

External Environmental Monitoring Report

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Pakistan: Balakot Hydropower Development Project

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Abbreviations

ADB	Asian Development Bank
AIS	Alien Invasive Species
BHPP	Balakot Hydropower Project
BAP	Biodiversity Action Plan
CAP	Corrective Action Plan
CGGC	China Gezhouba Group Company
CM	Construction Manager
COD	Commercial Operation Date
dB	Decibels (A measure of audible noise)
DHO	District Health Officer
EIA	Environmental Impact Assessment
EEM	External Environmental Monitoring
EMP	Environmental Management Plan
EPA	Environmental Protection Agency
EPC	Engineering Procurement Construction
ES	Environment Specialist
GRC	Ghulam Rasool & Company
GRM	Grievance Redress Mechanism
H&S	Health & Safety
HSE	Health, Safety and Environment
km	Kilometer
KPEPA	KP Environment Protection Agency
LARP	Land Acquisition Resettlement Plan
LEL	Lowest Exposure Limit
m	Meter
masl	Meter above sea level
NEQS	National Environmental Quality Standards
NGO	Non-Government Organization
NOC	No Objection Certificate

NOx	Oxides of Nitrogen
OHS	Occupational Health and Safety
PD	Project Director
PEDO	Pakhtunkwa Energy Development Organization
PIU	Project Implementation Unit
PM10	particulate matter 10 microns' size
PM2.5	particulate matter 2.5 microns' size
PMC	Project Management Consultant
PPE	personal protective equipment
ROW	Right of Way
SAEMR	Semi Annual Environmental Monitoring Report
SAEEMR	Semi Annual Environmental External Monitoring Report
SSEMP	Site Specific Environmental Management Plan
TMP	Traffic Management Plan
TR	Temporary Access Road
WHO	World Health Organization

1 Introduction

1.1 Preamble

1. This is the second Semi-Annual External Environmental Monitoring Report (SAEEMR) for the Balakot Hydropower Project (BHPP 300 megawatts) covering semester July-December, 2023.

1.2 Headline Information

2. This SAEEMR covers the information on the successful implementation status and significant physical progress of construction works at the site, and thoroughly discusses the findings of external environmental compliance monitoring against the project's Environmental Impact Assessment (EIA), Environmental Management Plan (EMP), and Site-Specific Environmental Management Plan (SSEMP) during the reporting period from July to December 2023.
3. Environmental compliance monitoring visit was carried out on 29 February-1st March, 2023 to assess the overall environmental compliance status of the project. Environmental compliance monitoring is conducted by assessing environmental records, tracking progress on previous corrective action plan (CAP) provided in EEM report and as recommended by Project Management Consultant (PMC), conducting on-site inspections and surveys, meetings with project stakeholders including Project Implementation Unit (PIU), PMC and contractors and consultations with local staff.
4. During reporting period, overall 8.60% physical progress achieved against the planned progress of 32.32%.
5. During the reporting period, the temporary & permanent works i.e. construction of Adit Tunnel-01, Tunnel-02 and Tunnel 03, construction of permanent staff residential colony (CAT-III & CAT-IV houses), construction of main access tunnel portal area and temporary facilities at dam area remained in progress. Engineering Procurement Construction (EPC) contractor also started works on dam site (Mouza Paras and Bela Sacha) on Temporary Access Road (TR-01) and Bailey Bridge # 1 from Nov-Dec, 2023.
6. Work on detailed engineering design, EPC contractor reports such as method statements, muck disposal sites, spring survey reports and physical works on staff colony, access roads and excavations of ADIT tunnels continued during reporting period.
7. With respect to updating of project Environmental Impact Assessment (EIA), project implementation consultant (PIC) submitted the updated EIA report covering revised arrangements for BAP implementation, revised composition of project specific BAP implementation committee and design changes as suggested by ADB, to PIU for their review and further concurrence from Asian Development Bank (ADB).
8. ADB conducted Safeguard Progress Review mission dated 13-14 September through desk review, meetings and field visits to assess environmental safeguard compliance of BHPP. As part of mission proceeding, PIU and PIC delivered HSE portfolio presentation on 18th September, 2023 in which progress made on project specific Biodiversity Action Plan (BAP) and Basin wide BAP was discussed. Findings of stakeholder consultations

conducted in previous semester on the BAP was discussed and way forward was sought. It was agreed that findings of stakeholder consultations which was going to be held in November, 2023, will be shared with ADB for review and consent. In this regard PIC conducted two virtual meetings on November 14 & 17, 2023 with stakeholders of basin wide BAP such as Neelum Jehlum, Patrind and Suki Kinari HPPs. Briefing on minutes of meeting was shared with ADB in December, 2023 and the key points are highlighted below.

- There were no budgetary allocations for basin wide BAP in the projects since it is not part of EIAs.
 - There is need to make necessary adjustments in Commercial Operation Date (COD) tariff of the projects which is now at advance stage and quite challenging.
 - Monetarily contribution in Basin-wide BAP by Neelum Jehlum and Patrind HPPs at this stage is not possible as there is no budget allocation and no provisions in COD tariff. In case of Sukki Kinari, budgetary allocation will be decided when COD tariff will be submitted to NEPRA subject to project management approval/consent.
 - Federal and provincial governments shall formulate policies/guidelines and ministries shall paly their role in materialization of BAP which as of now is quite challenging.
9. With respect to identification of muck disposal sites, PMC conducted detailed survey of EPC identified sites in September, 2023. However, out of 10 sites only 01 site was found feasible while rest of sites were rejected on the basis of high cost for construction of access and protection works.
 10. In order to improve capacity of contractors on safeguards implementation, annual HSE training was arranged by the contractors on August 8-9, 2023. Training was delivered by Rescue 1122 and was attended by representatives of PIU, PMC and EPC contractor.
 11. Internal environmental monitoring reports for the period of September 2020-December, 2021, January-June, 2022, July-December, 2022, January-June, 2023 and July-December, 2023 were prepared by the PMC and accordingly ADB has cleared and disclosed these documents on the website.
 12. As per requirements of ADB SPS, 2009, third party environmental monitoring contact is also in place and effective since July, 2022. Inception report and 1st External Environmental Monitoring (EEM) report covering period of Jan-June, 2023 had been cleared and disclosed by ADB.
 13. During reporting semester, PIU and PMC conducted meetings with the Fisheries and Wildlife departments of the government of Khyber Pakhtunkhwa (KP) on ADB cleared project specific BAP. In this regard, a field visit was conducted by PIU/PMC, field office identified by Fisheries department was found suitable while the Wildlife Department was advised to either establish field office at the existing Sub- Divisional Forest Officer's (SDFO) Office at Balakot, or identify new facility at any other appropriate location.
 14. In order to ensure compliance of KP EPA approval condition related to establishment of fish hatchery ("hh"), PIU and PMC conducted meeting with DG Fisheries and visited the fisheries department proposed site on December 06, 2023.

15. The status of environmental safeguards compliance was assessed during EEM visit and findings are discussed in the report. The CAP for reporting period July-Dec, 2023 is provided in this EEM's report to ensure safeguard compliance of BHPP as per ADB SPS, 2009.
16. EEM conducted field visit to all sites and recorded portfolio related observations on 29 Feb- 1st March, 2023. During this visit, EEM has assessed and documented portfolio-related observations. The purpose of the visit was to monitor and evaluate the project's environmental performance and ensure compliance with environmental regulations and standards.
17. The EPC contractor conducted quarterly instrumental environmental monitoring at the sites. Detailed comparison with the baseline results for air quality, noise pollution, water quality and soil etc. are provided in Section 9.
18. A total of 34 environmental non-compliances of EMP/SSEMP/BAP were recorded during the monitoring period. About 15 non-compliances were minor, 16 moderate and 03 major non-compliances. Major non-compliances are absence of developed waste stabilization ponds to manage tunneling waste, improper dumping of muck cuttings in Ghanool stream, and Identification of springs and underground water resources is not completed by the contractor. CAP to close out observed non-compliance is provided in the EEM report.
19. During reporting semester, ADB conducted environmental safeguards handing over mission on December 18, 2023 at Pakhtunkhwa Energy Development Organization (PEDO) house Peshawar. The main agenda of mission was to introduce new environmental safeguard focal with the project and to assess safeguard progress. Mission aid memoir include submission of updated EIA report, tree plantation plan and blasting management plan by January, 2024.
20. Implementation of SSEMP and EMP requirements at BHPP is on-going process and capacity of contractors shall be increased though capacity building in form of formal and annual trainings.

1.3 Acknowledgment

21. EEM appreciates the overall commitments of PIU BHPP and PMC in managing the day-to-day health, safety and environmental (HSE) issues during construction phase. The commitment of EPC contractors towards implementation of SSEMP/EMP requirements shall be improved through continuous capacity building, follow up on CAPs implementation and improved SSEMP implementation, compliance monitoring and reporting.

2 Project Description

2.1 Balakot Hydropower Development Project

22. Balakot HPP is a 300 MW capacity run-of-river hydropower project with concrete gravity dam (max height of 35 meters (m) and underground cavern-type powerhouse. The dam is located 18.6 kilometers (kms) upstream of Balakot town, whereas the underground powerhouse is located near the village of Barkot, 8 km upstream of Balakot town. The dam will create a reservoir that will operate between the maximum operating level of 1,288 m and the minimum operating water level of 1,283 m. The surface area of the reservoir will be approximately 28 hectares (ha) and it will extend 2.2 km upstream of the dam. A headrace tunnel of 9.1 km length will be constructed to convey water from the reservoir to the powerhouse. A tailrace tunnel of 1.565 km length will be constructed to discharge water back to Kunhar river. A circular surge tank with diameter of 14.5 m is also proposed at the end of low-pressure headrace tunnel to make a surge height of 122m.
23. The main objective of BHPP is to develop low-cost hydropower and provide more reliable and consistent power to local areas and the national grid keeping in view the present severe power shortage and future requirements for industrial, agricultural, and economic development of the country. The project will support economical, renewable and environment friendly power supply to national grid especially rural and remote areas of Khyber Pakhtunkhwa through power distribution companies National Transmission Dispatch Company, and Peshawar Electric Supply Company/
24. The major components of the project are detailed below:
 - **Main dam** will be a concrete gravity dam of 35 m height from the riverbed and a crest length of 130 m. It has been designed to pass floods of 3,500 cubic meter per second (m³/s), with an upper gated ogee crest spillway and a low-level gated spillway. Three radial upper spillway gates having an opening of 11-meter (m) height and 10 m width will be constructed. Two low level spillway sluice gates of 8-meter (m) height and 6-meter (m) width are proposed and these will be operated hydraulically.
 - **Reservoir** of about 2.2 km length with about 0.28 km² will be constructed. The gross storage capacity of reservoir at normal operating level is 3.56 (x10⁶ m³).
 - **River diversion scheme** include 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 by-pass tunnel). An upstream coffer dam with crest elevation of 1272 mean above sea level (masl) will be constructed. It will be concrete gravity solution and further converted to guiding structure. A downstream coffer dam with dam crest level of 1252.5 masl will be constructed. An archway shape diversion tunnel of 650 m length will be constructed.
 - **Sediment management** will be carried out through sediment bypass tunnel which will be gated intake followed by archway tunnel. The intake size of tunnel will be 7.5 m width x 4.5 m height . Other than sediment bypass tunnel flushing outlets are also provided to manage sediments loads.

- **Power Intake structure:** A horizontal intake structure with four track racks and two service gates will be constructed.
 - **Headrace tunnel:** A circular concrete lined (8 m inner diameter) headrace tunnel of length 9.1 km will be constructed.
 - **A Concrete lined circular surge shaft** of 14.5 m diameter with 122 m height will be constructed.
 - **Pressure tunnel/shaft** of steel lined circular cross section (5.6 m installed diameter) with shaft length of 152 m will be constructed. A pen stock of 88 m length is included in the design.
 - **Power house:** A conventional underground cavern type power house is proposed. It will be operated through three Francis type turbines and three generators will be used to generate power.
 - **Tailrace tunnel:** A circular tunnel (8 m diameter) with transition to an archway section at final length and outlet is proposed. Tunnel final section will be archway concrete lined section. The length from transition (i.e. archway section) to outlet will be 50 m.
 - **Project access roads:** A 550 m access road (from Sharan road, connection to N-15 highway at the left side of Kunhar river near Paras village) is included in the project design to access dam and other related structures. An access road to the sediment by-pass tunnel of 440 m length from the dam bridge deck up to sediment bypass tunnel will be constructed. A permanent access road will also be constructed to access powerhouse and residential colony site.
25. Project brief salient features are given in **Table 2.1** followed by location maps and project setting in **Figures 2.1 to 2.5**.

Table 2-1: Salient Features of Balakot HPP

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	
Powerho11. use 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)
Access road to power house and staff colony	10-12 Km off taking from N-15 at the left side of Kunhar river

Figure 2-1: Project Layout Map of BHPP

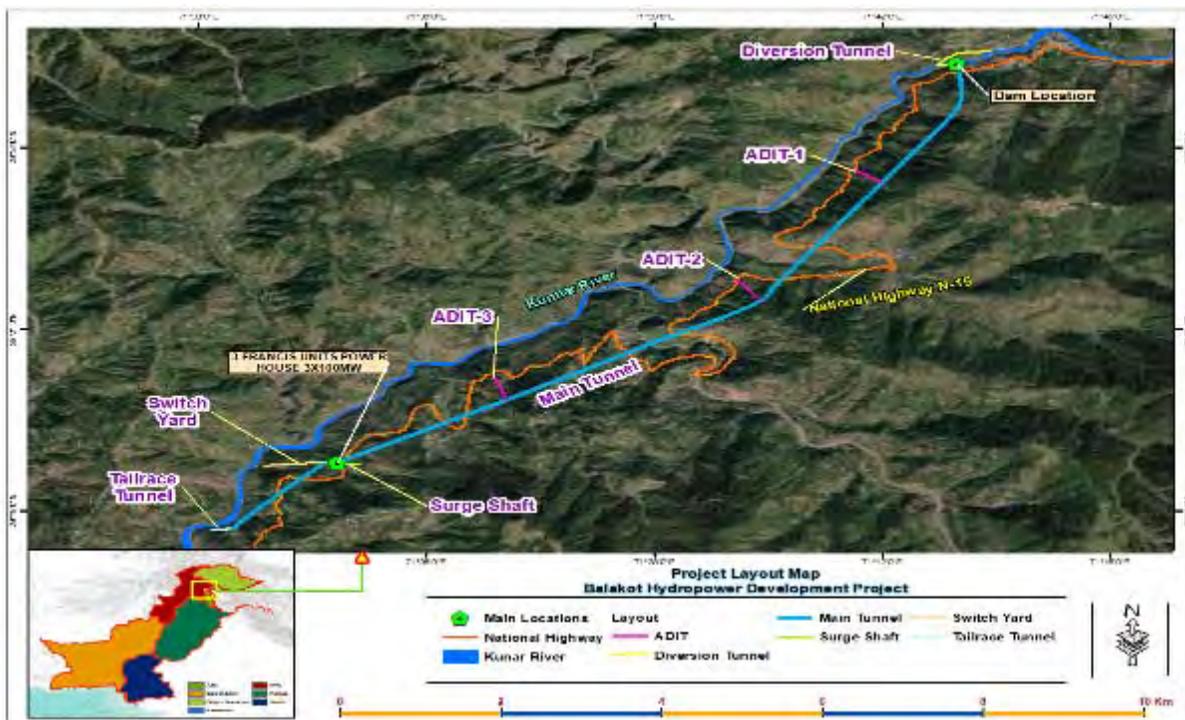
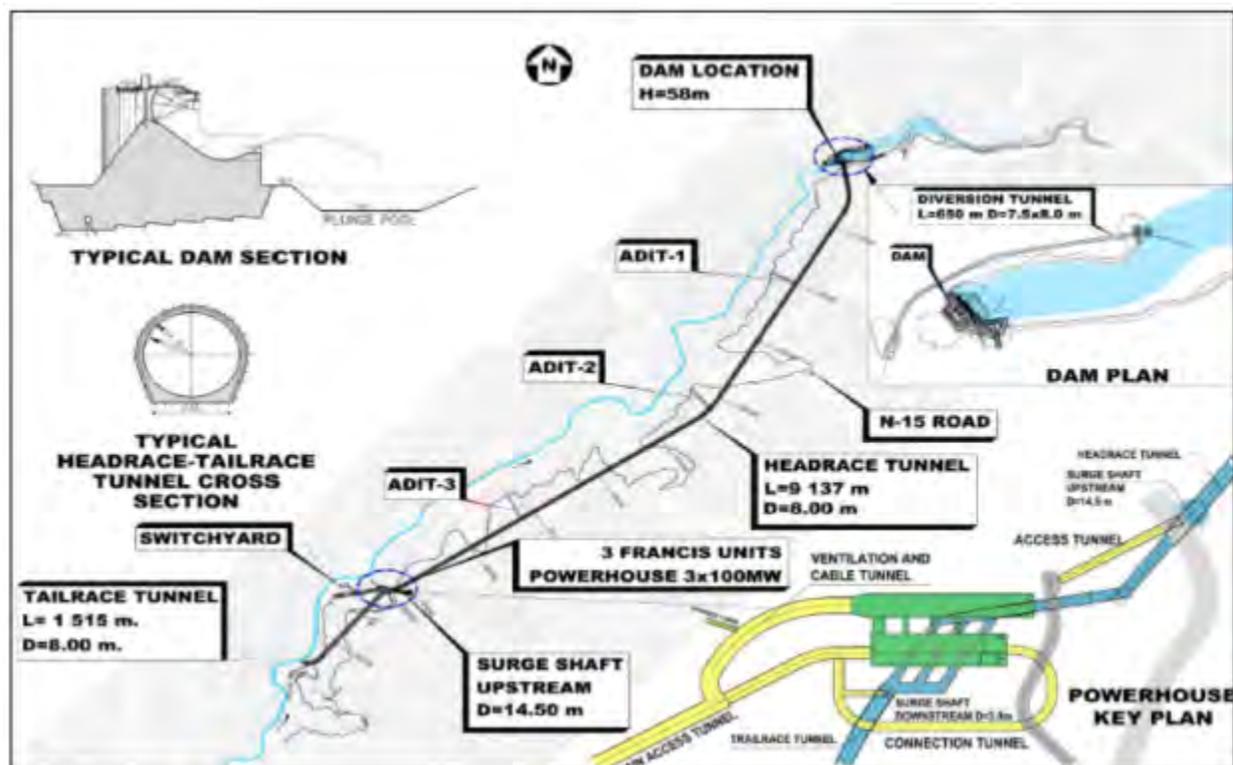


