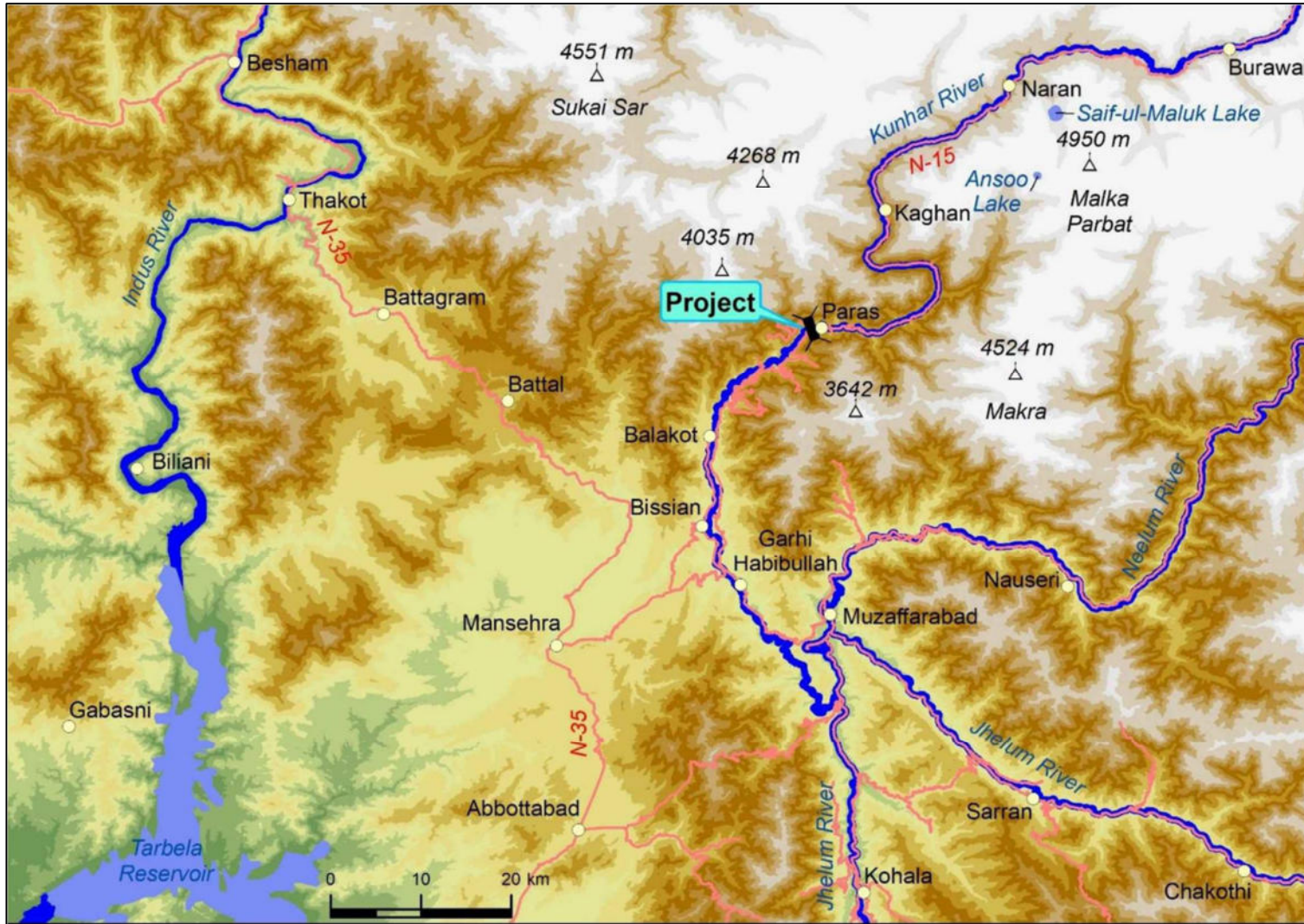


Figure 2.2: Project Layout Map

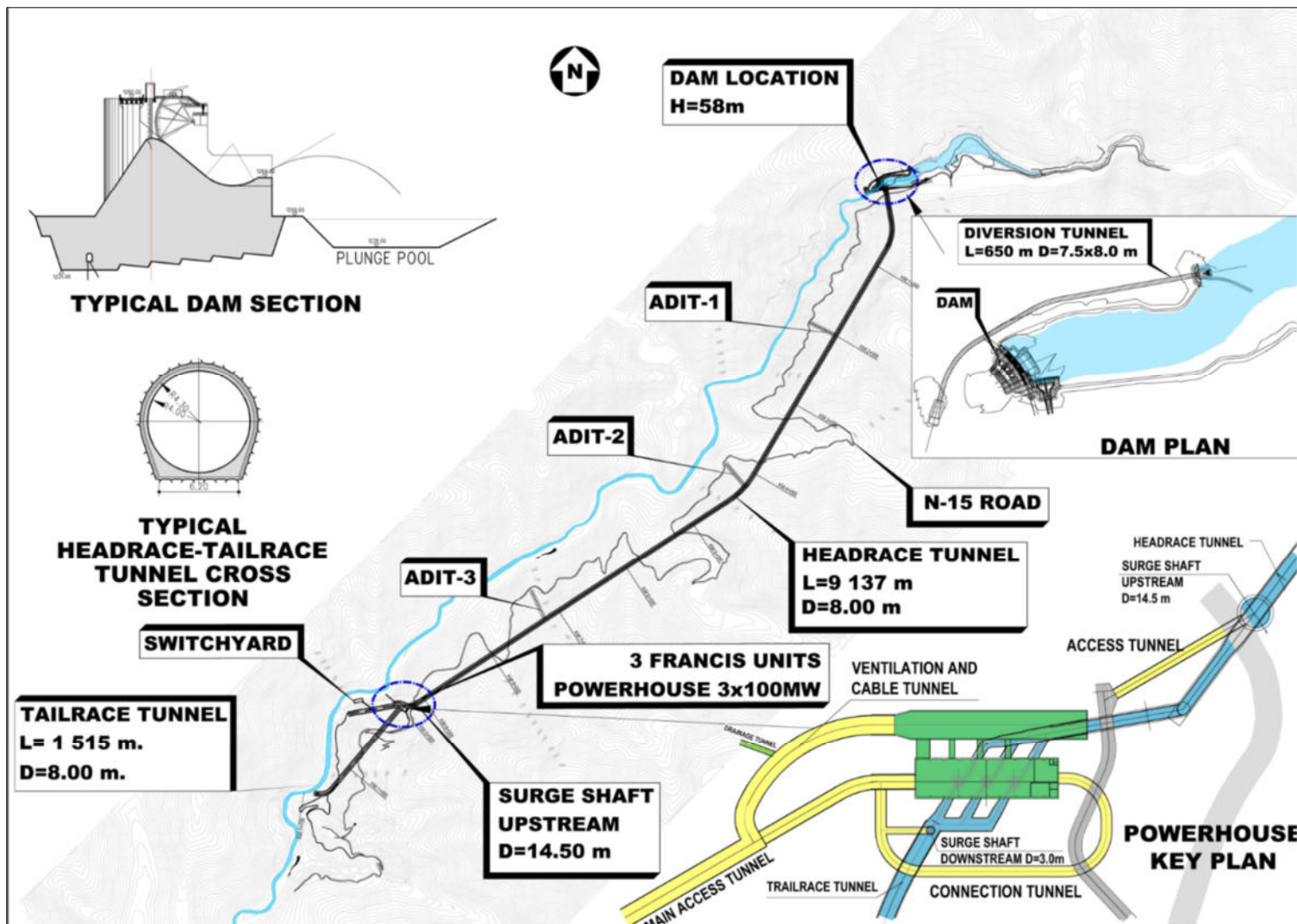