Figure 2-2: Schematic Layout Plan of BHPP



2.2 BHPP Project Area

26. The main dam is located 18.6 km upstream of Balakot town near Paras village, whereas the underground powerhouse will be located near the village of Barkot, 8.0 km upstream of Balakot town. Dam and powerhouse sites are accessible from Balakot town from the Balakot-Jalkhand Road (N-15). The road is constructed at a gentle gradient and is metaled throughout the way up to Jalkhand. Scrub forest (40%) and agriculture lands (26%) are the major land use of the area followed by pine forest (19%). The dam site is located near Paras while Guddi, Manakpai and Sail are main settlements near Headrace tunnel. Powerhouse is located near Sendori and Tail Race tunnel ends at Sangar. Bela Balseri, Nihan, Dhab, Rahter, Sangar and Kappi Gali are the affected settlements of the project area for which resettlement has been carried out as per ADB SPS, 2009.

2.3 BHPP Background

27. A feasibility study of the project was prepared in 2013 which was evaluated by the technical consultants of the ADB and finding showed that the project Feasibility study shall be updated. Project feasibility was updated by Aqualogus in 2018, which assessed dam site and powerhouse option alternatives with consideration of multiple parameters, such as earthquake, landslides, extreme weather, flood, and stability of the selected design.
28. For the project development, the Government of KP signed a loan agreement with the ADB on May 21, 2021 which became effective on July 7, 2021.

29. As Asian Infrastructure and Investment Bank) is the co-financier of the project, therefore, loan agreement was also signed with the bank which has been effective since October 25, 2021.
30. The expected project completion date is June, 2027. The expected loan closing date is December,, 2027.
31. PEDO is the executing agency of the project and will execute the project through PIU established at Balakot.
32. On September 3, 2020, PEDO entered into PMC Service Agreement for Balakot Hydropower Project (300MW) with a Joint Venture (JV) of DOLSAR Engineering Inc. Co. (Turkey, lead joint venture partner), AGES Consultants, BAK Consulting Engineers, CivTech Associates, Electra Consultants and Techno Legal Consultants (Pvt.) Limited from Pakistan.
33. The consultancy services are effective for 84 months since Commencement of Services on September 11, 2020. During this period, PMC 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".
34. The EPC contract was awarded to a JV of CGGC China & GRC, Pakistan on March 9, 2021.
35. Consequent upon fulfillment of the requisite conditions of the EPC contract, the PEDO notified September 27, 2021 as effective date for EPC contract.
36. During reporting semester, work on following project facilities continued upon issuance of work commencement to EPC contractor.
 - Preparatory works
 - Basic and detailed design
 - Access roads including R-3
 - Permanent residential staff colony
 - Headrace tunnel
 - Adit excavations

2.4 Environment Safeguards

37. With respect to environmental safeguards, the project is categorized as 'Category A' as per ADB SPS for which EIA was prepared, approved and disclosed on ADB website in 2019. PIU BHPP also obtained environmental approval for the project from KP Environment Protection Agency (EPA) in July, 2021 attached as **Annexure A**.
38. To reflect the effect of changes in the revised BAP institutional arrangement, and design changes made at the dam site, proposed by PIU and subsequently approved by ADB, the

PMC initiated necessary updating of the EIA report in June, 2023 upon instruction of ADB. Updated EIA will be submitted to ADB in January, 2024 for review and clearance.

39. For Category A projects ADB SPS requires that external environmental monitoring is carried out during project construction to ensure EMP compliance and to evaluate environmental performance of the project. The project's EIA and EMP provide a system for compliance with applicable legislative requirements and obligations and commitments. Institutional level arrangements at various tiers of the project are in place to develop, implement and monitor EIA/EMP/SSEMP/BAP requirements. SSEMPs were also prepared for the project components and their compliance was ensured through contractual binding in construction contracts. PIU PEDO through PMC is closely monitoring and reporting the EIA/EMP/SSEMP compliance on construction sites.
40. ADB conducted Safeguard Progress Review Mission dated 13-14 September including desk review, meetings, and field visits to assess environmental safeguard compliance of BHPP. As part of mission proceeding PIU and PMC delivered HSE portfolio presentation on 18th September 2023 in which progress made on project specific BAP and Basin wide BAP was discussed. Findings of stakeholder consultations conducted in previous semester on the BAP was discussed and way forward was sought. It was agreed that findings of upcoming stakeholder consultations which was going to be held in November, 2023 will be shared with ADB for review and consent. In this regard PIC conducted two virtual meetings on November 14 & 17, 2023 with stakeholders of basin wide BAP such as Nellum Jehlum, Patrind and Suki Kinari HPPs. Brief on minutes of meeting was shared with ADB in December 2023.
41. ADB safeguard team conducted field visit of the BHPP sites on 14 September 2023 and below are the major findings.
 - There is a need to ensure wearing of hard hats during execution works.
 - Spoil disposal shall be taken on approved disposal sites. SSEMP shall be updated once spoil disposal sites are identified and approved.
 - There is need to identify contractor for adequate handling of hazardous wastes
 - No quarry from non-approved quarry site and Kunhar river bed shall be allowed under any circumstances
 - No effluent discharge from tunnel (s) to the Kunhar river or its contributing streams

2.5 External Environmental Monitoring

42. The objective of external environmental monitoring during implementation of BHPP is to ensure compliance with the requirements of the EIA/EMP/SSEMPs and environmental approval (NOC) conditions of KP EPA. Scanned copy of KP EPA approvals for the project is attached as **Annexure A**. Compliance of the EMPs/SSEMPs would help to mitigate the potential impact on the environment and sustainable development of the project. The results of external environmental monitoring are recorded and checked in order to monitor the non-compliances and effectiveness of mitigation measures. In such cases any non-compliance are flagged in the early stages and corrective actions are recommended. External environmental monitor will:

- Perform independent third-party monitoring on the implementation of mitigation and monitoring activities on the physical and ecological environmental components of BHPP.
- Develop the appropriate methodology and tools for monitoring process, design appropriate forms, formats, schedules and prepare other documents required for successful monitoring activities.
- Conduct field visits during project construction period to monitor the implementation of relevant mitigation measures recommended by EMP/SSEMPs.
- Review of mitigation measures and provide advice and guidance on improvements, corrective measures for any shortcomings.
- Support the implementing agency PEDO and PMC in making sure the project development is in compliance with the EMP/SSEMPs and environment protection requirements.
- Verify whether the set environmental targets are achieved and recommended remedial measures are adopted.
- Submission of external environmental monitoring reports to the PIU PEDO and ADB, semi-annually during the construction phase.

2.6 Project Implementation Status

43. During the reporting period, the temporary & permanent works i.e. construction of Adit Tunnel-01, 02 & 03, construction of Permanent Staff Residential Colony (CAT-III & CAT-IV), construction of Main Access Tunnel portal area and temporary facilities at dam area remained in progress.
44. Necessary design changes such as conversion of bypass tunnel into diversion tunnel and provision of additional bottom outlet for sediment exclusion in the dam body are approved by the ADB and these changes are being incorporated in project detail design.
45. During reporting period, overall, 8.60% physical progress achieved against the planned progress of 32.32%. EPC contractor also started works on dam site area (Mouza Paras and Bela Sacha) on TR-01 and Bailey Bridge # 1 from November-December, 2023.

2.7 Project Physical Progress

Balakot Hydropower Project

46. Project civil works started in September 2022 and about 6% work got completed in June, 2023 while about 8% work progress has been achieved as of December, 2023.
47. Major activities that were carried out during reporting semester include preparatory works (63%), Basic design (99%), detail design (7%), Headrace tunnel (3%), Main access tunnel & ventilation/cable tunnel (2%), construction of roads and bridges (33%), and work on permanent staff residential colony (17%).
48. Physical work progress during monitoring period is provided as **Figure 2-3**.

Figure 2-3: Physical Work Progress- BHPP

Description	Planned Start	Planned Finish	Planned %age	Achieved % Progress
Preparatory works	28-Aug-21	27-Feb-23	100%	63.0% 37.0%
Basic Design	21-Sep-21	27-Sep-22	100%	99.0% 1.0%
Detail Design	29-May-22	26 Dec-27	28%	7.0% 93.0%
Procurement & Production & Test & transportation	29-Jul-22	30-May-26	37%	0.0% 100.0%
River Diversion	1-Oct-22	27-Nov-23	100%	0.0% 100.0%
Concrete Dam	19-Jun-23	27-Jan-27	14%	0.0% 100.0%
Power Intake Works	28-Jan-23	28-Jul-24	61%	0.0% 100.0%
Headrace Tunnel	13-Oct-22	27-Jun-26	32%	3.8% 95.2%
Upstream Surge Tank, Pressure Shaft & Penstocks	23-Apr-23	28-Jul-25	30%	0.0% 100.0%
Main Access Tunnel & Ventilation and Cable Tunnel	16-Nov-22	18-Oct-26	28%	2.0% 98.0%
Powerhouse Works	4-Jun-23	20-Dec-25	22%	0.0% 100.0%
Tailrace Tunnel Downstream Surge Shaft	29-Jul-23	27-Feb-26	16%	0.0% 100.0%
Switchyard	16-Apr-23	15-Jan-24	92%	0.0% 100.0%
Transmission Line Works	28-Sep-22	27-Aug-25	43%	0.0% 100.0%
Main transformers and other equipment Installation	1-Mar-25	30-Nov-26	0%	0.0% 100.0%
Road and Bridge	1-Oct-22	3-Oct-26	31%	33.0% 67.0%
Permanent Staff Residential Colony	28-Jun-23	28-Dec-25	20%	17.0% 83.0%
Erection of Unit1,2,3	29-Apr-26	28-May-27	0%	0.0% 100.0%
Completion & Taking-over	29-Sep-27	28-Dec-27	0%	0.0% 100.0%

Key:
 Achieved: ■
 Remaining: ■

3 Project Area Description

3.1 Project Area Description

49. Project area can be divided into two main components.
- Dam and reservoir area
 - Powerhouse and staff colony
50. Details of project components that will be constructed in the Main dam and reservoir area are shown as **Figure 3-1**. Components that will be constructed in powerhouse and staff colony area are shown as **Figure 3-2**.

3.2 Reservoir and Dame Site

51. Reservoir and dam site are located at 1,272 m above mean sea level (amsl) in the hilly terrain of steep slope valley of Paras village. Pine scrub forest is the ecology of the area. EPC contractor started construction works at main dam site in December 2023. Contractor started works on TR-1 and temporary Bailey Bridge # 1 at dam site.
52. Photographs of proposed dam site, reservoir area, upstream coffer dam and downstream coffer dam are provided as **Figure 3-3**.

3.3 Diversion Tunnel

53. Diversion tunnel will be constructed on the left bank of the river which will also act as low-level spill way. The area is hilly terrain of steep slope surrounded by pine scrub forest. Photographs of the diversion tunnel is provided below.