Figure 2.3: Project Setting-Dam Site

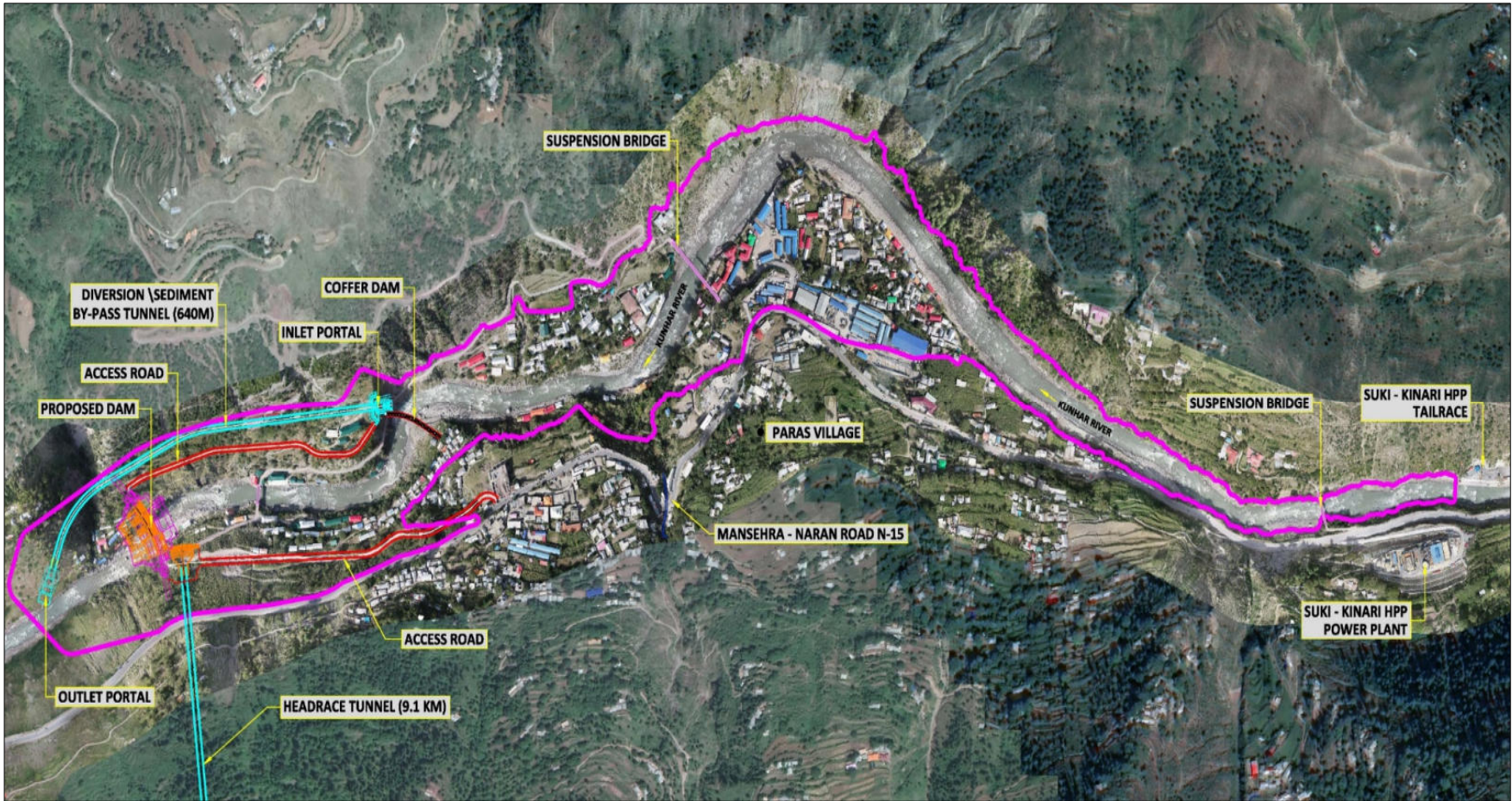
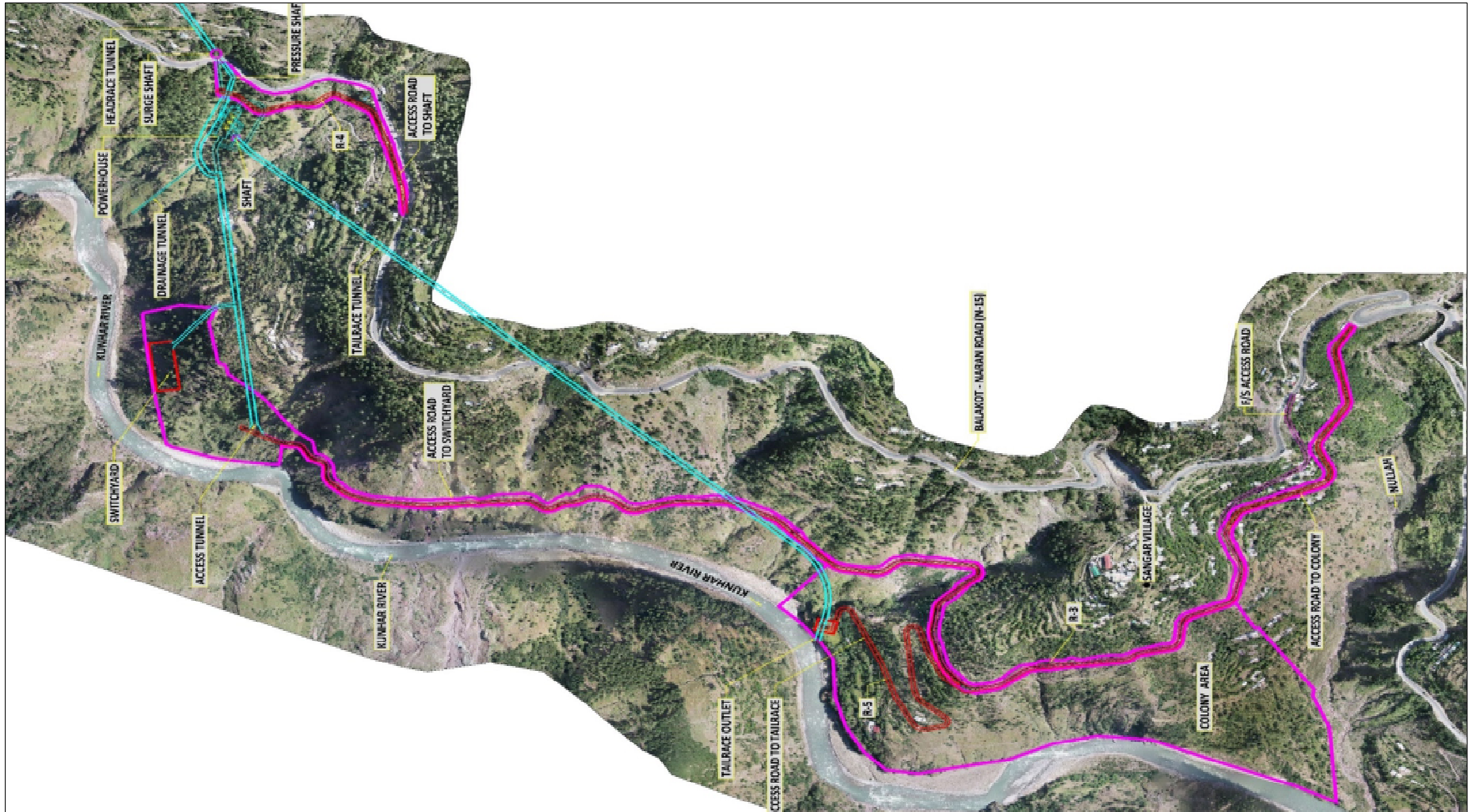


Figure 2.4: Project Setting-Powerhouse and Colony Sites



2.2 Project Contracts and Management

2.2.1 Project Implementation Arrangement

10. Balakot Hydropower Project (300MW) will be implemented through the arrangement as elucidated in the table below.

Table 2.1: Project Implementation Arrangement

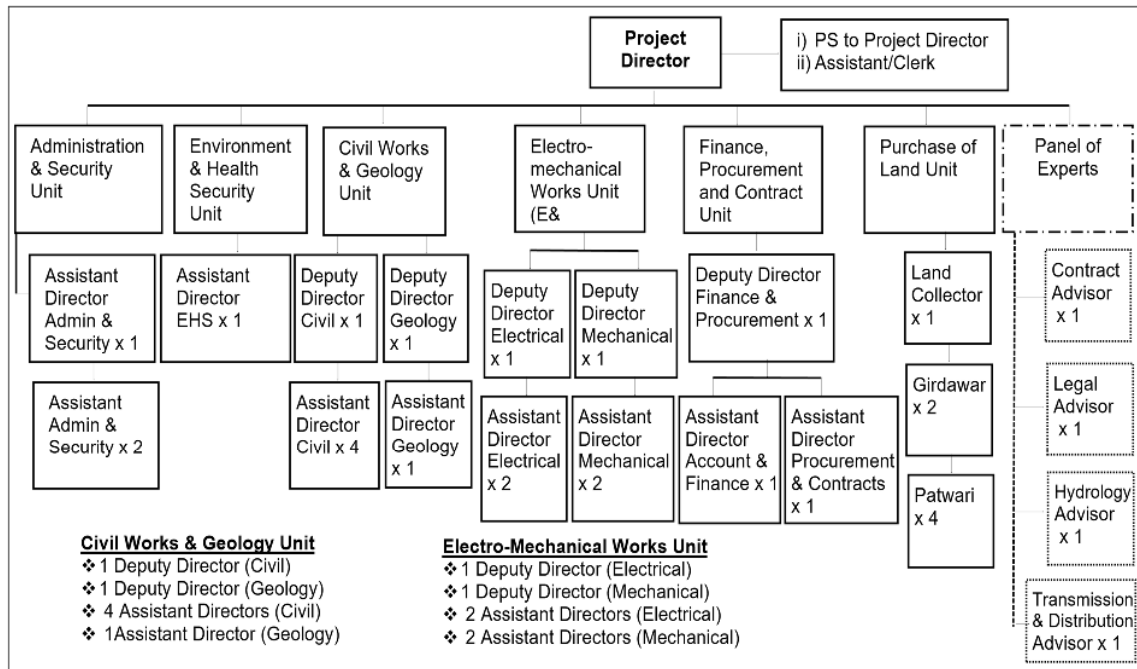
Arrangement	Organization/Agency
Funding Sources	<ul style="list-style-type: none"> • Asian Development Bank (ADB) and Asian Infrastructure and Investment Bank (AIIB) through a loan to the Government of Pakistan (Loan No: 4057/8397 (AIIB)-PAK) • Government of Khyber Pakhtunkhwa
Executing Agency	Energy and Power Department, Government of Khyber Pakhtunkhwa
Implementing Agency	Pakhtunkhwa Energy Development Organization (PEDO), Government of Khyber Pakhtunkhwa
Project Management Consultants	Joint Venture of: <ul style="list-style-type: none"> • DOLSAR Engineering Inc. Co. (Turkey) Lead Firm • AGES Consultants • BAK Consulting Engineers • CivTech Associates • Electra Consultants • Techno Legal Consultants (Pvt.) Limited from Pakistan
EPC Contractor	Joint Venture of China Gezhouba Group Company (CGGC), China & Ghulam Rasool and Company Pvt. Ltd (GRC), Pakistan

11. For the project development, the Government of Khyber Pakhtunkhwa signed a loan agreement with the Asian Development Bank (ADB) on May 21, 2021 which became effective on July 7, 2021.
12. As Asian Infrastructure and Investment Bank (AIIB) is the co-financier of the project, therefore, loan agreement was also signed with the bank which is effective since October 25, 2021.

A. Project Implementation Unit

13. The Project Implementation Unit (PIU), responsible for procurement and supervision of the project, is currently under establishment by the Implementing Agency (IA) i.e. Pakhtunkhwa Energy Development Organization (PEDO).
14. **Figure 2.5** shows the proposed organogram of the PIU wherein the Project Director, Deputy Director and Assistant Director along with some of the support staff are already onboard while procurement of the remaining personnel is in progress.

Figure 2.5: PIU Organogram



15. As evident from the above organogram, PIU is headed by the Project Director with whom the overall responsibility for environmental management and environmental monitoring rests. He will be assisted by the Environment & Health Security Unit, in matters pertaining to the Environmental, Health and Security aspect of the project.
16. During the reporting period, the PIU was also supported by the PEDO core staff like finance staff, Deputy Director EHS etc. through staff gap arrangement in the capacity of additional charge till deployment of the PIU dedicated staff.
17. The PIU project office is proposed to be established at project site under the provision of the EPC contract for which, the EPC Contractor is in search of suitable facility at Balakot city. Once established, the PIU staff will station there for the project supervision and management.

B. Project Management Consultant

18. On September 03, 2020, PEDO entered into Management Consultancy Service Agreement for Balakot Hydropower Project (300MW) with a Joint Venture (JV) of DOLSAR Engineering Inc. Co. (Turkey), AGES Consultants, BAK Consulting Engineers, CivTech Associates, Electra Consultants and Techno Legal Consultants (Pvt.) Limited from Pakistan. The JV is led by DOLSAR Engineering Inc. Co. (Turkey).
19. The consultancy services are effective for 84 months since Commencement of Services on September 11, 2020. During this period, the JV will provide services specified in the consultancy contract agreement as Project Management Consultant (PMC) and will act on behalf of PEDO as “Project Manager/Engineer”.

20. Table below shows chronological order of the procurement of consultancy services.

Table 2.2: PMC Procurement Milestones

S/No	Description	Date
1	Expression of Interest (EOI)	July 29, 2019
2	Technical & Financial Proposals	November 29, 2019
3	Opening of Financial Proposals	May 19, 2020
4	Contract Negotiation Meetings	August 06 and 07, 2020
5	ADB Comments on / Concurrence to Negotiated Contract	August 25, 2020
6	Signing of Contract for Consultancy Services	September 03, 2020
7	Commencement of Services	September 11, 2020

21. Following table exhibits details of the key personnel of PMC deployed to the Balakot Hydropower Project (300MW), during the reporting period.