Figure 3-1: Typical Setting of Diversion/Sediment bypass Tunnel

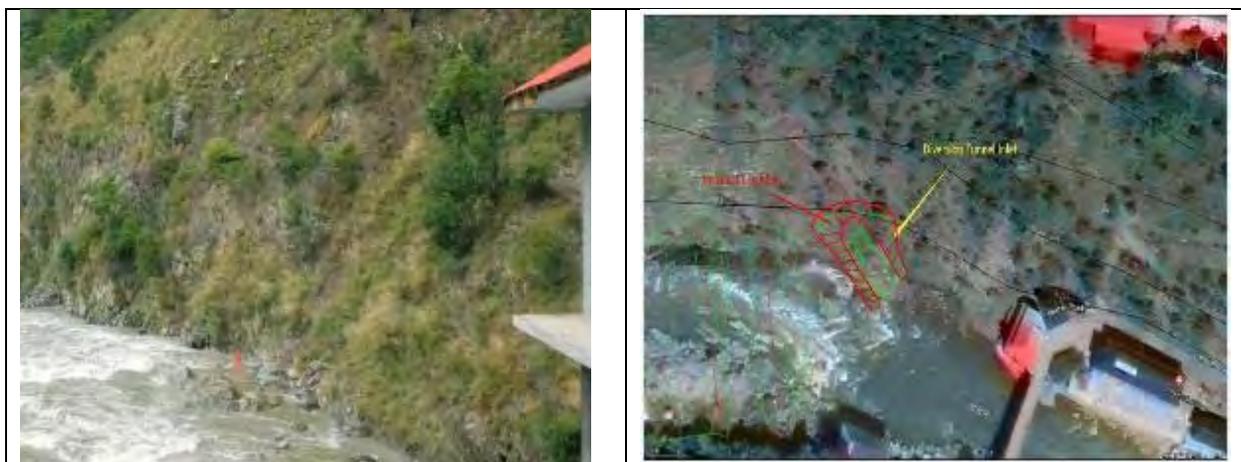


Figure 3-2: Typical setting of Reservoir and Main Dam

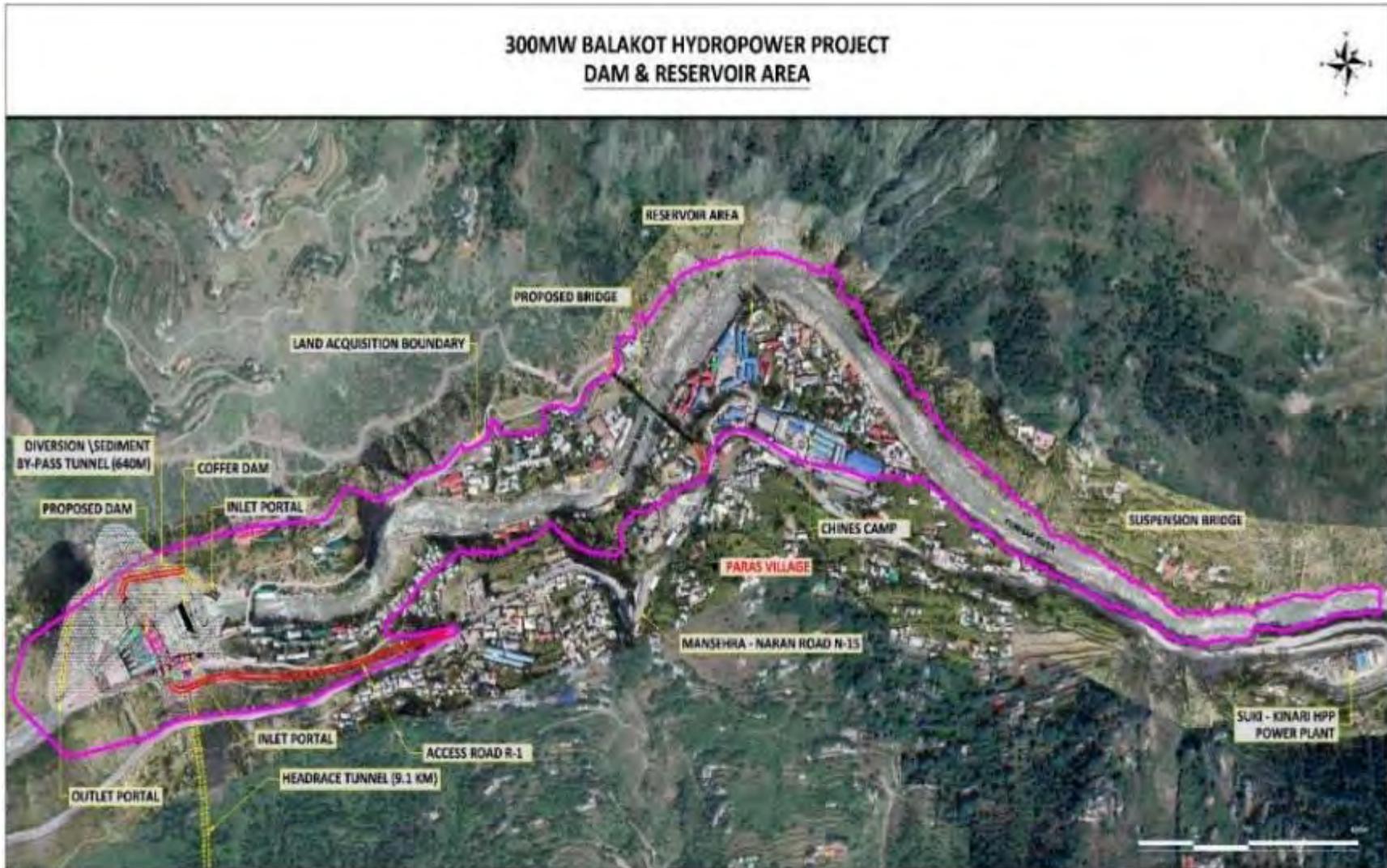


Figure 3-3: Typical Setting of Powerhouse and Colony Area

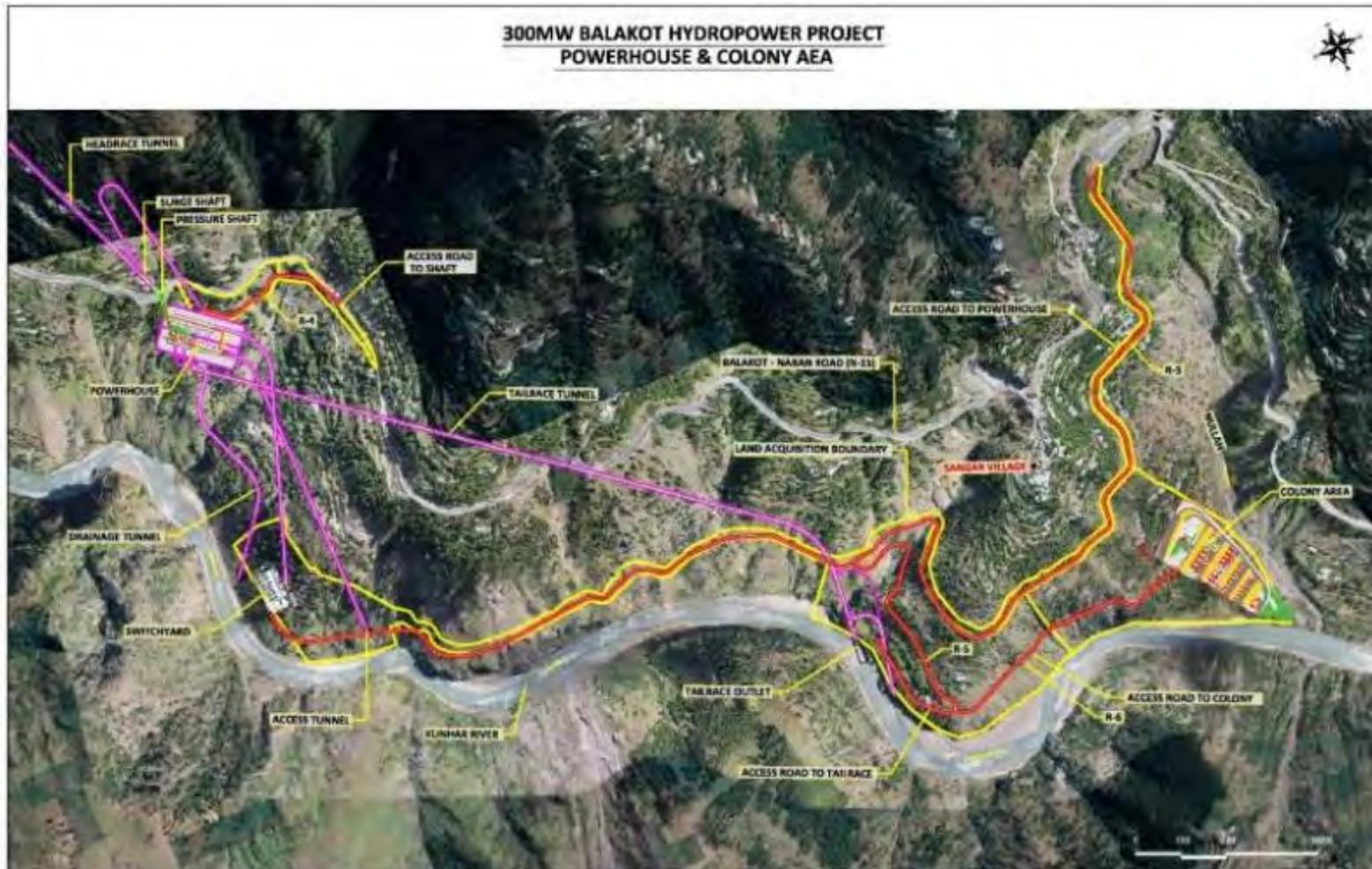


Figure 3-4: Typical Setting of Reservoir, Main Dam and Cofferdam

3.4 Headrace Tunnel

54. A head race tunnel of 8 m diameter and about 9.1 km length will be constructed on left bank of river. The tunnel will comprise of 03 ADITs for access and passage to tunnel. The headrace tunnel traverses Kiwai, Zamanabad, Kholian, Barkot, Kappi Gali and

Sandhu localities. Tunnel is passing from steep slope elevation of the hills and details are shown below.



Figure 3-5: Typical setting of Headrace Tunnel location

3.5 Adit Tunnels

55. Construction work on Adit tunnels remained in progress during the reporting period, details of which are provided below. Construction works of Adit tunnels are shown in below figure 3-6.

3.5.1 Adit Tunnel -01

56. Excavation, primary support work and geological mapping of 150m has been completed in the reporting period. A total of 260m out of 490m has been completed till the end of reporting period.

3.5.2 Adit Tunnel 02

57. Excavation, primary support work and geological mapping of 96m has been completed in the reporting period. A total of 222m out of 540m has been completed till the end of reporting period.

3.5.3 Adit Tunnel-03

58. Excavation, primary support work and geological mapping of 84m have been completed in the reporting period. A total of 88m out of 390m have been completed till end of reporting period.

Figure 3-6: Overview of Construction Activities at Adit Tunnels

3.6 Surge Shaft, Pressure Tunnel and Powerhouse

59. The Surge shaft, pressure tunnel and powerhouse are in Sendori near Kappi Gali. Surge shaft and pressure tunnel will be located at an elevation of 1220 m while powerhouse turbine axis is located at elevation of 1050 m amsl. Underground cavern-type powerhouse will be constructed. The typical setting of surge shaft, pressure tunnel and powerhouse is provided below.

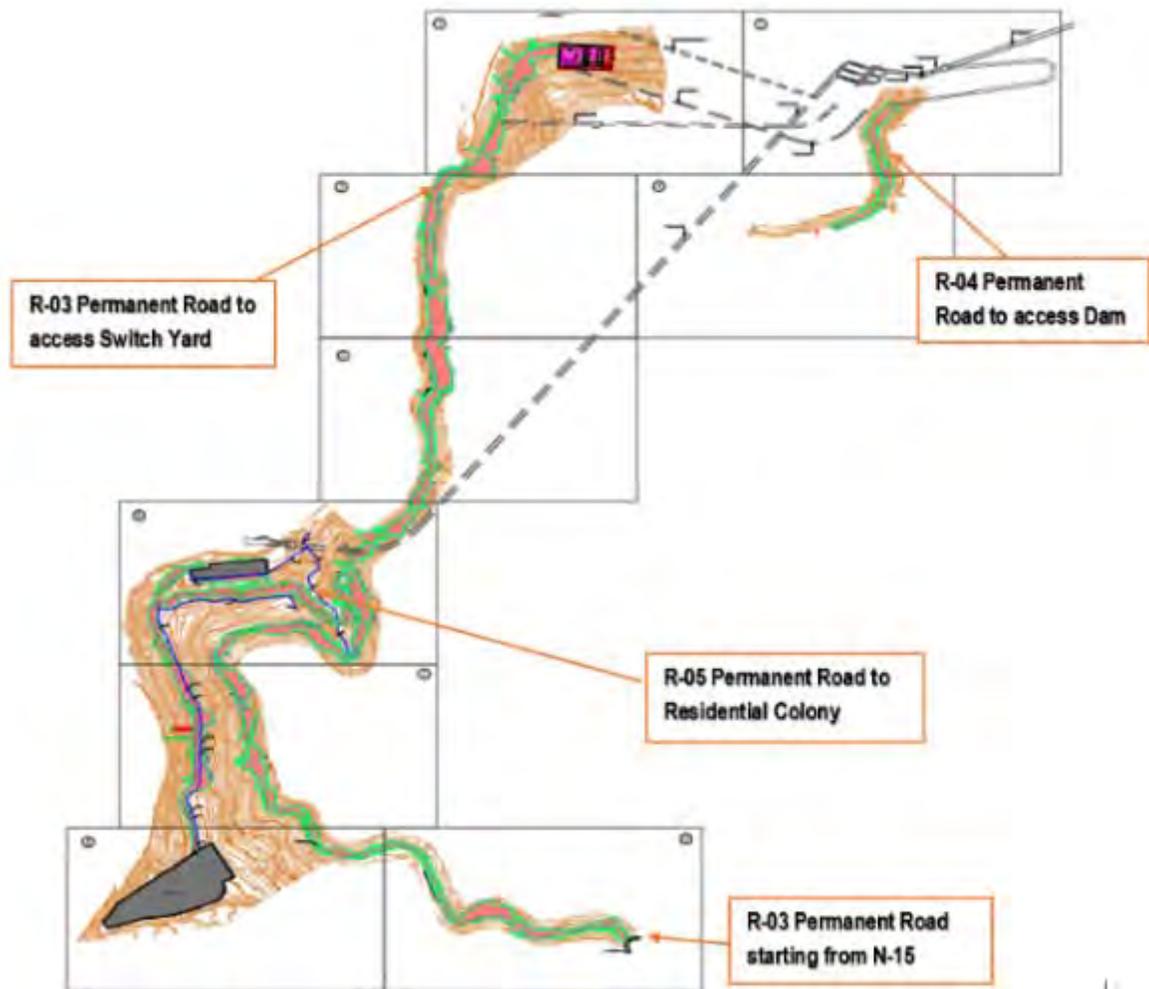
Figure 3-7: Typical setting of Surge Shaft, pressure Tunnel and Power House

60. The tailrace tunnel will be constructed up to 1.565 m length and will be comprised of circular tunnel with Archway section transition at outlet portion. It is also located in Kapi Gali and ultimately outfall in the Kunhar river. The proposed alignment and outlet of tail race tunnel is shown in below figure.

Figure 3-8 Typical setting of Tail Race Tunnel

3.7 Permanent Access Roads

61. There are three permanent roads included in project design. These are, a permanent road to Dam (R-4) and to the Powerhouse (R-3) and to project residential colony sites (R-5). The R-5 originates from R-3 near tailrace colony site and will be used to access permanent residential colony. Earth works including cutting, filling, protection works, compaction and asphaltting are the major activities to be executed at the permanent roads' sites. There is one proposed bridge at the reservoir area that will connect the main N-15 road with the adjacent roads on the left and right sides. The main activities are piling, span girders, railing works, parapet walls, and surfacing. Permanent access roads alignment is provided below.

Figure 3-9 Alignment of Permanent Access Roads

62. Dam sites and other structures will be assessed through access road of about 550 m length. It will originate from Sharan road which is connected to N-15 at the left side of Kunhar river near Paras village.
63. An access road of 440 m will also be constructed to access the sediment bypass tunnel. It will start from the dam bridge deck and terminate at sediment bypass tunnel.
64. Construction work on project access roads has been started and details of which are provided in the table below.

Table 3-1: Salient Features of BHPP Access Roads

Access Road	Total Length	Start-End Point	Physical works completed
R1	395 m	N-15 to Power intake area	Pilot cut initiated
R2	-	-	Not started
R3	3256 m	N-15 to Switchyard	Pilot cut completed
R4	370 m	N-15 to Surge shaft	Pilot cut completed
R5	823 m	N-15 to Tailrace tunnel	Pilot cut completed
R6	613	N-15 to Staff Colony	Pilot cut completed

65. Construction work pictures of access roads are shown below.

Figure 3-10 Construction Pictures of Access Roads

3.8 Staff Residential Colony

66. Construction of staff colony is part of project design for which land has been acquired at Ganhool village. Design of staff colony is completed, and construction work is in progress. The colony will comprise of residential units and offices for the project operational staff. It will be a permanent residential colony for the staff during construction and operation phase of the project. It will house residential units of categories I-IV, community center, school, shopping market, mosque, hospital and other civic facilities, Sewerage treatment plant and reasonable land is allocated for

green spaces and park in the layout plan of the colony. Protection works, concreting, and brick masonry are some of the major construction activities to be undertaken at the site. As of December 2023 works on category III and Category IV buildings of staff colony remained in progress. Master plan of staff residential colony is provided as **Annexure F**.

Figure 3-11 Construction works of Staff Colony at Ganhool Village



4 Project Contactors and Construction Camps/Facilities

67. EPC contractor has constructed three temporary camps within the project corridor. These camps are (i) camp at employer's residential colony site, (ii) Thobi camp (Adit-1); and (iii) camps at Adit-2 and Adit-3 sites. These camps are constructed with pre-fabricated materials through construction of platform and protection works. Also, the warehousing system, mixing system, explosive magazine, batching plant, crush plant, air compressor station, supply station, are to be installed/constructed at all the three Adits.
68. M/S GRC entered into rental agreement with private landowner at Thobi area to acquire about 23 Kanal land for construction of site camp. Camp is located in Kiwai village.
69. Contractor's camps are temporarily built and subject to restoration to its original condition after completion of the project. Periodic visit to camp sites will be done for the monitoring of EIA/EMP/SSEMP requirements and EHS indicators to monitor environmental safeguard compliance. Layout of construction camps are shown in **Figures 4-1 – 4-3**. Layout of asphalt and batching plant is shown as **Figure 4-4**.

Figure 4-1: Camp layout at Staff Colony

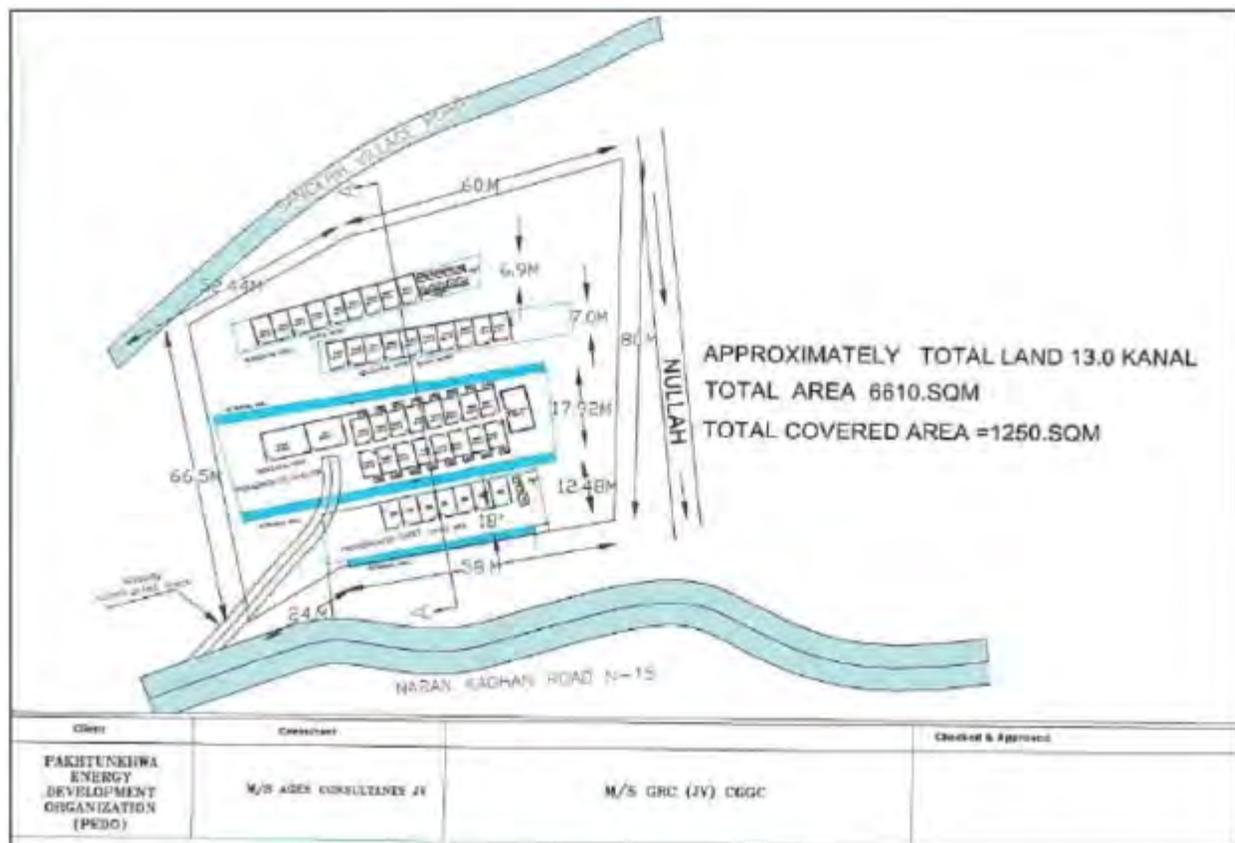


Figure 4-2: Camp Layout Plan to be constructed at Adit-2

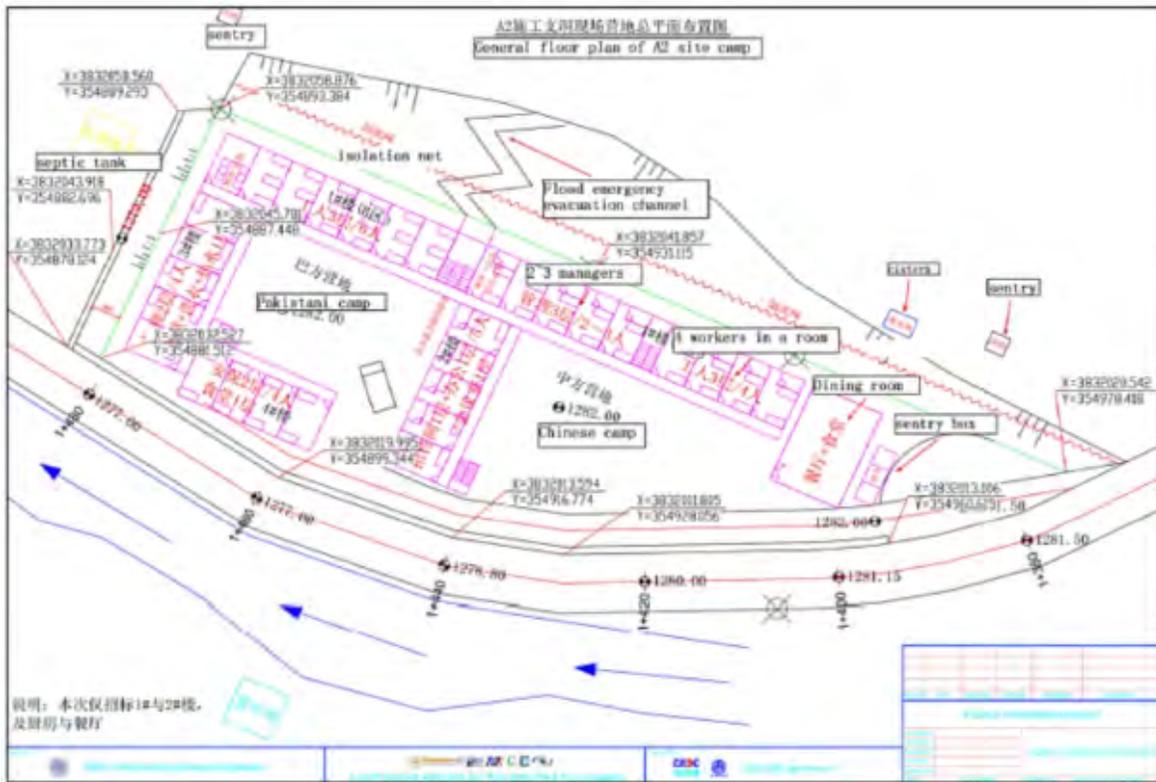
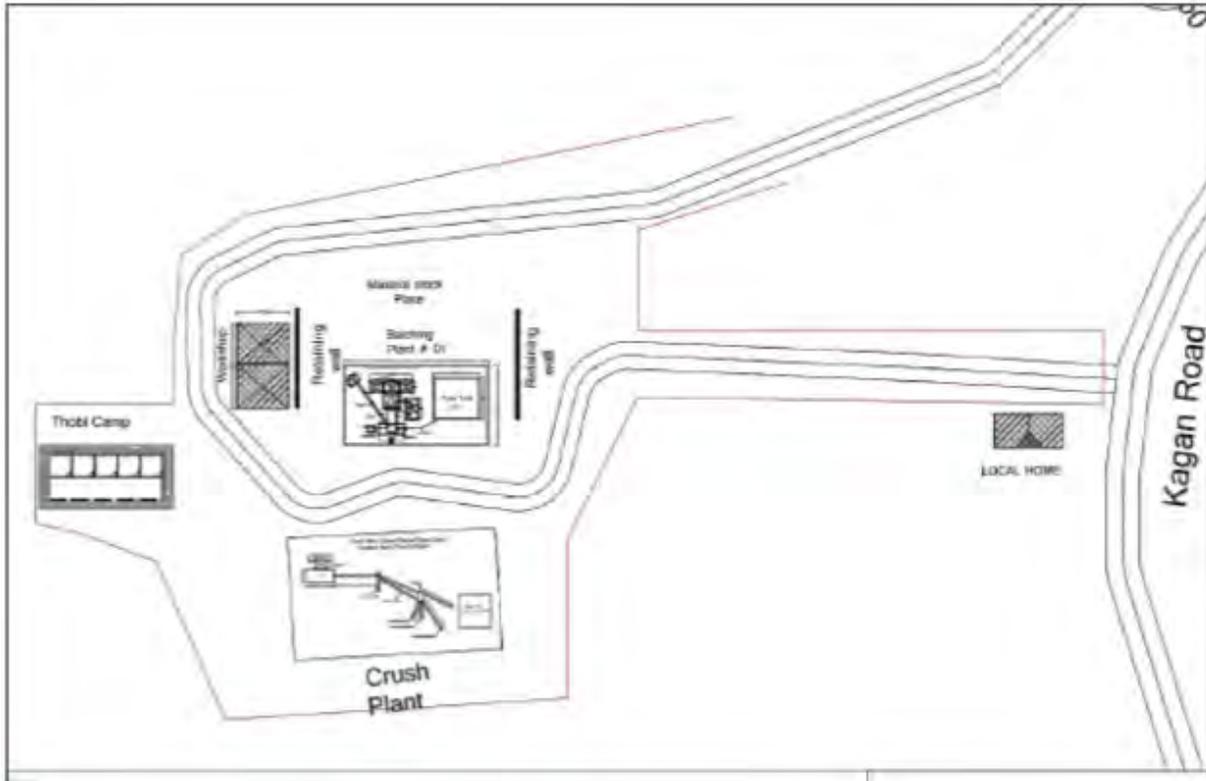


Figure 4-3: Camp Layout Plan to be constructed at Adit-3



Figure 4-4: Layout Plan of Crush and Batching Plant



71. Various facilities of contractor camps are shown in below figure.

Figure 4-5: Various Facilities of Contractor Camps





CGGC Adit-03 camp: Lat 34.61191° Long 73.387468°



Batching plant of GRC



Batching plant of CGGC at Adit-3



Batching plant of CGGC at Adit-2



Generator placed at CGGC camp



Generator placed at GRC Camp



Fuel storage tank at GRC camo



Fuel storage lorry of CGGC



Septic tank CGGC at Adit-3



Kaghan Development Authority (KDA) container placed at camps

4.1 Magazine Camps for Blasting Activities

72. BHPP involves blasting activities for which magazine camps are required to be established. Magazine camps will be established following international standard practices to control HSE risks in storage and operation of blasting material. EPC contractor identified two sites for magazine camps at Ghanool Nullah (near Adit-2) and at Kholia (near Adit-3). Established magazine camp for Adit-2 at Ghanool area and proposed site for Adit-3 camp are shown as **Figure 4-6**. Magazine camp layout at Adit-2 and Adit-3 is shown as **Figure 4-7** and **Figure 4-8** respectively.

Figure 4-6: Project Magazine Camps



Figure 4-7: Magazine Camp Layout Plan at Adit-2 (Ghanool area)

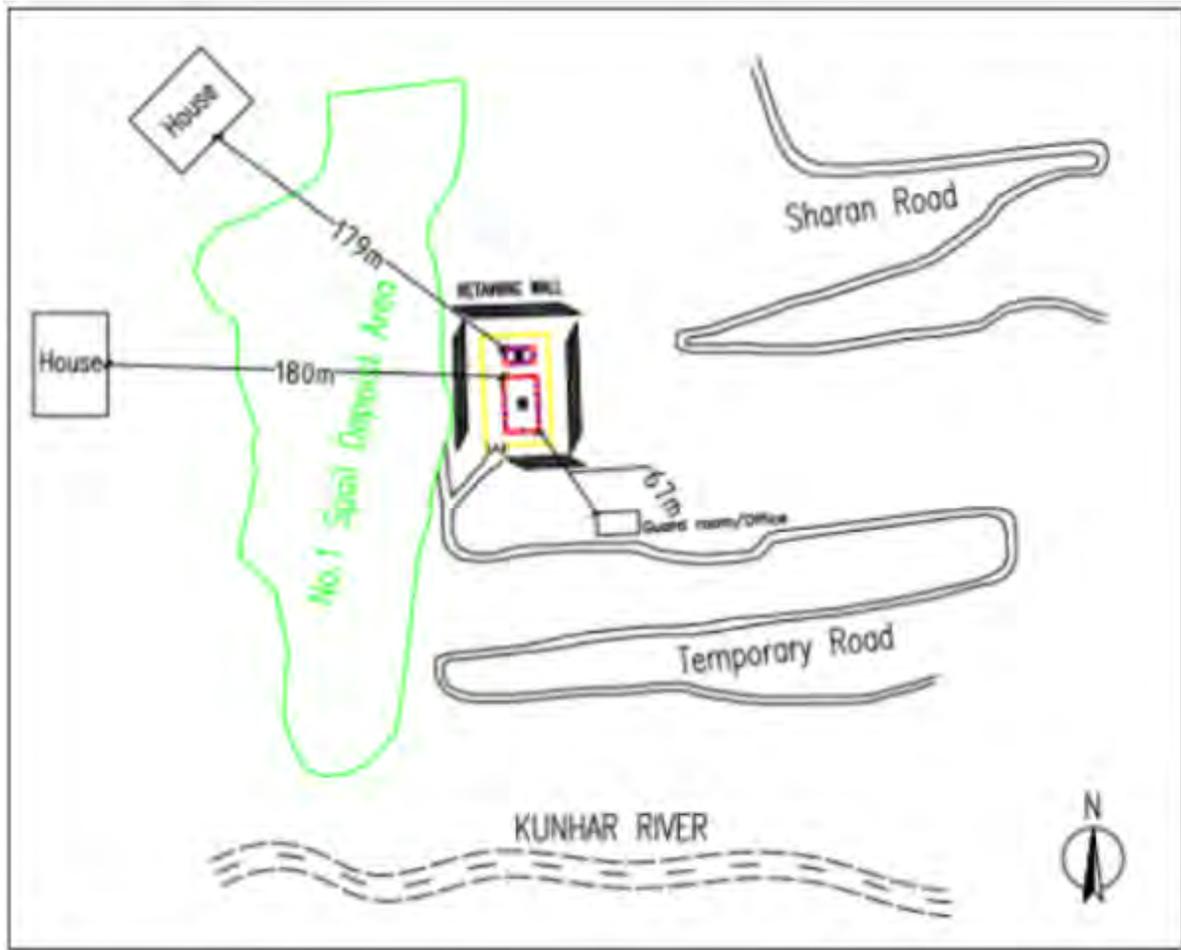
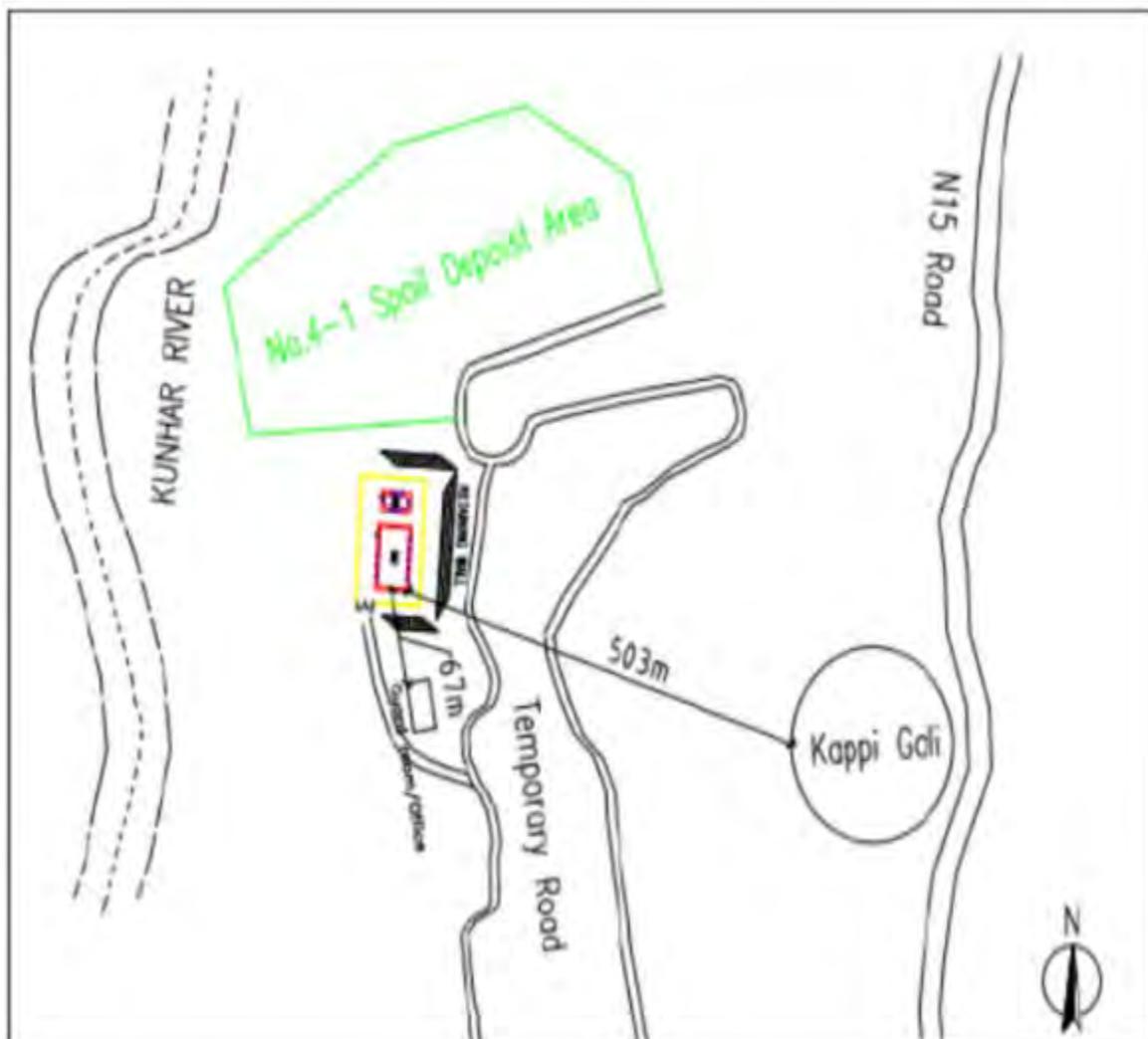
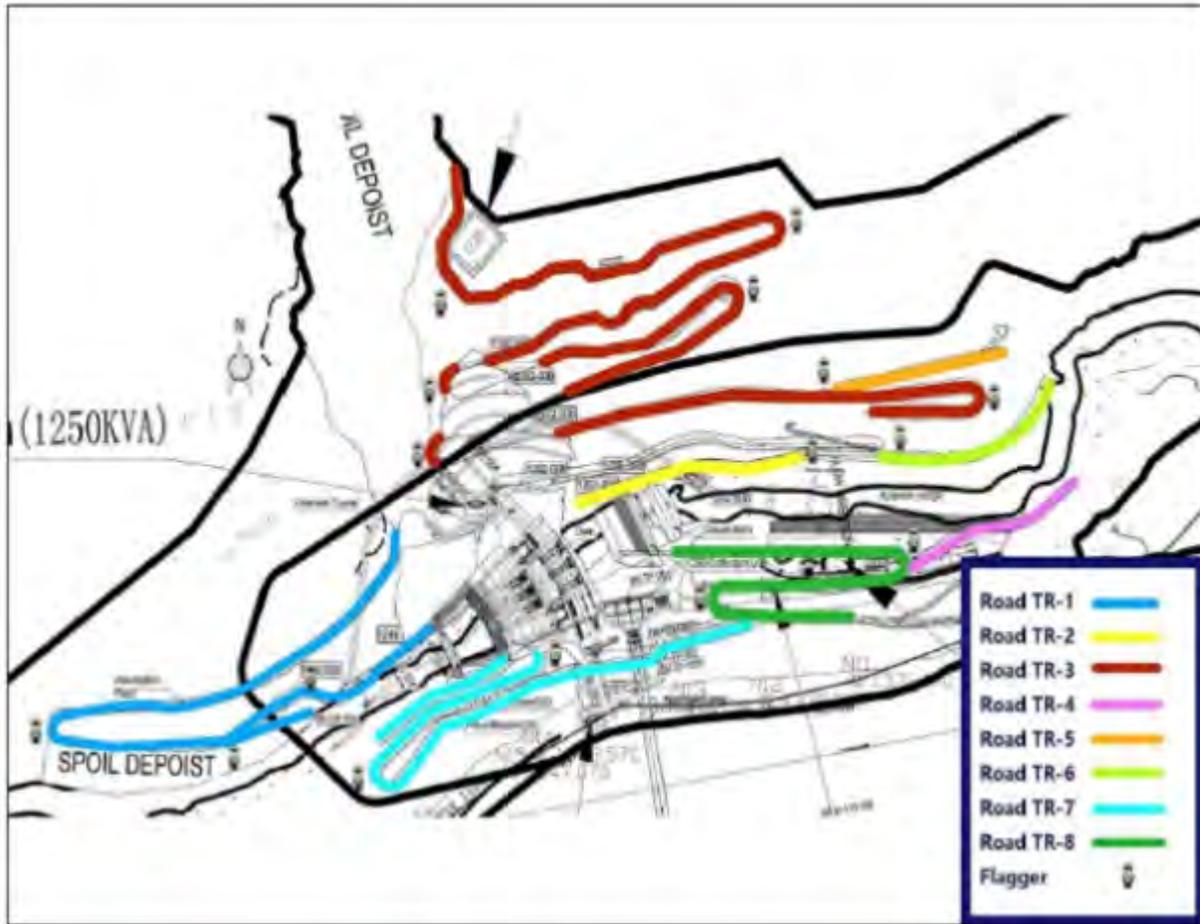