Table 2.3: PMC Key Personnel Deployed to the Project

S/No	Name	Designation	Input
1	Mehmet Çingisiz	Project Manager / Team Leader	Intermittent
2	Kağan Solmaz	Procurement Expert	Intermittent
3	Okan Alper Koruk	Contract Manager	Intermittent
4	Alican Aslan	Geotechnical Expert	Intermittent
5	Mustafa Arslan	Hydraulics Expert	Intermittent
6	Ali Osman Erdem	Sediment Management Expert	Intermittent
7	Hasan Çulha	Hydro-mechanical Expert	Intermittent
8	Burhan Arıöz	Electrical Expert	Intermittent
9	Jamshed-ur-Rahman	Resident Engineer/Deputy Team Leader	Full Time
10	Assad Ali Khan	Environmental Expert	Intermittent
11	Muhammad Ishaq	Structures Engineer	Intermittent
12	Ali Akbar	Resettlement Expert	Intermittent

22. Engineer Assad Ali Khan, the PMC Environmental Expert (EE) Balakot Hydropower Project (300MW) is onboard with intermittent inputs since commencement of the services. The EE can be approached through:

- the PMC official email ID i.e. dtlbalakothpp@yahoo.com
- Office No.+92-912601188 or Cell No.+92-3369555505

23. The PMC office, currently located in the University Town Peshawar, will subsequently be shifted to the Site as soon as EPC Contractor provide furnished offices at Site as per provisions of the EPC Contract.

C. EPC Contractor

24. The construction contract of Balakot Hydropower Project (300MW) was awarded to a Joint Venture of China Gezhouba Group Company (CGGC), China & Ghulam Rasool and Company Pvt. Ltd (GRC), Pakistan on Mach 09, 2021.
25. Consequent upon fulfillment of the requisite conditions of the EPC Contract, the Implementing Agency (IA) notified September 27, 2021 as an Effective Date for EPC Contract.
26. Various milestones achieved during procurement process of the EPC Contractor are tabulated below.

Table 2.4: EPC Contractor Procurement Milestones

S/No	Description	Date
1	Invitation for Bids	November 23, 2019
2	Site visit to Bidders	December 10, 2019
3	Pre-Bid Meeting	December 13, 2019
4	Bids Submission	June 15, 2020
5	Technical Bid Opening	June 15, 2020
6	Financial Bid Opening	December 15, 2020
7	Notification of Award	February 10, 2021
8	Contract Signing	March 09, 2020
9	Effective Date	September 27, 2021

27. The EPC Contractor's environmental obligations are specified in Volume-01 of 07 (Appendix-9) and Volume-03 of 07 (GCC & SCC) of the Contract Document.
28. Under the provisions of the EPC Contract, Contractor will prepare around 29 plans, including Site Specific Health and Safety Management Plan (SSHSM), for implementation of the Environment, Health and Safety (EHS) obligations of the contract. These plans will be prepared in light of the approved EIA report, the SPS 2009 guidelines and in pursuance of the conditions of "Environmental Approval" granted by the Khyber Pakhtunkhwa Environmental Protection Agency.
29. Although, Health and Safety Manager i.e. Mr. Ning Baiping has been mobilized however, EPC Contractor is yet to seek the PIU/PEDO approval of Environmental Manager as per contract requirements.
30. During the reporting period, preparation of various HSE plans remained in progress.
31. The EPC Contractor has not initiated any construction activities at Site as under the provision of the conditions of contract and as provided in the Program of Works, such activities are conditional with the grant of possession of Site and approval of the project Basic Engineering Design.

32. The construction activities are scheduled to be initiated in September, 2022 hence, supervision and monitoring of construction related environmental safeguard activities will accordingly be commenced. Nevertheless, the monitoring activities pertain to establishment of construction camp and installation of batching plant etc. will be carried out as per approved plans.

Figure 2.6: Consultancy and Construction Contract Awards



Consultancy Services Contract Award (2020)



Construction Contract Award (2021)

2.3 Activities During Current Reporting Period

33. As expounded above, this is the first Semi-annual Environmental Monitoring Report (SAEMR) for Balakot HPP (300MW), which covers activities undertaken in environmental portfolio of the project since mobilization of the Project Management Consultants on September 11, 2020.
34. For the complete trail of the project environmental aspect, the environmental activities can broadly be divided into two phases i.e. (i) Activities undertaken from the PMC mobilization to the Effective Commencement Date of September 27, 2021 notified to the EPC Contractor; and (ii) Activities undertaken since September 27, 2021 to the end of the reporting period.
35. Details of these interventions are given hereunder in chronological order.

2.3.1 Activities till EPC Contractor's Effective Date of September 27,2021

A. Site Visits

36. **First Field Visit:** Consequent upon Commencement of Services on September 11, 2020, the PMC team comprising specialists / experts in various fields conducted detailed site visit on September 15 and 16, 2020, with the Project Director Balakot HPP(300MW) to develop an understanding of the project, thereby recording field assessment for interventions as recommended in the project EIA report.

37. The project dam, powerhouse, newly proposed and previously identified colony sites were visited in detail and observations were accordingly recorded.
38. As, at the previously identified colony site, there involved cutting of large number of pine trees and implementation of slope stabilization measures due to steep topography therefore, the PEDO proposal of the newly identified colony site was accordingly firmed up during this visit. PEDO was however, advised to realign the proposed access road off taking from N-15 to minimize impact on the local flora.
39. **Second Field Visit:** In the project EIA report, environmental flow (E-Flow) of 1.5 cumec had been recommended under the baseload operation management of the plant whereas for peaking operation, a flow of 6.1 cumec with high protection was reserved.
40. The Project Management Consultant (PMC) Environmental Expert (EE) and Assistant Director Environment (PEDO), conducted site visit on October 6 and 7, 2020 to re-assess the sufficiency of 1.5 cumec E-Flow provision and to identify the Kunhar River contributing nullah/streams between dam and powerhouse tailrace.
41. During the visit, various contributing nullah/streams were accordingly marked on the Google imagery while downstream water consumers, particularly between the dam site and the first perennial Kiwai nullah, were assessed.
42. In view of the foregoing and to discuss various other points noted during the course of review, a tripartite meeting was held among PEDO, PMC and Hagler Bailly Pakistan's environmentalists, on November 12, 2020 at the latter's Islamabad office as detailed under meetings subhead.
43. **Third Field Visit:** For the grant of "Environmental Approval" and as mandatory under the law, the Environmental Protection Agency of Khyber Pakhtunkhwa (KPEPA) arranges Public Hearing in the project area whereby general public, project affectees and representatives of various government departments including district administration participate in the event.
44. In pursuance of the Director General KPEPA instructions, the Deputy Director Environment (PEDO) and the PMC Environmental Expert (EE) visited the project area on March 09, 2021, whereby a number of sites were identified for the proposed Public Hearing event. However, subsequent to the prior approval of the Education Department officials, Government High School Nehan (Paras) was finalized as the most suitable venue for the event.
45. On March 10, 2021, on behalf of the Director North, the Environmental Inspector KPEPA Abbottabad office, visited the venue identified for Public Hearing, took photographs and inspected its various aspects.