Figure 4-8: Magazine Camp Layout Plan in Adit-3 (Kholia Area)

4.2 Project Temporary Access Roads (TR)

73. TRs are scheduled to be constructed at dam/head works (TR11, TR1-1, TR1-2, TR3, TR4, TR5, TR6, TR7, TR8, TR18, TR20), at headrace tunnel (TR9, TR10, TR11, TR19), and at tailrace (TR12, TR13, TR14, TR15, TR16, TR17) sites. All these TRs are identified within the project boundary. These roads will generally be unpaved compacted roads which, at the end of contract period, shall either be reinstated to the pre-construction conditions or shall be left in operational conditions subject to the demand of the locals. Earthwork, including cutting, filling and compaction, and protection works are the major activities to be undertaken at the TRs sites. There are two temporary bridges at upstream and downstream of dam (BR1 and BR2) which will be constructed.
74. Initially eight TRs are envisaged to be constructed to access the dam site area. The proposed layout of access roads is shown in below figure.

Figure 4-9: Layout of Temporary Access Roads to the Dam Site

75. To access Adit-1, Adit-2 and Adit-3 TRs will be constructed. TRs to Adit-1, Adit-2 and Adit-3 are marked as TR-9, TR-10 and TR-11 respectively and layout setting is shown in below figures.

Figure 4-10: Layout of Temporary Access Roads to Adit-1



Figure 4-11: Layout of Temporary Access Roads to Adit-2

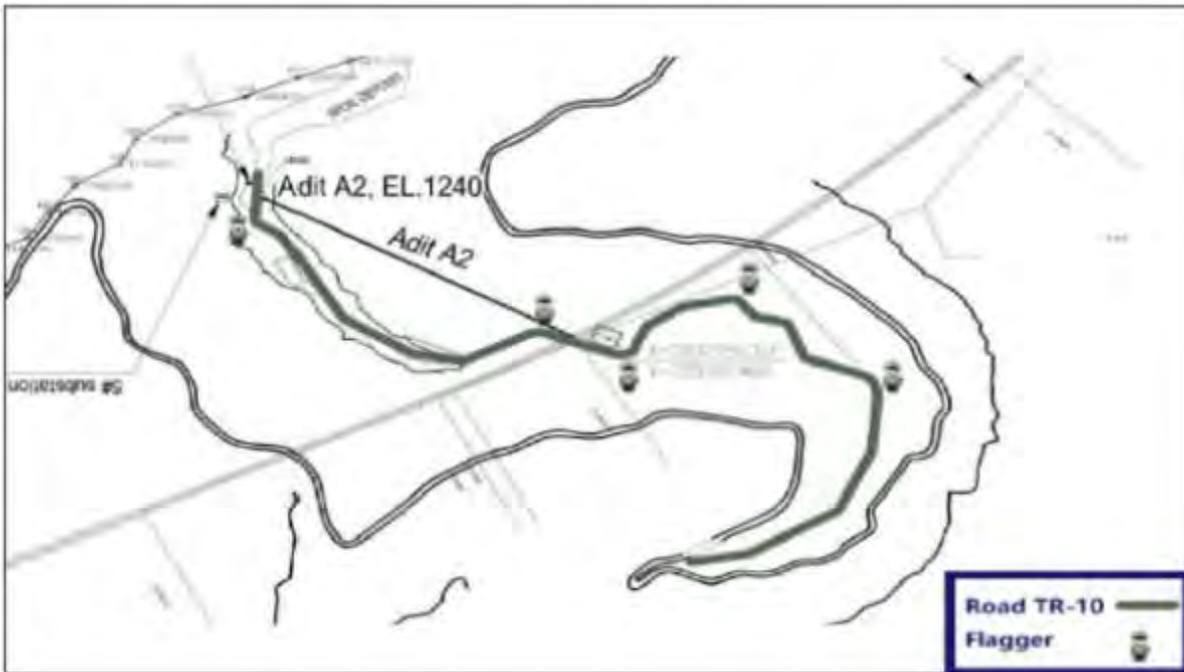
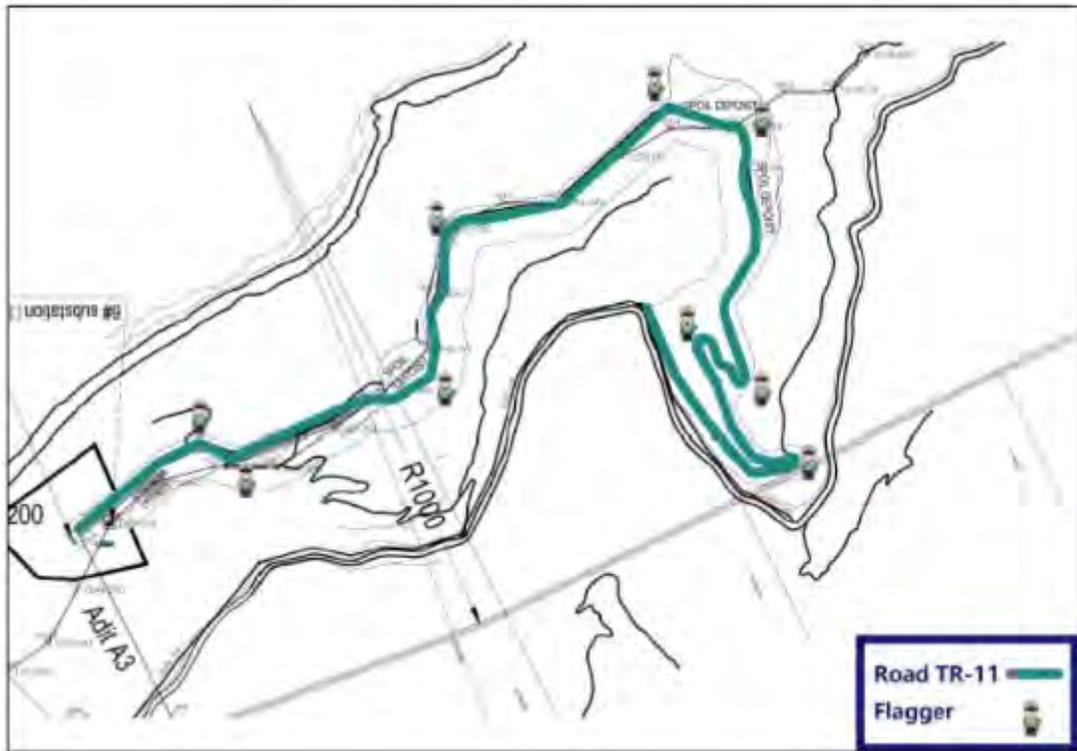
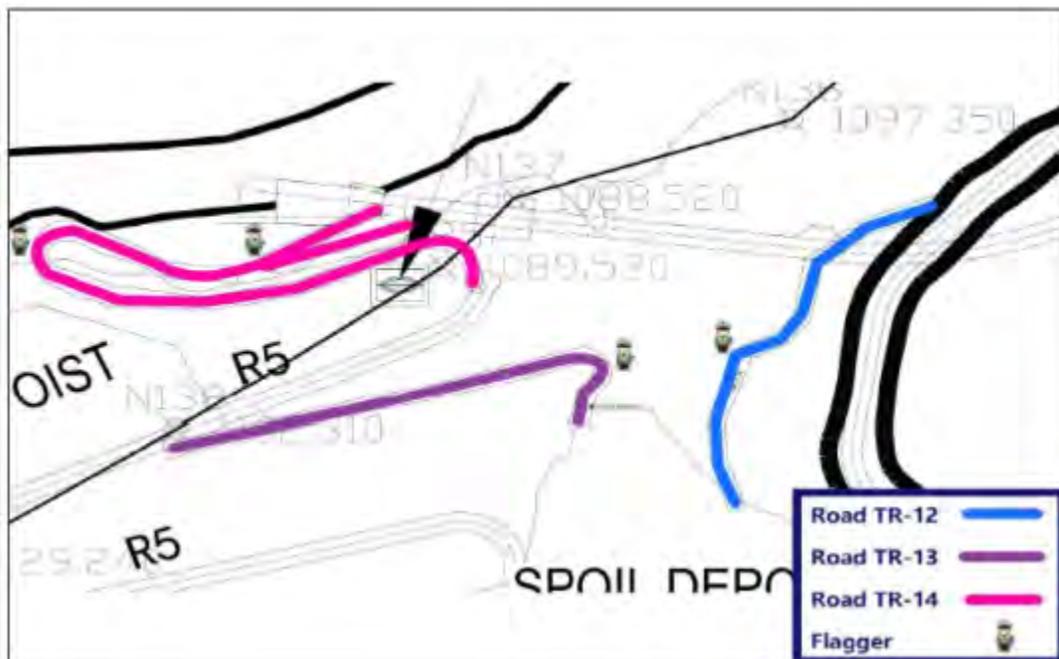


Figure 4-12: Layout of Temporary Access Roads to Adit-3



76. To access tail race tunnel and powerhouse three TRs are planned which are marked as TR-12, TR-13 and TR-14 respectively and layout setting is shown in below figures.

Figure 4-13: Layout of Access Roads to Tailrace Tunnel and Power House



4.3 Lease Agreement for Temporary Works and Spoil Disposal Areas

77. EPC contractor made below lease agreements to accommodate following temporary works and spoil disposal areas for BHPP.
- Site camp in Kiwai village measuring area of 23 Kanals for Thobi camp
 - Site camp in Mouza Ghanool measuring area of 5.53 Kanals for Adit-2
 - Magazine camp A2 in Mouza Ghanool measuring area of 3 Kanals (Owner-1)
 - Magazine camp A2 in Mouza Ghanool measuring area of 0.258 Kanals (Owners-2)
 - Batching Plant at Mouza Ghanool measuring area of 6.10 Kanals (Owner-1)
 - Batching Plant at Mouza Ghanool measuring area of 3.60 Kanals (Owners-2)
 - Batching Plant at Mouza Ghanool measuring area of 1.50 Kanals (Owners-3)
 - Soil disposal at Mouza Ghanool with 27 land owners
 - Camp at colony site in Sangar village measuring area of 13 Kanals

4.4 Quarry Areas

78. No quarry areas were developed for BHPP. Required quarry material is being purchased from approved sites such as Ghumwan for coarse aggregates and Lawrencepur, Maira and Thakot for fine aggregates.

4.5 Waste Disposal Areas

79. Construction waste generated from construction activities will be reused as backfill. Tunneling waste generated at portal site of Adit-2 and Adit-3 is temporarily stored at site and being used as fill material for raising platform of protection works. EPC contractor identified 10 waste disposal sites which will be used for disposal of tunneling waste. Environmental expert of PMC undertook a due-diligence survey of the muck disposal sites identified by the EPC contractor on September 25-26, 2023. As result of the survey, out of 10 identified sites, only one site was found suitable subject to construction of protection and drainage works while rest of the proposed sites were either found unfeasible or required costly access and huge protection works.
80. Since PMC has not approved the EPC contractor identified muck disposal sites, therefore EPC contractor is advised to re-survey the area for identification of muck disposal sites which are feasible in terms of access and protections works.
81. Once identification of muck disposal sites will be completed and sites are approved by PMC, these will be mapped and reported in the upcoming EEM report.
82. EPC contractor entered in agreement with KDA to manage domestic waste of BHPP. In this regards KDA has placed waste containers at camp sites which will be hauled to KDA approved sites. For disposal of medical waste EPC contractor also requested the District Health Officer (DHO) for incineration of medical waste.

5 Institutional Arrangements for EIA/EMP/SSEMP Implementation and Monitoring

83. Institutional arrangements for implementation of mitigation measures are detailed in the EMP and SSEMP Roles and responsibilities of project stakeholders are given below.

5.1 Project Director- PIU PEDO

84. Overall responsibility for environmental management and monitoring rest with the Project Director (PD), PIU, PEDO. The PD will be assisted by the Environment and Health Security Unit, in matters pertaining to the environmental, health and security aspect of the project. In this regard Deputy Director (EHS & Gender) is on-board at PIU Balakot office since March, 2022 to ensure compliance to EMP, SSEMP and other management plans. The responsibilities of PIU are:

- Ensure effective compliance of EMP/SSEMP and other supported management plans as per ADB SPS requirements.
- Provide technical assistance to the project team related to EMP/SSEMP in particular, and to environmental and social safeguards as a whole.
- Put in place reporting mechanism and monitoring regimes for project staff as well as contractors.
- Ensure that EMP related clauses specifically, and environment related clauses in general, are part of all the tender/bid/RFP documents.
- Provide technical input to the various training programs proposed as a part of the EMP.
- Ensuring that all regulatory clearances from the KP EPA are obtained before starting civil works for the project.
- Conduct on site spot checks to check the compliance level, as well as for any outstanding issue not being covered by the EMP - Regularly report to KP government as well as ADB on progress related to EMP compliance.
- Approve the site-specific EMP (SSEMP) prepared by the Contractor and also monitor the implementation of the SSEMP.
- Arrange external environmental monitoring interventions to verify findings of semi-annual environmental monitoring report

85. Hiring of Director Environment and Social and Assistant Director Environment is still in progress.

5.2 Project Management Consultants

86. The PD is being supported during implementation of the Project-by PMC. PMC staff to look after environmental safeguards is comprised of environment expert on intermittent basis and HSE monitor on full time basis to supervise and monitor safeguard compliances. PMC has hired environment expert and HSE monitor for the project activities.

87. During ADB safeguard review mission in September 2023, PMC highlighted the need of hiring of full time environmental specialist to monitor safeguard activities in the field. Hiring of full-time environmentalist was in process till end of reporting period.
88. The PMC is responsible for day-to-day monitoring of the EMP and SSEMP on behalf PEDO during civil works of the project. PMC has maintained correspondences with PIU and EPC contractor. Sample letters/directions issues to contractor are attached as **Annexure H**. Role of PMC is to:
- Review all relevant documents, particularly the EIA study, other management plans and update these as may be required to bring it in compliance with ADB SPS.
 - Prepare/update a cost-effective EMP for the project in line with EIA/EMP recommendations to ensure minimal environmental effects both during and following the construction period.
 - Review the site-specific environmental management plan (SSEMP) for the project prepared by the contractors.
 - Monitor the implementation of EMP and SSEMP regularly during civil works by EPC Contractor.
 - Prepare and execute required actions to mitigate any negative environmental impacts associated with construction activities in collaboration with all concerned stakeholders.
 - Develop training materials for PIU PEDO to support environmental protection measures and to monitor and mitigate potential environmental impacts.
 - Ensure that any environmental impact assessments, if required, fully comply with ADB SPS and ensure, that all required mitigation measures are identified and acceptable EMPs reflecting full details regarding the estimated mitigation costs are in place through the SSEMP.
 - Prepare internal monitoring reports on implementation and monitoring of environmental safeguards and EMP/SSEMP during project implementation.

5.3 The EPC Contractor

89. The EPC contractor is responsible for implementation of EMP/SSEMP and other management plans developed as well as maintaining responsibility for environmental protection liabilities under KP Environmental Protection Act 2014, ADB SPS requirements. The EPC contractor will also be responsible for training its workforce in all aspects and implementation of the EMP/SSEMP. The contract includes an environmental and social mitigation budget as part of the engineering costs of the respective works.
90. The key positions to be filled within the contractor's staff for implementation of the EMP/SSEMP include:
- Environmental Manager
 - Health & Safety (H&S) Manager
 - Environmental staff reporting to Environmental Manager
 - H&S and medical staff reporting to H&S Manager

91. During reporting semester EPC contractor has hired 1 H&S manager, 1 Environmental Manager, 8 HSE officers to implement SSEMP requirements and environmental safeguards during project construction activities. Contractor will fill the remaining position as construction activities are executed at various project sites in coming semesters.

5.4 External Environmental Monitor

92. EEM of the project is on board since July, 2022. EEM is responsible for:
- Monitor and report of all provisions of the EIA, EMP and SSEMP and other supported management plans
 - Conduct periodic environmental monitoring during construction phase
 - Report environmental non-compliances to project stakeholders including ADB, PIU and PMC.
 - Suggest corrective actions to close out of EMP/SSEMP non compliances.
 - Assess the contractors and project stakeholder capacity toward EMP/SSEMP implementation, monitoring, reporting and conformance.
93. .
94. EEM Inception report and 1st External Environmental Monitoring Report has been approved and disclosed on ADB website. External environmental monitoring visit was conducted on 29 Feb, 2024 for project facilities and findings are discussed in this 2nd EEM report covering period July-Dec, 2023.

5.5 EMP Implementation and Monitoring Arrangement

95. Environmental safeguard matters are being supervised and monitored by PIU PEDO and PMC environment team. SSEMP is being implemented by the EPC contractors and supervised and monitored by the PMC. Details of environmental safeguard staffing for the project is provided in below table.

Table 5-1: Details of Environmental Staffing for Balakot HPP

Organization Name	Job Title	Name	Contact Details
Asian Development Bank	Environmental Specialist - Country Environment Focal	Syed Asim Ali Sabzwari	asabzwari@adb.org
	Environmental Specialist – Regional Technical Assistance (RETA) Consultant	Abdul Basit Khan	abkhan.consultant@adb.org
Project Implementation Unit of BHPP (300 MW)	Deputy Director HSE and Gender	Ibtesaam Zaima	ibtesaamz@gmail.com
Project Management Consultant	Environmental Expert	Assad Ali Khan	dtlbalakothpp@yahoo.com
	H & S Monitor	Fawad Ali Shah	
EPC Contractor	H & S Manager	Qi Ziu Feng	453680735@qq.com
	Environmental Manager	Irshad Saeed	cggcbjstbalakot@126.com
	HSE Officer	Wang He	

Organization Name	Job Title	Name	Contact Details
	HSE Officer	Guang Jiongji	
	HSE Officer	Wang Zhen	
	HSE Officer	Syed Babar Ali	
	HSE Officer	Zaigham Shah	
	HSE Officer	Saeedul Haq	
	HSE Officer	Momin Khan	
	HSE Officer	Syed Hassan Shah	

6 External Environmental Monitoring

6.1 Scope of work for EEM

96. Scope of work of EEM includes monitoring of construction activities at the active and planned construction sites and facilities of BHPP. Details of the work (both qualitative and quantitative) are given in project design, EIA and EPC contractor's SSEMP. EEM aims to:
- Develop specific monitoring indicators for monitoring and evaluation of EMP implementation including the community participation, consultation and disclosure;
 - Ensure that all the contractual obligations related to environmental compliance are met;
 - Monitor EMP/SSEMP implementation and identify potential non-compliances for critical parameters;
 - Review results of internal monitoring and verify through random checking at the field level to assess whether EMP/SSEMP objectives have been met.
 - Review monitoring reports and conduct field inspections and verify the progress in EMP/SSEMP implementation of the project and prepare reports for the PIU and the ADB.
 - Review grievance procedures; its recording, reporting and processing time and its redressed;
 - Evaluate performance of PIU, PMC and EPC contractors in EMP/SSEMP Implementation, monitoring, reporting and conformance;
 - Document monitoring results and identify necessary corrective and preventive actions in the periodic monitoring reports (semi-annual reporting), and follow up on these actions to ensure progress toward the desired outcomes; and
 - Conduct meetings and discuss environment-related issues with all key stakeholders including project staff of the ADB, PIU, PMC and EPC contractors.

6.2 Methodology for EEM

6.2.1 Review of EIA/EMP, Design Documents, SSEMPs

97. External monitoring process was initiated by desk review of project EIA and design review of all components including infrastructure designs and other planning/construction phase documents. Desk review of SSEMPs and other supporting management plans was also carried out. Project-specific BAP and arrangements, their implementation, monitoring, and consultations was reviewed. Desk review will be a continuous process and it will include review of Spill Prevention and Response Plan, Waste Management Plan, Blasting and Explosives Control Plan, Stakeholder Engagement Plan (SEP), Dam Safety Review Procedure, Site Security Plan and OHS Plan during project execution. This exercise will be supported by EEM to identify any gaps for which corrective actions are required and

ensure compliance to ADB SPS requirements and KP Environmental Protection Act, 2014.

98. PMC has submitted the updated EIA report to PIU covering revised arrangements for BAP implementation, revised composition of project specific BAP implementation committee and design changes as suggested by ADB, for their review and further concurrence from ADB in August 2023. During ADB safeguard review mission in December, 2023 it was agreed that PIU will submit updated EIA report in January, 2024 for ADB review and concurrence.
99. In the previous EEM report, Desk review of project EIA report, 2019 was carried out and following additional assessments are suggested as corrective action plans.
 - Cumulative impact assessment (CIA) for river ecology, including impacts of downstream and upstream hydropower plans (already constructed and proposed), shall be carried out, and additional mitigation measures shall be proposed.
 - It is predicted that BHPP will improve the ecosystem integrity from largely to moderately modified habitat. This CIA study shall be revised keeping in view the present year scenario and future climate changes. Projections made at the time of EIA preparation in 2019 shall be validated, and any departure shall be incorporated in the updated CIA study.
 - Baseline of water temperature of river and sewerage dilution shall be developed during project execution. Sewerage drainage inlets on the Kunhar river shall be identified within project corridor, and need to be mapped in the geographic information system.
 - Detailed consultation with other hydropower developers shall be a continuous process, and findings shall be reported and maintained. Robust corrective action shall be considered by the consultees to ensure river ecology integrity.
 - Suspended sediment load analysis on upstream and downstream of BHPP shall be carried out during project execution, and inventory shall be maintained.
 - CIA findings of two endemic and restricted range fish species, Nalbant's Loach *Schistura Nalbanti*, and Kashmir Hillstream Loach *Triplophysa kashmirensis*, shall be validated. Any departure shall be highlighted and reported.
 - Project climate change impact modelling, and climate change risk and vulnerability study shall be carried out. Necessary design changes shall be suggested and incorporated during civil works.

6.2.2 Meetings with PIU, PMC and EPC Contractors

100. In this task the meetings are conducted with the management of PIU, PMC and EPC contractors and staff responsible for implementation of EMP/SSEMP and other management plans. The agenda of such meetings are to develop communication among stakeholders to implement and monitor environmental mitigation measures delineated in the EIA/EMP and SSEMP. Environmental Management Plan annexed with Site Specific

Environmental Management Plan (SSEMP) will be used as a checklist for visual observation and instrumental monitoring.

6.2.3 Field Environmental Monitoring

101. Field environmental monitoring shall be done during construction activities on a periodic basis and as per requirements received from PIU PEDO at construction sites of BHPP. Some specific tasks of EEM will be:

- Monitor implementation of SSEMP
- Monitor implementation of BAP
- Monitor implementation of KP EPA no objection certificate(NOC) conditions
- Monitor of Corrective Action Plan of 1st EEM report
- Monitor the environmental performance of the contractors
- Field environmental inspections/audits at construction sites
- Monitor camps, TRs, magazine camps, spoil disposal areas
- Advise contractors on environmental non-conformities
- Monitor records of all wastes and natural resources
- Identify unanticipated impacts and advise remedial actions
- Monitor access routes, buffer zones and other activities
- Ensure that any non-conformity arising during implementation are reported and corrective action taken.
- Ensure photographs are taken to record pre-project conditions for restoration and post project comparisons.
- Periodic inspections of all project facilities and activities and suggest remedy of deficiencies noted. Keep track of the meeting points to ensure they are closed.
- Advise and monitor actions to reduce usage of natural resources.
- Monitor that contractor environmental representative provides environmental training to all new arrivals at the field.
- Monitor the implementation of emergency response plans and evaluate its adequacy.
- Provide approvals for waste contractors. In this regard EEM shall assist project contractors in identifying waste contractor, waste facilities, investigate the contractor's method of waste disposal and if found inappropriate report his findings to the PIU/ADB.
- Ensure that the minimum distance to be maintained from the sensitive receptors, as defined in the EIA/EMP/SSEMP, are adequately followed.
- Ensure that the grievance redress mechanism (GRM) is being maintained and complaints are being addressed.

- Evaluate the effectiveness of environmental trainings, (e.g. EIA, EMP, sensitivity of the area, critical area, safe distances, noise, vibration, water quality, solid waste to be maintained).

102. The EEM checklist is provided as **Annexure G** of the EEM report.

6.2.4 Approvals of Water Use

103. The EEM has verified the intended water use to ensure that there are no impacts on local waters from the project.

6.2.5 Environmental Trainings

104. EEM has reviewed contractor's capacity in providing training to its staff so that EIA/EMP/SSEMP requirements, ADB policies and procedures and KP EPA requirements are clearly understood by the personnel on board throughout the project.

6.2.6 Audit of Environmental Records

105. EEM has conducted audit of the following environmental records:

- all environmental reports (including monthly and quarterly progress reports and inspection/audit reports) prepared by the PIU, PMC and EPC contractors.
- semi-annual internal environment monitoring reports prepared by PIU, PMC and contractors.
- social complaints register
- photographic record
- resource use (water, fuel etc.)
- vehicles/machinery
- people on board/weekly man hours
- handling of spoils materials
- handling of quarry materials and blasting materials
- handling of fuel, oils and chemicals etc.
- HSE statistics
- waste management
- record of any spill, leak or any other event that the damages or can potentially damage the environment
- daily record of violations or any other event that or can potentially damage the environment
- record of all remedial actions
- record of fire-fighting and oil spill drills
- records of quarry areas

- record of stakeholder consultations
- instrumental monitoring reports

6.3 Monitoring of Biodiversity Action Plan

106. The EEM will monitor the implementation of BAP developed for the project. Project EIA has suggested 02 types of BAP.
- Basin wide BAP
 - Project specific BAP

6.3.1 Basin Wide BAP

107. Upon instruction of ADB during safeguard progress review mission, the PIU of BHPP arranged two virtual meetings in November 2023 on the agenda item “BAP financing provisions in the EIA reports/tariff of hydropower projects in the Jhelum basin and assessment of challenges in its materialization”. The meeting was participated by basin-wide BAP prospective financiers i.e. Karot, Mahal and Kohala HPPs, Sukki Kinari and Azad Pattan HPPs. Most of the stakeholders excused themselves from financing of establishment of Institute for Research on River Ecology and Watershed Management Organization which as proposed in project EIA. The reason for not financing the basin wide BAP is the fact that no clear government policy on the subject is available and PIU BHPP cannot lead the initiative. It was suggested that a larger consultation session shall be carried out in which Private Power and Infrastructure Board (PPIB), hydropower developers and ADB shall be invited to formulate a framework to plan and implement the BAP. Larger consultation meeting is planned in Feb 2024 and proceeding will be discussed on next EEM report.

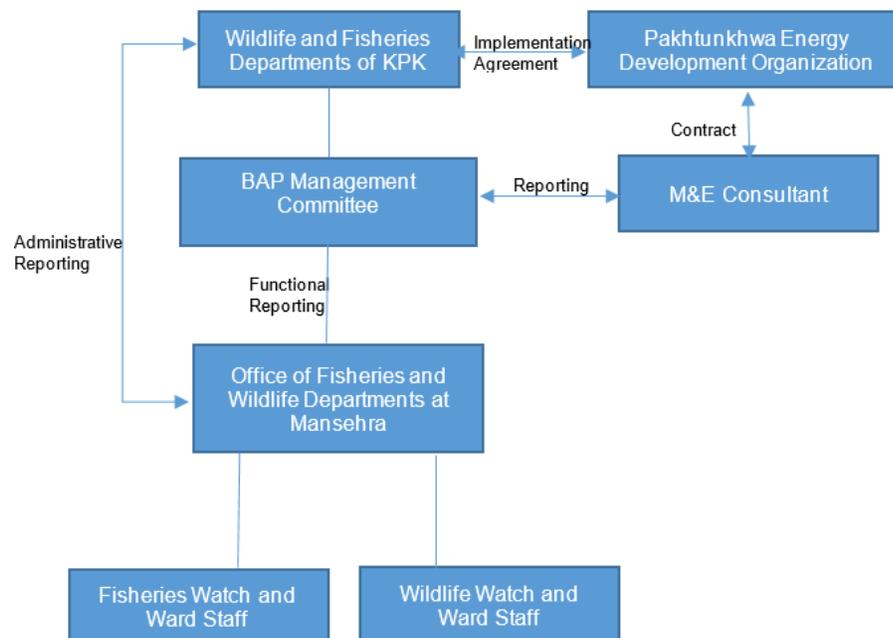
6.3.2 Project Specific BAP

108. The PD BHPP convened a meeting of fisheries and wildlife departments of the government of Khyber Pakhtunkhwa on August 03, 2023 at PEDO house Peshawar to finalize various modalities for Project specific BAP implementation agreement(s) with the aforesaid departments. Both the departments notified their respective focal persons for further interactions with PIU and PMC on the matters pertain to Project specific BAP. Notification of focal person from KP wildlife department for BAP implementation is attached as **Annexure B**.
109. Further in this regard PIU and PMC safeguard representatives visited the departments field offices in Balakot to assess their feasibility for use during implementation of project specific BAP. The wildlife office located in Kanshai was found unfeasible as the building involved entirely new construction since it was damaged in Earthquake, 2005, site has very poor access and no electric and water supply available. Visit to District Forest Officer (DFO) sildfie office in Balakot was also carried out and site was found feasible for project specific BAP implementation/interventions subject to construction of 02 additional rooms.
110. The Fisheries department identified facility for BAP interventions was found feasible as the facility is located on the N-15 road and is adjacent to the operational hatchery of the department near Jared village. In the previous semester, revised arrangement for BAP

implementation and monitoring were suggested by PIU PEDO and PMC after extensive consultation sessions with KP Wildlife and Fisheries department. These include elimination of role of implementation organization, role of KP biodiversity and wildlife board and reduction in members of BAP management committee. It is further proposed that the BAP management committee shall be chaired by DG fisheries instead of KP Wildlife department.