46. Consequent upon approval of the Director North and written intimation thereafter, PEDO published advertisement in daily newspapers for the proposed Balakot HPP (300MW) Public Hearing on April 12, 2021 at 2:30 PM at the venue mentioned above. The advertisement published in different newspapers is exhibited under **Annexure-01**.
47. **Fourth Field Visit:** On February 07 and 08, 2021, the Asian Infrastructure Investment Bank (AIIB) environmental due-diligence team along with the Deputy Director (PEDO) and Environmental Expert of PMC visited the project dam, powerhouse and colony sites.
48. The PMC Environmental Expert explained various socio-environmental aspects of the project considered in the EIA report and clarified queries of the visiting team. The AIIB Due-diligence team also visited the previously identified colony site to assess justifications in favor of the alternate location.

Figure 2.7: Glimpses of Site Visits



New Proposed Colony Area Site



Discussion at Powerhouse Site



Assessment of the Kunhar River Contributing Streams between Dam and Powerhouse



The Kunhar River L/S Contributing Stream at Kewai



Discussion with AIIB Due diligence Team at Colony Site



The AIIB Due diligence Team Meeting with Locals of the Paras village (Dam Site)

B. Meetings

49. **Meeting with Hagler Bailly Pakistan on EIA of Balakot HPP (300MW):** Subsequent to the brief review of Environmental Impact Assessment (EIA) report of Balakot Hydropower Project (300MW) and thereafter field visit to the project site towards that end, a meeting, on the main agenda items listed below, was held with the Environmental and Social team of Hagler Bailly Pakistan on November 12, 2020 at their Islamabad office. The meeting was also attended by Deputy Director Environment (PEDO).

Meeting Agenda:

- Environmental Flow (E-Flow) provision under the project i.e. (i) Recommended Option of 1.5 cumec with baseload operation; and (ii) Alternate option of 6.1 cumec with peaking operation.
 - Structural arrangements for release of E-Flow
 - Fish ladder provision
50. Following the introduction of participants and opening remarks regarding meeting objectives, Mr. Zafar Ali, Deputy Director Environment (PEDO), invited Mr. Vaqar Zakria, Managing Director Hagler Bailly Pakistan, to initiate sequential discussion on the foregoing agenda items.

Environmental Flow (E-Flow) provision under the project i.e. (i) Recommended Option of 1.5 cumec with baseload operation; and (ii) Alternate option of 6.1 cumec with peaking operation.

51. On the above agenda item, Mr. Vaqar Zakria expounded that as reported in the project EIA, E-Flow of Balakot HPP was modeled on the basis of two scenarios i.e. Baseload and Peaking operation while taking all other factors into account including the Kunhar River contributing streams / nullahs in the study reach. Consequently, for the plant operation scenarios, flows of 1.5 and 6.1 cumecs were optimized respectively.
52. Assad Ali Khan, the Environmental Expert of PMC, was however, of the view, that Suki Kinari HPP will operate under peaking mode as learnt during the Employer and PMC joint visit to the project. Hence, for Balakot HPP, there is no other option left but to operate the plant under the same mode. Also, in the project Feasibility Design Report provided by the Employer, it is also affirmed that Balakot HPP (300MW) plant will operate on peaking mode with the provision of 6.1 cumec E-Flow downstream of the proposed dam
53. **Structural arrangements for release of E-Flow:** The Managing Director clarified that structural arrangement for the release of E-Flow is an engineering subject, hence, the design consultant / contractor is expected to make appropriate arrangements for the same during the detailed design phase of the project. The PMC Environmental Expert however, apprised that apparently, there was no structural arrangement in the bidding drawings for the E-Flow release through dam body.

54. **Fish ladder provision:** Regarding fish ladder, the Managing Director, Hagler Bailly Pakistan, was of the view that owing to the height of the dam i.e. 60m, as given in the EIA report, provision of fish ladder appears to be of no advantage.
55. **First Meeting with AIIB:** A virtual meeting of AIIB, PEDO and PMC officials was held via Zoom on November 24, 2020 wherein various aspects of the project were discussed in detail including the upcoming activities under environmental portfolio. The AIIB questions, regarding the Biodiversity Action Plan (BAP) contained in the EIA report, were accordingly responded by the PMC Environmental Expert. He apprised the participants that as the EIA report is currently under review by the Khyber Pakhtunkhwa Environmental Protection Agency (KPEPA) for grant of the “Environmental Approval”, hence the BAP and any changes therein proposed by the Agency will be discussed upon such approval.
56. **Second Meeting with AIIB:** A second Zoom meeting of AIIB, PEDO and PMC was held on December 16, 2020 wherein various queries of the bank pertaining to the EIA report were responded and clarified by the PMC Environmental Expert. These queries were mostly related with the provision of labour safety and BAP in the bid document.
57. **Meeting with the Director North KPEPA:** In pursuance of the Director General KPEPA instructions, on March 08, 2021, the Deputy Director Environment (PEDO) and the PMC Environmental Expert (EE) held a meeting with the Director North KPEPA at his Abbottabad office in connection with the selection of venue for the Public Hearing and finalization of date thereof. The public hearing venue and date was accordingly decided in the aforesaid meeting with the Director North, KPEPA. Proceedings of the Public Hearing are detailed in the upcoming paras.
58. **Meeting with the Director General KPEPA and other Provincial Departments:** In connection with the “Environmental Approval” of Balakot HPP (300MW) EIA report, a meeting was held with DG KPEPA on 14th of June 2021 at his office which was also participated by Project Director (PD) Balakot HPP (300MW), Deputy Director (DD) Environment (PEDO) and Environmental Expert (EE) of the PMC. In the meeting, the DG KPEPA asked PD to obtain No Objection Certificates (NOCs) from Wildlife, Forest, Mine & Mineral and Fisheries Departments of Government of KPK. Director General also handed over written comments of KPEPA, on the EIA report for the PEDO’s compliance.
59. A series of meetings were accordingly held, from June 15 to 17, 2021, with the district heads of the Wildlife, Forest, Mine & Mineral and Fisheries Departments, wherein DD and EE collectively explained the project layout and multitude of measures proposed in the EIA report to mitigate the associated environmental impacts.
60. Sequel to the above, the Forest, Wildlife and Fisheries Department granted NOCs while NOC from the Mine & Mineral department is still awaited.

C. Public Hearing Event

61. The Public Hearing event of Balakot Hydropower Project BKHPP (300MW) was held on April 12, 2021 at the Nehan High School Paras, which was attended by local representatives, affectees and general public at large alongside Deputy and Assistant Directors from Peshawar and Abbottabad offices of the Khyber Pakhtunkhwa Environmental Protection Agency (KPEPA), District Police officers, officers from health and education departments. PEDO was represented by the Deputy Director Environment whereas the Project Management Consultant (PMC) was represented by Environmental and Resettlement experts. From Hagler Bailly Pakistan, Environmental and Social experts participated in the event.
62. Proceedings of the event started by recitation of the Holy Quran followed by the Deputy Director KPEPA speech, wherein he highlighted the purpose of event vis-a-vis various legal obligations to be fulfilled by the stakeholders. Assistant Director KPEPA North also shed light on the Agency's ongoing interventions in the District in general and in the project area in particular. The Deputy Director PEDO, expounded various initiatives taken by the PEDO for harnessing the province's renewable energy resources and the upcoming future projects. He also explained the Balakot project's background and its current status.
63. Environmental and Social experts of Hagler Bailly Pakistan delivered a detailed presentation highlighting the project impacts on socio-environmental resource base of the area and on various mitigation/prevention measures proposed thereof. On behalf of the locals, Tanveer Shah, a member of local committee, briefly highlighted concerns pertaining to valuation of land, built-up property and the project impacts on the affectees' livelihood.
64. At the end of the event, participants asked a number of questions, mostly regarding compensation against land, built-up property and pollution of the Kunhar River caused by the Sukki Kinari Hydropower Project. Respective experts of PMC, officials from KPEPA and PEDO responded the related questions while most of the affectees concerns were clarified at the spot. Regarding matter of the Kunhar River pollution, the Deputy Director KPEPA apprised the participants that soon a team of Environmental Monitoring will be deputed for lab testing of the Kunhar River water.
65. It is worthwhile to mention here that although, no one was debarred from participation in the event, however, maximum efforts were made to ensure implementation of the COVID-19 related SOPs.

D. Approval of the EIA Report

66. Consequent upon securing NOCs from the relevant departments under the directions of the KPEPA and holding of Public Hearing event, the Director General KPEPA issued "Environmental Approval" on July 07, 2021 for the EIA report submitted to the Agency in November, 2019. The "Environmental Approval" is attached as **Annexure-02**.

67. Concerns of the locals, expressed at the occasion of Public Hearing event, have duly been addressed under Item “a” to “o” and “ff” of the “Environmental Approval”.

Figure 2.8: Glimpses of Meetings (Pre Construction Contract Effective Date)



Kick-off Meeting with the Employer



Virtual Meeting with AIIB Environmental Team



Public Hearing Event at Nehan Paras Dam Site



Question/Answer Session in Public Hearing Event



AIIB Due diligence Team Meeting with Assistant Director Fisheries Department (District Mansehra)

2.3.2 Activities after EPC Contractor's Effective Commencement Date of September 27, 2021

68. As expounded above, consequent upon the PEDO's signing of the EPC Contract with the Joint Venture of China Gezhouba Group Company (CGGC), China & Ghulam Rasool and Company Pvt. Ltd (GRC), Pakistan on March 09, 2021, the Contract Effective Date of September 27, 2021 was subsequently notified vide PEDO letter to the EPC Contractor attached as **Annexure-03**.
69. Since notification of the Effective Date, several meetings were held with the EPC Contractor and with the project financiers i.e. ADB and AIIB. Following are the details of such meetings.
70. **Kick-off meeting with the EPC Contractor:** A kick-off meeting was held on October 7, 2021 at PEDO House Peshawar, participated by the PIU, PMC and the EPC Contractor's staff wherein it was decided that a separate meeting with the Contractor's environmental team will be held on October 11, 2021 at their Islamabad office to discuss matters pertaining to the environmental provisions in the contract document and future course of action thereof.
71. In light of the foregoing, a meeting between the PMC Environmental Expert and the Contractor's environmental team was held on October 11, 2021 at the EPC Contractor's Islamabad office. During the course of meeting, the PMC Environmental Expert asked the EPC Contractor's representative to submit CVs of the environmental team in pursuance of the SCC Sub-Clause 9.9 "Environmental Safeguards" of Volume-03 of 07 of the Contract Document. He was further asked to submit a list of various plans/ report to be furnished by the Contractor for review and approval of the Employer/PMC.
72. However, till the end of the reporting period, the Contactor had not submitted CVs of the requisite environmental team for the review and approval thereof.
73. During the reporting period, on October 19, 2021, Contractor submitted Health and Safety Management Plan for the PMC review and approval. The plan was accordingly reviewed and comments thereon were transmitted to the Contractor on October 26, 2021. The Contractor's response however, remained awaited till the end of reporting period
74. **Meeting with the ADB and AIIB Loan Inception Mission:** The Balakot HPP (300MW) PIU and PMC held a series of meetings with the ADB-AIIB Loan Inception Mission from November 15 to 25, 2021. During the meeting held on November 17, 2021, the PMC's Environmental Expert presented progress on the project environment related loan covenants and current status of the portfolio. Following the participant's questions, the Mission asked PMC Environmental Expert for a brief presentation on December 02, 2021, on the project Biodiversity Action Plan (BAP) contained in the approved EIA report.

75. To the effect of the above, the PMC Environmental Expert presented BAP via video conferencing, participated by the ADB environmental team and Deputy Director Environment (PEDO). The array of challenges/constraints and opportunities in implementation of BAP were discussed in detail. The PMC EE apprised that process for BAP materialization will be initiated upon establishment of environmental team at PIU which is expected in January 2022.

Figure 2.9: Glimpses of Meetings (Post Construction Contract Effective Date)



Kick-off Meeting with the EPC Contractor



Meeting with the Contractor Environmental Team



Meeting with the ADB-AIIB Inception Mission



2.4 Description of any Changes in the Design

76. During the reporting period, the project basic design remained in progress. So far, no changes have occurred/approved in the design configuration of the project.

2.5 Description of any Changes to Agreed Construction Methods

77. The EPC Contractor has not yet submitted the detail construction methodology for review and approval to assess any changes to the bid level execution methodology.


3 ENVIRONMENTAL SAFEGUARD ACTIVITIES

3.1 General Description of Environmental Safeguard Activities

78. So far, neither Contractor has re-submitted the requisite environmental safeguard plan for review and approval nor has commenced construction activities therefore, no associated environmental safeguard activities could be supervised at Site.
79. The construction related environmental safeguard activities will be supervised upon commencement of Works scheduled in September, 2022.

ANNEXURES


Annexure-02: Environmental Approval to the EIA Report



Environmental Protection Agency
Forestry, Environment & Wildlife Department
Govt. of Khyber Pakhtunkhwa

No. EPA/EIA/HPP/300MW/Balakot/21/980

Dated 06 / 07 / 2021




To,

✓ The Project Director,
Balakot HPP, PEDO, Peshawar.
Contact No. 091-9217463

SUBJECT: DECISION ON ENVIRONMENTAL IMPACT ASSESSMENT (EIA) REPORT OF 300MW BALAKOT HYDRO POWER PROJECT FOR ENVIRONMENTAL APPROVAL

Kindly refer to the subject cited above and to enclose herewith Environmental Approval/Decision Note (in original) on EIA Report of the subject project for your information and further implementation.

Moreover, Schedule-VII must be submitted to this Agency within a month on Stamp Paper (Copy enclosed). The same shall be submitted as an undertaking for the compliance of terms and conditions as mentioned in the Environmental Approval as well as mitigation measures proposed in the EIA Report, please.


Director General

Copy for information to the;

1. Secretary, Forestry, Environment and Wildlife Department, Govt. of Khyber Pakhtunkhwa, Peshawar.
2. Commissioner, Hazara Division, Govt. of Khyber Pakhtunkhwa.
3. Secretary, Mines & Mineral Development Department Govt. of Khyber Pakhtunkhwa.
4. Chief Conservator, Forest Department, Govt. of Khyber Pakhtunkhwa.
5. Director General, Fisheries Department, Govt. of Khyber Pakhtunkhwa.
6. ~~Chief Conservator~~, Wildlife Department, Govt. of Khyber Pakhtunkhwa.
7. The Director North, EPA Regional Directorate, Abbottabad.