111. Revised arrangements for BAP implementation and monitoring are illustrated in the figure below.

Figure 6-1: Revised BAP Arrangements for Balakot HPP



112. The BAP management committee in the K P province will be established by the Competent Authority at PEDO/Ministry of Energy and Power and Government of K P. The committee will have the following composition.

- Director General Fisheries-Chair
- Representative of PEDO – Member
- Representative of KPK Forest Department – Member
- Representative of Fisheries Department- Member
- Representative of Wildlife Department-Member
- Representative of EPA – Member
- Recognized expert on freshwater ecology – Member
- Representative of district administration- Member

- Representative of project area Community-Member

113. A tentative schedule for BAP implementation is provided in below table.

Table 6-1: Tentative Schedule for Revised BAP Arrangements

Sr. No	Activity	Tentative Schedule	Status
1	Finalize of various modalities, i.e. offices, human resources, payment modalities etc. in consultation with the Fisheries and Wildlife Departments of the government of KPK.	Q4, 2023	In process, KP Wildlife and Fisheries have nominated focal persons for BAP implementation. PIU and PMC has visited the sites for office establishments in the field.
2	Sign Contract	Q4, 2023	Not finalized yet.
3	Notify BAP Management Committee	Within 1 month after finalizing S/No. 2	N/A
4	Hire of Monitoring Consultant	Within 3 months after finalizing S/No. 2	-
5	Procure office and protection equipment, human resources and logistics	Within 3 months of S/No. 2	-
6	Initiate field activities	Q1, 2024	-

6.3.3 Establishment of Fish Hatchery

114. To comply with conditions of KP EPA approval for the BHPP, there is a need to establish a fish hatchery at Kunhar river to conserve/protect the fish biodiversity and to compensate the impact of dam construction on fish population. In this regard PIU/PMC carried out a meeting with DG fisheries for identification of fish hatchery site. The Fisheries department is in process of finalization and proposing a hatchery site. Upon this PIU/PMC will carry out a site survey to assess feasibility for establishment of hatchery and after approval necessary agreement will be signed with the department.

6.4 Quarry Area Management

115. Monitoring of quarry area extraction and restoration activities shall be carried out by external environmental monitor in which it will be ensured that all measures specified in the EIA/SSEMP, and other project documents related to the extraction and restoration are fulfilled.

116. At present no quarry areas are being developed. Quarry materials are being purchased from approved sites such as Ghumwan for coarse aggregates and Lawrencepur, Maira and Thakot for fine aggregates.

6.5 Waste Management

117. Waste management at different locations, especially camp sites will be monitored during EEM field visits. Provision of spoil disposal management plan will be monitored. Spillage of liquids hazardous to workers' health, wildlife, and property, will be monitored. Provision and use of personal protective equipment (PPEs) will be monitored by the concerned supervisors. Similarly, proper disposal of waste related to human activities, existing drainage system etc. will be monitored through visual observation using standard check lists during field monitoring visits.

6.6 Monitoring of Management Plans of SSEMP

118. Management plans annexed to project SSEMP will be monitored during EEM site visits and through review of records and observations related to environmental safeguards and non-compliances will be reported along with suggested corrective action. As part of EEM scope of work, below management plans will be monitored.

- OHS management plan.
- blasting management plan
- erosion and sedimentation control plan
- management plan for underground works
- management plan for construction work in the river
- construction camp management plan
- drinking water supply and sanitation safety plan
- traffic management plan
- Emergency response plan
- Tree management plan

6.7 Monitoring of Grievance Redress Mechanism (GRM)

119. Record of the GRM will be collected during the semi-annual review meetings. The same will be verified during field monitoring visits on semi-annual basis.

6.8 Monitoring of Capacity Development Plan

120. Progress against the capacity development plan for the staff of different entities (PIU, PMC and EPC contractor) will be reviewed during the coordination meetings with PIU. Records of the training will be observed in field and during interviews with key informants.

6.9 Monitoring of Tree Plantation plan

121. During field visits, implementation of tree management plan will be monitored against the progress reports submitted by the relevant department/consultant.

6.10 Monitoring of Traffic Management Plan

122. Traffic management plan is part of the SSEMP and will be monitored during field visits from the record, physical observations and informal feedback from staff and communities.

6.11 Monitoring of Public Consultation Status and Sharing Project Profiles with Stakeholders

123. Status and progress of the public consultation process will be monitored to determine whether the standards and requirements are met in the pre-construction and construction phase.

7 External Environmental Monitoring Report

7.1 Project EIA/EMP/SSEMPs Readiness Assessment

124. The EEM assessed safeguards documents prepared for BHPP. The indicators and criteria is listed in **Table 7-1**.

Table 7-1: Project EIA/EMP/SSEMPs Readiness Assessment

Indicator	Criteria	Assessment	Remarks
EIA approval and disclosure	The EIA was cleared by ADB in 2019 and disclosed on ADB's project website.	Yes	Complied with.
Mitigation measures as described in EMP adopted during detailed design, construction, preparation, and implementation	Measures defined in EIA and EMP are included in detailed designs for each component.	Yes	EMP was included as part of tender/contract documents
EIA update	The EIA was updated in August 2023 to reflect proposed design changes and revised arrangements for BAP implementation and monitoring. Draft EIA submitted to ADB for review and EIA approval is expected in January 2024.	Yes	EIA update is in progress by PMC.
EMP update	EMP is updated as part of EIA update and sent to ADB for review and clearance.	Yes	EMP update is in progress by PMC.
Compliance with loan covenants	The borrower complies with loan covenants related to project design and environmental management planning.	Yes	Complied with.
Environmental monitoring	The monitoring parameters, locations, and methods for ambient air, noise and surface water defined in the EMP.	Yes	Complied with.
SSEMP	SSEMP prepared and approved in December 2022. Conditional approval is granted.	Yes	Complied with.
EEM Report	1 st SAEMR (External) Jan-Jun, 2023	Yes	Complied with.

7.2 Compliance with National/Local Requirements

125. Compliance with national and local requirements was assessed and details are provided in **Table 7-2**.

Table 7-2: Approval/Clearances Obtained for BHPP

Sr. No	Clearances Obtained	Status
1	Approval from KP EPA	NOC obtained attached as (Annexure A).
2	Approval from KP Forest Department	NOC obtained and provided in (Annexure B).
3	Approval from KP Fisheries Department	NOC obtained and provided in (Annexure B).
4	Approval from KDA for disposal of solid waste	NOC obtained and provided in (Annexure B).
5	Approval form District Health Quarter Balakot for Medical Waste disposal	Memorandum of understanding request from District Health Officer Balakot is sent by EPC contractor dated 28 March 2023 however approval is still awaited.

7.3 Resource Use

7.3.1.1 Water Consumption

126. Water for project activities is being obtained from locally available springs. Spring water is being obtained with piped connection to springs at GRC camp, CGGC camp, Adit-2, Adit-3 and Adit-1 area. Mineral/spring water is being used for drinking purposes. Water abstraction data is being maintained by the project contractors and reported in semi-annual monitoring reports.
127. The cumulative water usage for the present reporting period amounts to 5,207 cubic meters. Water consumption summary of the construction site of BHPP is provided in **Table 7-3**.

Table 7-3: Resource Usage – Water Consumption (Liters)

S/No	Month	Water (Liters)
1	July	635,700
2	August	631,800
3	September	891,800
4	October	897,750
5	November	1,021,800
6	December	1,128,400

S/No	Month	Water (Liters)
Total		5,207,250

7.3.2 Fuel Consumption

128. Total fuel consumption recorded for the project during the monitoring period is 586,033 liters diesel and 4,582 liters petrol. Project fuel requirements for BHPP are being fulfilled by fuel supply from the nearby petrol pump. GRC placed a fuel tank at its camp from which fuel is filled into drums through waste dispenser and transported to the site. At CGGC camps fuel drums are stored at concrete pads. Fuel consumption summary of the construction site is in **Table 7-4**.

Table 7-4: Resource Usage – Fuel Consumption (Liters)

S/No	Month	Diesel	Petrol	Total
1	July	55758	984	56742
2	August	69450	832	70282
3	September	100699	819	101518
4	October	66209	704	66913
5	November	113854	492	114346
6	December	180063	750	180813
Total		586,033	4,582	590,616

7.3.3 Construction Materials

129. During the reporting period, major construction materials used under the project include reinforced steel, cement, sand, and coarse aggregates supplied from the approved sources outside of the project area. Details on approved sources are provided below.

Construction Material	Supply Source
Coarse aggregate	Black Diamond and Ghuman, EPC contractor requested for approval of coarse aggregate supply from stock yard 2 and 3 Mix of Suki Kinari however PMC has not approved the source.
Fine aggregate	Lawrencepur, Maira and Thakot
Cement	Askari and Fauji
Reinforced steel	Fazal and Ittifaq

130. Construction material use summary is provided in **Table 7-5**.

Table 7-5: Resource Usage – Construction material use summary.

S/No	Month	Steel	Cement	Sand	Aggregates (cft)
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		(Ton)	(Bags)	(cft)	
1	July	32	1120	4163	2349
2	August	40	2100	3339	2179
3	September	8	2196	18617	10594.4
4	October	20	3412	12604	5484
5	November	15	8955	35256	30608
6	December	209.97	28191	63319	47424
Total		324.97	45,974	137,298	98,638.4

7.3.4 Human Resources

131. During the reporting period, an average of 660 individuals were employed as part of the project's workforce. Considering the progress of work, there is reasonable increase in manpower over the months during reporting semester. Similar to total manpower, local employment also increased from July to December 2023 which is approximately 50% the employment.
132. The project's contractors have actively engaged with the local community, employing a substantial number of skilled and unskilled workers. Most of local contractors are engaged by sub-contractors. Out of the total workforce, an average of 336 individuals were sourced from the local area during typical reporting month. Average manpower requirement on construction site of BHPP are provided as **Table 7-6**.

Table 7-6: Resource Usage – Manpower Requirements

Sr No.	Month	Workers employed per month	Local workforce (No)
1	July	493	293
2	August	516	301
3	September	637	310
4	October	665	332
5	November	786	306
6	December	868	478
Average		660	336

7.3.5 Equipment/Machinery

133. Machinery deployed at BHPP works are provided in **Table 7-7**. About 219 vehicles/machineries were deployed on a typical working month . Further equipment and machinery will be engaged as per construction schedule.

Table 7-7: List of Equipment/Machinery used for BHPP

S/No	Description	Model	Total No. deployed	Deployment month					
				Jul	Aug	Sept	Oct	Nov	Dec
1	Excavator	HITACHI 200	1	1	1	1	1	1	1
2	Excavator	Hyundai	1	1	1	1	1	1	1
3	Crawl Excavator	CDM 6225	1	1	1	1	1	1	1
4	Excavator	HITACHI 200	5	5	5	5	5	5	5
5	Excavator	Doosan 210,225	4	4	4	4	4	4	4
6	Excavator	CAT, HYUNDAI	4	4	4	4	4	4	4
7	Excavator	Volvo 145, Sunny	5	5	5	5	5	5	5
8	Crawl Excavator	HITACHI 200	4	4	4	4	4	4	4
9	Loader		2	2	2	2	2	2	2
10	Mini Dumper		2	2	2	2	2	2	2
11	Dump Truck	FAW 280	5	5	5	5	5	5	5
12	Roller		1	1	1	1	1	1	1
13	Generator	200, 200, 65 KV 15 KV, 250	6	6	6	6	6	6	6
14	Batching plant	0.5m3	1	1	1	1	1	1	1
15	Double Cabin	Revo, Tiger 2002	2	2	2	2	2	2	2
16	Car Corolla	Toyota	1	1	1	1	1	1	1
17	Transit Mixer	Nissan, Hino	2	2	2	2	2	2	2
18	Compressor /12Bar		2	2	2	2	2	2	2
19	Jeep		2	2	2	2	2	2	2
20	Trolley Crane		1	1	1	1	1	1	1
21	Drilling Equipment		14	14	14	14	14	14	14
22	Shotcrete Pump		2	2	2	2	2	2	2
23	Ventilation Fan		1	1	1	1	1	1	1
24	Power Generator	375KVA	1	1	1	1	1	1	1
25	Air Compressor		1	1	1	1	1	1	1

S/No	Description	Model	Total No. deployed	Deployment month					
				Jul	Aug	Sept	Oct	Nov	Dec
26	Peter Engine	25HP	2	2	2	2	2	2	2
27	Bulldozer		2	2	2	2	2	2	2
28	Fortuner	Toyota	1	1	1	1	1	1	1
29	Excavator	Mobile Sunny/SAY155UU	1	1	1	1	1	1	1
30	Skid Dumper		1	1	1	1	1	1	1
31	Water Bozer		1	1	1	1	1	1	1
32	Concrete Silo		1	1	1	1	1	1	1
33	Mobile Shotcrete Pump		1	1	1	1	1	1	1
34	Vigo Hilux		1	1	1	1	1	1	1
35	Dumper skid fiori		1	1	1	1	1	1	1
36	Power Generator 200 KVA		1	1	1	1	1	1	1
37	Dumper	Mini Hino	1	1	1	1	1	1	1
38	Generator	Cat	1	0	0	0	0	0	1
39	Air Compressor		1	0	0	0	0	0	1
40	Tractor		1	0	0	0	0	0	1
41	Jeep		1	0	0	0	0	0	1
42	Batching Plant	0.5 m3	1	0	0	0	0	0	1
43	Transit Mixer		1	0	1	1	1	1	1
44	Weighing Bridge		1	0	0	0	0	0	1
45	Dumper		1	0	0	0	0	0	1
46	Crawl Excavators	PC200-8	1	1	1	1	1	1	1
47	Dump Trucks	SCHMAN	7	7	7	7	7	7	7
48	Excavator	Hitachi 200, Hitachi 220	2	2	2	2	2	2	2
49	Excavator	CATN320D, Hyundai 210	2	2	2	2	2	2	2

S/No	Description	Model	Total No. deployed	Deployment month					
				Jul	Aug	Sept	Oct	Nov	Dec
50	Excavator	Komatsu 200, Komatsu 100	2	2	2	2	2	2	2
51	Loader	LW500	1	1	1	1	1	1	1
52	Crawler bulldozer	SD22	2	2	2	2	2	2	2
53	Side dump loader	WA380-6	1	1	1	1	1	1	1
54	Jeep		1	1	1	1	1	1	1
55	Loader	LW500FN, LW300FN	3	3	3	3	3	3	3
56	Diesel generators	V550C2, HDG22	2	2	2	2	2	2	2
57	Diesel generators	Perkins 121hp,1106A- 70TG1	2	2	2	2	2	2	2
58	Water tank	SCS5160GSS	2	2	2	2	2	2	2
59	Concrete Mixture Machine		2	2	2	2	2	2	2
60	Diesel tank	Foton Daimler, M600	1	1	1	1	1	1	1
61	Water truck	DLQ5161GSSZ4	1	1	1	1	1	1	1
62	Flatbed truck	FG1JKPB	1	1	1	1	1	1	1
63	Concrete Mixture Machine		3	3	3	3	3	3	3
64	GPS-RTK Survey System Brand	Nan fang S82	4	4	4	4	4	4	4
65	Total station Brand	GPT-4002LN	1	1	1	1	1	1	1
66	Digital Levelling Instruments	Trimble DINI03	1	1	1	1	1	1	1
67	Pickup	4X4	4	4	4	4	4	4	4
68	Prado		3	3	3	3	3	3	3
69	Car	MJ	1	1	1	1	1	1	1
70	Road Roller	XS183JPD	1	1	1	1	1	1	1

S/No	Description	Model	Total No. deployed	Deployment month					
				Jul	Aug	Sept	Oct	Nov	Dec
71	Air Compressors		2	2	2	2	2	2	2
72	Crawler Drilling machine	T35	1	1	1	1	1	1	1
73	Diesel Air Compressor	XRHS666CD, XAHS750	2	2	2	2	2	2	2
74	Mobile truck crane 25ton	QY25K5-I	1	1	1	1	1	1	1
75	Concrete Pump	HBT80.13.112RS D, HBT60.16.110SU	2	2	2	2	2	2	2
76	Power Transformer	500,800KV,100,1200KV and1250	5	5	5	5	5	5	5
77	Single Arm Rock Drilling Rig	D7	1	1	1	1	1	1	1
78	Binding Machine		1	1	1	1	1	1	1
79	Shaper	BC6063	1	1	1	1	1	1	1
80	jib crane	BZD-2	1	1	1	1	1	1	1
81	jib crane	BZD-2	1	1	1	1	1	1	1
82	Digital Underground Scale	SCS-60	1	1	1	1	1	1	1
83	low voltage switch box	380V 1600A	1	1	1	1	1	1	1
84	low voltage switch box	380V 2000A	1	1	1	1	1	1	1
85	low voltage switch box	UAN111-354-111	1	1	1	1	1	1	1
86	Ordinary lathe	C6160C	1	1	1	1	1	1	1
87	Vertical lifting table milling machine	ZX7045	1	1	1	1	1	1	1
88	Shaper	BC6063	1	1	1	1	1	1	1
89	sewage pump	TS200-125-365	1	1	1	1	1	1	1
90	oil storage tank	5170 Gallon 19500L	1	1	1	1	1	1	1