D:\EIA Section 2011\Sectors\Hydro Power Project\300MW Balakot HPP District Mansehra

3rd Floor, SDU Building, Khyber Road, Peshawar Cantt
Telephone: 92 (91) 9210263, Fax: 92 (91) 9210280

SCHEDULE-VI
Decision on EIA

- 1. Name, address of proponent:** The Project Director, Balakot HPP,
PEDO, Plot No. 38-B2, PEDO House,
Phase-V, Haytabad, Peshawar.
Contact No. 091-9217463
- 2. Description of project.** M/S 300 MW Balakot Hydropower
Development Project located at 18.6km
upstream of the town of Balakot, District
Mansehra. The Dam will be a concrete
gravity dam with a maximum height of 35m
from the river bed and dam crest length of
130m. The top elevation will be 1292m
above mean sea level (amsl). The dam will
create a reservoir that will operate between
with a maximum level of 1288m and the
minimum operating water level of 1283m.
The reservoir volumes corresponding to the
maximum and minimum operating levels
are 3.6million cubic meter and 2.4 million
cubic meter, respectively. The surface area
of the reservoir will be approximately 28
hectares and it will be extend 2.2 km
upstream of the dam. A headrace tunnel
extending 9.1km will divert water from the
reservoir created by the dam to the
powerhouse. The powerhouse will be
underground caven-type powerhouse. A
1.565km long tailrace tunnel will discharge
the water back to the Kunhar River. The
total distance between the dam and the
outfall of the tailrace tunnel will be about
13.4km. The total installed capacity will be
300MW. The average annual energy
generation will be 1143 Gigawatt-hour
(GWh).
- 3. Location of project.** District Mansehra.

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GPS Coordinates:

S.No	Type	Latitude	Longitude	S.No.	Type	Latitude	Longitude
1	Weir	34.659454°	73.449015°	8	Tunnel	34.603045°	73.381508°
2	Tunnel	34.659567°	73.449193°	9	Tunnel	34.603295°	73.380966°
3	Tunnel	34.654372°	73.451447°	10	Tunnel	34.594936°	73.371572°
4	Tunnel	34.653311°	73.451488°	11	Tunnel	34.594429°	73.370584°
5	Tunnel	34.652587°	73.451374°	12	Tunnel	34.594230°	73.369587°
6	Tunnel	34.628207°	73.430871°	13	Tunnel	34.594324°	73.368471°
7	Tunnel	34.627600°	73.429977°	14	Tunnel	34.594638°	73.367308°
-	-	-	-	15	Powerhouse	34.604418°	73.380401°



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4. **Date of filing of EIA.** 03/09/2019 (Ref: EPA Diary No.798)
5. After careful review, the Environmental Protection Agency, Govt. of Khyber Pakhtunkhwa has decided to accord Construction Environmental Approval of the Environmental Impact Assessment (EIA) Report of **"300MW Balakot Hydro Power Project, District Mansehra"** in line with the Khyber Pakhtunkhwa Environmental Protection Act, 2014 and the Review of IEE/EIA Regulations, 2000, subject to the following Terms & Conditions;
 - a) The proponent shall adopt all precautionary and mitigation measures recommended in the EIA Report as well as replies of the proponent submitted to this Agency and any un-anticipated impacts arising during the Construction and Operation phase of the project.
 - b) Arrangement for compensation to the affectees, in case of loss of land, Crops, property, Schools, Water Springs, Water Supply Schemes, Hotels and Masjids will be finalized before the start of construction. Any money

involved in compensation will be deposited with District Govt./Revenue Department for disbursement among the affectees. A committee shall be constituted ensuring fair representation of locals with properly documented grievance procedure. As far as possible recommendations of a committee comprising of land/house owners and tenants shall be taken into consideration during finalizing the compensation package. All conflicting issues regarding compensation, etc. should be settled before executing/commencing of the project activities and a certificate in this regard should be submitted to EPA;

- c) The Land Acquisition & Resettlement Plan (LARP) shall be properly implemented before execution of construction work. The proponent shall submit verified land acquisition and compensation documents prior commencement of construction activities. A certificate of payment to the locals shall be generated from the concerned Revenue Department and must be submitted to this Agency before commencement of the construction activity;
- d) In light of the LARP, in addition to other compensation measures, at least one male & one female from every affected household will be eligible for employment/labor or training or loan based on their willingness, based on the project requirement;
- e) The existing natural water springs, the water supply scheme/spring affected from the Project shall be properly compensated and alternate water supply for the affectees shall be ensured, Detail of the same shall shared with the Agency before commencement of the construction activity;
- f) The spring channels disturbed during tunnel excavation shall be connected to pipes and shall be used as source of drinking water for the locals of the area;
- g) Detail of steps/mitigation measures shall be taken to mitigate impacts of the project on River Kunhar/natural water streams;
- h) The Right of Way (RoW) of the River Kunhar shall be protected. Moreover, the River shall be also protected from all type of pollution from project related activities;
- i) The natural rainwater water sheds RoW shall not be disturbed;
- j) The contaminated waste water of the tunnels shall be retained in confined pits of proper size ensuring proper treatment, complying NEQS parameters before final disposal;
- k) The existing RoW of the nearby villages shall not be affected or alternate routes shall be provided to the villagers;
- l) The affected existing Houses, Bridges, BHU, School, Dispensaries, Electric Poles, Mosque and other structures shall be relocated &

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- compensated to other appropriate area before start of construction work;
- m) A Committee shall be constituted under the supervision of District Administration comprising representatives of the affected villages i.e. Bela Balsehri, Nihan, Dhab, Rehtar, Sangar & Kappi Gali. The Committee will look into issues arising from the Project;
 - n) In order to avoid the traffic congestion issues, the management of the project shall formulate Traffic Management Plan and be submitted to this Agency before commencement of Construction activity;
 - o) The existing Graveyard shall be properly protected and not be disturbed by the project activity, however, unless allowed by elders of the area/local committee by mutual agreement;
 - p) Proper mitigation plan shall be formulated and implemented to avoid soil erosion and land sliding before commencement of Construction activity;
 - q) As per Section Officer (Tech) letter No. SO (Tech)/FE&WD/V-427/2021/PC dated 06/07/2021, after report submitted by Chief Conservator of Forest-II, there is no chance of disturbance to any vegetation & soil cover of the land and issuance of NOC from Forest Department is irrelevant. However, the management shall make no deviation in the project design and designated forest/trees shall not be disturbed;
 - r) Minimum environmental flow of 6.1 Cumecs, with 10% extra provision, if required, shall be maintained in the downstream. In light of the submitted EIA Report, the project management shall made maximum efforts to operate the dam on preferable option of base load high protection operation mode;
 - s) The muck/debris generated from the project shall be properly quantified, dumping sites for the same shall be properly identified & selected and this Agency shall be informed prior commencement of the construction activities. The proponent shall ensure to avoid dumping of debris into down slope or near River Kunhar Right of Way (RoW) or water bodies. The same shall be stabilized by proper plantation, bio engineering and engineering techniques. Retention walls of proper size shall be erected along the muck disposal material/site;
 - t) The biodiversity action plan shall be implemented. Moreover, Wildlife, Forest Department and EPA shall be consulted in improvement of the Biodiversity Action Plan to mitigate the impact of the project on aquatic life, fauna, flora and Environment;
 - u) Safety zone/adequate engineering measures should be provided to overcome fears of the residents regarding project activities to their houses;

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- v) The construction/installations shall be carried out keeping in view seismicity of the project area & ensuring implementation of updated building by-laws/codes;
- w) Proper Flood Management Plan shall be identified for the project site & site specific mitigation measures shall be implemented during floods;
- x) Primary baseline data comprising analysis reports of surface water (River Kunhar/water bodies), Soil, ambient air, noise etc of the project area & shall be carried out from KP-EPA certified Lab before commencement of the construction activity. Moreover, the analysis reports shall be submitted to EPA on quarterly basis;
- y) A sedimentation load study shall be carried out along with mitigation measures for the control of sedimentation from upstream of the reservoir;
- z) Road/Highway Submerged/damaged due to project activity should be reconstructed/repared/rehabilitated to another suitable place in consultation with concerned Govt. Department;
- aa) The effluents generated during tunnel blasting/excavating activities shall not be disposed to any surface water before NEQS compliance. The effluents generated shall be treated in a properly design facility;
- bb) In case, the blasting is inevitable, the controlled techniques, in accordance with Pakistan Explosive Act should be adopted in sliding and perspective sliding prone areas;
- cc) The camp site, asphalt plants, crush plants & batching plants shall be at least 500 m away from residential area/villages;
- dd) The proponent shall ensure the strict and efficient health and safety measures for the protection of workers and passersby backed by a comprehensive emergency response plan;
- ee) A comprehensive CSR policy shall be formulated keeping in view, the demands/needs of the locals and quantum of the project activity. The detail of the same shall be shared with this Agency before commencement of the construction activity;
- ff) Non-technical jobs shall be provided to local community/villages. Employment record for all positions shall be provided to EPA-Khyber Pakhtunkhwa and priority should also be given to locals in technical jobs. Regular trainings shall be arranged for the locals regarding acquiring knowledge of technical jobs;
- gg) Separate approval shall be obtained for establishment of Crushing Plant, Town/Colony, Asphalt plant, etc. under Khyber Pakhtunkhwa Environmental Protection Act, 2014 & the prevailing Rules/Regulations in-vogue; For temporary colony, proper treatment plant shall be constructed for municipal effluents treatment and bringing within the NEQS parameters before final discharge;

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- hh) Fish ladder of proper efficiency shall be constructed for fish movement. Moreover, the conditions suggested by Fisheries Department with his letter No. 2084 dated 16/06/2021, shall be implemented to ensure survival of aquatic life. Furthermore, a Fish Hatchery shall be established in consultation with Fishery Department;
- ii) A comprehensive plantation plan, in consultation with Forest Department, shall be submitted to this Agency along with GPS Coordinates of the plantation sites. Moreover, a nursery shall be established in consultation with Forest Deptt. & a forester along with other supporting staff shall be hired for the same;
- jj) Proper mitigation measures shall be adopted for control of land sliding, soil erosion and sedimentation to the nearby river/water channel;
- kk) An Environmentalist along with team shall be hired for the environmental issues redressal.
- ll) Copy of approval from Mines & Mineral Department shall be shared with this Agency prior commencement of construction activities.
- mm) The cultural values & social norms of the area shall be followed strictly;
- nn) The proponent shall adopt the mitigations measures as mentioned in the Wildlife Department letter No.4233/WI-M dated 24/06/2021 for fauna protection;
- oo) Refer to Mines & Mineral Department vide letter No. 7082/MDW/MA/Misc (01)/2021 dated 30/06/2021, clearance shall be taken from Mines & Mineral Department before commencement of construction activity;
- pp) This Agency shall suggest any additional mitigation measures/updated technology for the control of Environmental Pollution/degradation at any stage (construction & operational phase) of the project;
- qq) No extension would be permitted in the future in the existing hydropower project without prior approval of the EPA/Govt. of Khyber Pakhtunkhwa;
- rr) The proponent shall provide the copy of this approval and EIA Report to the contractor for information and compliance.
6. The Proponent shall be liable for correctness and validity of the information supplied by the environmental consultant.
7. There shall be no legal case pending in the courts against the project
8. The proponent shall be liable for compliance of Regulation 13, 14, 16, 17 and 18 of the IEE/EIA Regulations, 2000, regarding approval, confirmation of compliance, entry, inspections and monitoring.
9. This approval is accorded only for the installation/construction phase of the project. The Proponent will obtain approval for operation of the hydro


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power project in accordance with the Regulation 13 (2) (b) and Regulation 18 of the IEE/EIA Regulations, 2000.

10. Any change in the approved project shall be communicated to EPA, Khyber Pakhtunkhwa and shall be commenced after obtaining the approval.
11. This approval shall be treated as null and void if all or any of the conditions mentioned above is/are not complied with.
12. This approval does not absolve the proponent of the duty to obtain any other approval or clearance that may be required under any law in force.
13. The quarterly progress/compliance report of the above conditions shall be submitted to EPA.
14. In exercise of the power under Section-13 of the Khyber Pakhtunkhwa Environmental Protection Act, 2014, the undersigned is pleased to approve the EIA Report of "**300MW Balakot Hydro Power Project, District Mansehra**" for construction phase of the project with above mentioned terms and conditions.

Dated: Peshawar 06/07/2021

Tracking/File.No. EPA/EIA/HPP/300MW-Balakot/21/980


**DIRECTOR GENERAL,
EPA, Khyber Pakhtunkhwa,
3rd Floor, SDU Building,
Khyber Road, Peshawar Cantt.**

Annexure-03: Effective Commencement Date (Construction Contract)

P E D O
PAKHTUNKHWA ENERGY DEVELOPMENT ORGANIZATION
 Government of Khyber Pakhtunkhwa Peshawar
 Energy & Power Department



No. 740-44/PEDO/PD Balakot HPP/
 Dated the Peshawar 27/ 09/2021

To

Mr. Wang Yanwei,
 Authorized Representative,
 China Gezhouba Group Company (CGGC)
 & Ghulam Rasool and Company (GRC) JV.

Subject: EFFECTIVE DATE OF EPC CONTRACT FOR 300 MW BALAKOT HPP

With reference to Article 3.1 of EPC Contract Agreement dated 09.03.2021, the Asian Development Bank (ADB) has directly transferred USD 38,643,415.22 and PKR 3,402,199,857.63 on 9th and 10th August 2021 into CGGC-GRC JV designated account.

Furthermore, we are enclosing herewith Cheque No. 41306204 (Bank of Khyber) dated 27-09-2021, amounting to PKR. 891,334,537/- (*Pakistani Rupees Eight Hundred Ninety-One Million, Three Hundred Thirty-Four Thousand Five Hundred Thirty-Seven only*) on account of IPC No.01 (Advance Payment). Advance Income Tax @ 7% has been withheld for onward submission. Hence, the total advance payment (15% of the Schedule: 01, 03 and 04) has been made as per the EPC Contract and the Conditions mentioned in Article 3.1 of the Contract Agreement have been fulfilled by PEDO. The effective date for this Contract Agreement is declared as 27th September 2021.

Accordingly, the time schedule given in Appendix-4 of the Contract Agreement shall be adjusted and submitted in light of Project Management Consultants letter No 1018/080 dated 5th July 2021 shared with you via email and as per other provisions of the Contract Documents.

/

**Project Director,
 Balakot HPP**

Copy of the above is forwarded to:

1. The Chief Executive Officer, PEDO.
2. The Chief Engineer (Dev), PEDO.
3. The Director (F/A), PEDO.
- ✓ 4. Team Leader, PMC Balakot HPP.

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**Project Director,
 Balakot HPP**

/

Handwritten signature
 27/09/2021

**Project Director,
 Balakot HPP**

Balakot HPP Consultant.
 Diary No.: 93
 Dated: 27/09/2021