S/No	Description	Model	Total No. deployed	Deployment month					
				Jul	Aug	Sept	Oct	Nov	Dec
91	lathe	CY6166B-3000	1	1	1	1	1	1	1
92	Shaper	B6065	1	1	1	1	1	1	1
93	Vertical lifting table milling machine	XQ6232W-B	1	1	1	1	1	1	1
94	Radial drilling machine	Z5140A	1	1	1	1	1	1	1
95	Single column press	YX41-100T	1	1	1	1	1	1	1
96	Other hydraulic presses (pipe crimping machines)	XM91-C1	1	1	1	1	1	1	1
97	lathe		1	1	1	1	1	1	1
98	Dump truck volvo		1	1	1	1	1	1	1
99	Excavator	210, 323 and 323	3	3	3	3	3	3	3
100	Mazda		1	1	1	1	1	1	1
101	Pickup double cabin		1	1	1	1	1	1	1
102	Lifter		1	1	1	1	1	1	1
103	Batching Plant	1.0m3	1	1	1	1	1	1	1
104	Ventilation Fan		1	1	1	1	1	1	1
105	Electric Air Compressor	XAMS850E	1	-	1	1	1	1	1
106	Transit Mixer Machine	ZZ1257N3641W	4	-	1	4	4	4	4
107	Wheel Excavator	Doosan DX210W	1	-	1	1	1	1	1
108	Wet Spray Trolley	TSR 2010	1	-	1	1	1	1	1
109	Loader	LW300FN	1	-	1	1	1	1	1
110	Robotic Arm Wet spray Machine	Sika Alive 272	1	-	1	1	1	1	1
111	Screw Air Compressor	XAS 186	1	-	1	1	1	1	1

S/No	Description	Model	Total No. deployed	Deployment month					
				Jul	Aug	Sept	Oct	Nov	Dec
112	Large Axial Flow Fan	AVH140.90.4	1	-	1	1	1	1	1
113	Dynamo	V550C2	1	-	1	1	1	1	1
114	Dynamo	J110 kVA	1	-	-	1	1	1	1
115	Wet spray trolley	TSR2010	1	-	-	1	1	1	1
116	Loader (robot arm)	LW300FN	1	-	-	1	1	1	1
117	Robotic arm wet spray concrete pump	Sika aliva702+Aliva302 .1	1	-	-	1	1	1	1
118	Robotic arm wet spray concrete pump	Sika aliva702+Aliva302 .1	1	-	-	1	1	1	1
119	dump truck	SX3255DR384R	1	-	-	1	1	1	1
120	dump truck	SX3255DR384R	1	-	-	1	1	1	1
121	Diesel generators	1106A-70TG1/UCI274F	1	-	-	1	1	1	1
122	Diesel generators	SDMO MODEL J110KVA	1	-	-	1	1	1	1
123	dynamo	CUPP640(S)	1	-	-	1	1	1	1
124	dynamo	CUPP640(S)	1	-	-	1	1	1	1
125	Electric air compressor	XAMS850E	1	-	-	1	1	1	1
126	screw compressor	XAS186	1	-	-	1	1	1	1
127	Electric air compressor	XAMS850E	1	-	-	1	1	1	1
128	Electric air compressor	XAMS850E	1	-	-	1	1	1	1
129	Electric air compressor	XAMS850E	1	-	-	1	1	1	1
130	Electric air compressor	XAMS850E	1	-	-	1	1	1	1
131	Axial Fan	2*AVH125.90.4.8	1	-	-	1	1	1	1
132	Three Arm Trolley	BOOMER XL3D	1	0	0	0	0	0	1

S/No	Description	Model	Total No. deployed	Deployment month					
				Jul	Aug	Sept	Oct	Nov	Dec
133	Geological Drilling Rig	Xy-2	1	0	0	0	0	0	1

7.3.6 Waste Generated

134. All the waste generated at construction sites of BHPP were collected in waste drums. From waste drums, solid waste is transferred to dedicated large size containers provided by KDA at contractor camps. These containers are emptied on a periodic basis and record in being maintained. NOC for waste disposal by KDA is provided as Annexure B.
135. Construction waste i.e. waste from tunneling and excavated material is being used as road fill material and upraising of platforms of protection works. Identification of muck disposal sites is yet under progress and sites are not finalized by the PMC. In previous semester, EPC contractor submitted the report containing details on 11 number of muck disposal sites. In August 2023, PMC conducted survey of identified sites however only 01 site was found feasible. All other identified sites are not selected as these involve costly access and high protection works. PMC advised EPC contractor to identify other sites for muck disposal sites on priority and submit the report for review and approval.
136. Black water was temporarily stored in the septic tanks and thereafter drained at nearby drains. Storm water drains are also provided to divert storm water from the camps. Data on types and quantities of waste generated during the monitoring period is maintained by the contractors. Type, quantity and modes of disposal of project waste are listed in **Table 7-8**.

Table 7-8: Modes of Waste Disposal at BHPP

S/No	Type of waste	Volume of waste generated	Disposal
1	Plastic waste (Kg)	17.5	Collected in the KDA supplied waste container and then transported to the approved waste disposal site.
2	Used tires (Nos)	55	Stored in junk yard (to be auctioned)
3	Used wooden sheets (Kg)	0	Not produced yet
4	Used engine oil (litres)	1243	Stored in barrels.
5	Biodegradable waste (vegetables, food etc.) (Kg)	460	Stored in container provided by KDA at camp site and KDA will dispose at their designated site. EPC contractor has obtained NOC from KDA.

S/No	Type of waste	Volume of waste generated	Disposal
6	Construction waste including excavated material and Tunneling waste (m ³)	-	Surplus excavated or tunneling waste are being used as road fill material, slope stabilization and up-raising of platform for protection works. During coming semester EPC contractor will develop muck disposal sites for disposal of construction waste.
7	Medical waste (Kg)	2.4	Temporarily stored at camp and will handed over to DHQ hospital for incineration. EPC contractor has applied for NOC however no response received from DHO office. PIU/PMC and EPC contractor need to expedite the NOC process.
8	Contaminated sorbents	0	Temporarily stored at camp and will be handed over to DHQ hospital for incineration.

7.4 Batching Plant Management

137. BHPP Contractors installed three batching plants at Adit 2, Adit-3 and in residential colony as per the layout plan given in the SSEMP. Construction materials are stored adjacent to the batching plants. No crush plant was installed at the site during the reporting semester.
138. The batching plant operates under the direct supervision of CGGC Material Engineer and his laboratory staff as per standard operating procedure, approved by the manufacturer and under the PMC approved methodology. Batching plants are operated following approved PMC procedures/method statements with minimum dust emissions however there is need to fix leakages during batch transfer. Basic environmental mitigation controls are provided in the batching plant.
139. For construction works at Adit 2 camp, EPC contractor is planning to install batching plant for which due diligence report (DDR) was prepared by PMC and submitted to ADB for review and concurrence. The proposed batching plant site is located at the left bank of the Ganhool Nullah, around 200 meters downstream of the main camp with elevation difference of around 10 m. The site was found suitable subject to construction of protection works along the Ganhool Nullah.

Figure 7-1: Site Identified for Batching Plant

7.5 Borrow Areas

140. During the reporting period there is no borrow area requirement requested by contractor.

7.6 Communication and Documentation

7.6.1 EMP Compliance Monitoring Reports

141. Environmental compliance monitoring reports are prepared by PMC and reviewed/approved by PIU. Deputy Director Environment PIU and environment specialist of PMC are responsible for EMP/SSEMP compliance reporting and effective supervision of mitigation measures adopted during the construction phase of BHPP. There is a need to instruct EPC contractor for submission of monthly environmental report and PMC will ensure their submission of to PMC and PEDO as per approved reporting mechanism. At present adopted reporting frequency is detailed in **Table 7-9** below.

Table 7-9: EMP Compliance Monitoring Reports

Report	Prepared by	Reviewed by	Distribution
Quarterly	C-ES	PMC-ES	PMC
Quarterly	PMC-ES	PIU- Deputy Director (Environment)	PMC, PIU
Semi Annual	PMC-ES	PIU-Deputy Director (Environment)	PMC, PIU, ADB
	EEM	ADB	PIU, ADB
Annual	PMC-ES	PIU-Deputy Director (Environment)	PMC, PIU
Final Report upon completion of project.	PMC-ES	PIU-Deputy Director (Environment), ADB	PMC, PIU, ADB

ADB= Asian Development Bank, C-ES: Contractor Environment Specialist, EEM: External Environmental Monitor, PIU: Project Implementation Unit, PMC-ES: PMC Environment Specialist

7.6.2 Environmental Training/Meetings and Drills

142. PMC is conducting weekly HSE progress review meeting in which follow up on close out of HSE non-compliances is carried out. All the pending issues are discussed with the management of EPC contractor to timely close out of non-compliances. It is advised that PIU shall also participate in such meetings to achieve desired results.
143. In order to ensure compliance of EMP/SSEMP requirements, EPC contractors has arranged annual OHS training dated August 8-9, 2023, during reporting semester. Training was imparted by RESCUE 1122 and attended by relevant staff of PIU, PMC and EPC Contractors and their staff. During training understanding and practical demonstration on site OHS risks, emergency response procedure/handling and first aid services was provided to the audience. Demonstration on medical evacuation drill and first aid treatment was provided to enhance the staff capacity in dealing emergencies. Toolbox Talks and HSE training attendance sheet is attached as **Annexure C**.
144. Limited trainings in compliance to SSEMP are carried out during reporting semester. There is need to hold environmental meetings/trainings on periodic basis to discuss environmental safeguards. There is need to discuss topics on relevant environmental controls, environmental sensitivity and HSE aspect of the project area. PIU, PMC, and contractor essential staff shall participate in such training sessions. Training plan shall be prepared and implemented at project sites. Periodic drills shall also be carried out to ensure effectiveness of trainings/toolbox talks and improved SSEMP and HSE compliance.

7.6.3 Grievance Redress Mechanism

145. Under BHPP, GRM is effective and functional at EPC contractor level (internal) and PIU level. Environment issues and HSE complaints will be addressed through PIU level GRM which has two tiers including PIU and village level GRMs. The grievance redress

committees (GRCs) constituted under project GRM are in the field and were operative since September 2022. GRM Committee notification is attached as **Annexure D**.

146. Record of the GRM was reviewed by the EEM. GRCs at field and project level have been notified and they are functional in compliance with EMP/SSEMP requirements.
147. For registration of complaints, complaint registers are available at field offices and at sites wherein complainant can register complaint(s).
148. Upon receipt of complaint, EPC contractor follows the specified procedure to address the complaint and resolve the issue within prescribed time frame.
149. During the reporting period, no grievances were registered against the environmental safeguard aspect of the works under BHPP.

7.6.4 Tree Plantation Plan

150. About 14,568 trees will be uprooted during construction of the project facilities. However, exact number of trees will be finalized by PEDO/PMC and EPC contractor. Tree plantation plan is provided in project SSEMP. The plantation sites were identified with the consent of the Sub Divisional Forest Officer (SDFO) Forest, Balakot office with whom the EPC contractor held consultation meeting on July 14, 2022. As directed by him, local species will be planted against the affected trees at the locations exhibited in the table below. He further directed that the EPC contractor must follow rules and regulation of Forest department while planting these trees.

Table 7.10: Tree Plantation Areas with Coordinates

Sr. No.	Plantation Sites	Coordinates
1	Paras	34° 39' 34" N 73° 27' 00" E
2	Zamanabad	34° 37' 35" N 73° 24' 58" E
3	Kholian	34° 37' 36" N 73° 24' 57" E
4	Kappi Gali (A)	34° 36' 26" N 73° 22' 59" E
5	Kappi Gali (B)	34° 36' 28" N 73° 22' 61" E

151. The complaint by DFO, Kunhar Watershed Division, Mansehra regarding damages to the trees at access road (R3) was undertaken jointly by the PIU, PMC, and EPC contractor, several meetings were held while DFO conducted visit to the site on June 24, 2023.
152. As result of the above, the Forest department prepared shape file of the area and assess the damaged trees. However, as the damaged trees are identified within the Right of Way (ROW) permanently acquired by the PEDO, the matter is yet to be sorted out on whether the affected trees have been accounted for payment at the time of tree assessment or not. As a consequence of series of consultations with DFO, complaint is diluted by the department through issuance of warning to avoid damages to Billion Tree Tsunami Plantation/Billion Tree Afforestation Plan-10 plantation from project activities. Copy of the complaint and necessary instructions by forest department are attached as **Annexure E**.

153. Other than ROW no tree cutting was carried out during the reporting period. Trees plantation shall be carried out in collaboration with KP forest department and EPC contractor. In this regard, PIU Balakot will coordinate with the forest department and accordingly tree plantation plan will be prepared and implemented. Every tree removed will be compensated with the planting of five seedlings to ensure at least two mature trees.
154. Drafting of Tree plantation plan and its implementation arrangements is in progress by EPC in consultation with PMC and DFO Kunhar Watershed Division. The tree plantation plan will be submitted to ADB in Q1, 2024 for its review and approval.

7.6.5 Traffic Management Plan

155. Since most of the project activities are being executed along N-15 and there is significant traffic increase on Highway due to tourism activities for Naran, Kaghan and Bata Kundi, therefor air and noise quality may be impacted due to shuttling of vehicles. There is a need to implement traffic management plan which is part of SSEMP in true letter and spirit.
156. Construction activities will affect the project area air quality and noise levels. However, the tourism related increase in vehicular traffic has also significant impact on air quality and noise level.
157. To facilitate traffic on the road diversions, flagmen were deployed during traffic management operations. So far, no complaints of road closure due to project activities was registered under GRM in project or contractor offices during the reporting semester. Temporary diversion routes were sufficiently compacted for vehicle operations and continually sprinkled with water bowsers to suppress dust. Sections of the road diversions were cordoned off by safety tapes and cones. The approach to diversion section was marked through proper diversion signage.
158. Keeping in view the nature of project construction activities, no significant traffic issue observed and reported on the existing routes to project sites and on temporary diversions. Construction material is transported in closed or properly covered vehicles such that there is no chance of leakage / spreading during haulage.

7.6.6 Public Consultation Plan

159. Public consultation is a continuous process during the project execution. EPC contractor held consultations with the nearby villagers to discuss project layout, nature of activities and machinery to be deployed in detail. Such consultations were organized by project site management, environmental and community liaison officers.
160. Consultations regarding environmental safeguards were also carried out by the PIU and PMC environmental experts with locals on a periodic basis. Overall, community appreciated the project activities and no grievance related to environmental safeguards were raised and registered by the locals during the monitoring period.

7.6.7 Photographic Records

161. Photographic records have been maintained to date.
 - project activities and non-compliances.

- good practices
- training and emergency drills.

162. Photographic records of sites prior to starting work should be initiated and maintained to capture pre-construction conditions. EPC contractor shall ensure the pre-site conditions are captured and recorded to facilitate the restoration of such conditions upon completion of construction works.

7.6.8 Incident/Accident Reporting

163. Pollution incidents, incidents during blasting or in explosive magazine will be reported by the EPC contractor through monthly progress. The EPC contractor will also propose how to rectify problems and actions to prevent their occurrence.

164. The EPC contractor will document and report occupational accidents, diseases, and incidents. In case of serious injury or illness, which need hospitalization or further tests/investigations, the injured/ patient will be shifted to the nearby hospital as mentioned in the Emergency Response Plan for further treatment.

165. PMC will ensure that EPC contractor has adopted incident/accident reporting procedure and training is provided to understand and monitor the notification/reporting mechanism. ADB incident/accident reporting mechanism is attached as **Annexure I**.

166. During the reporting semester, no major spills or incident/accident occurred and reported by EPC contractor.

7.7 Socio-Economic Issues

7.7.1 Environmental and Social Complaint Register

167. As per the requirements of the EIA/EMP/SSEMP, a Complaint Register has been maintained at construction sites to log any complaints from the locals. No complaint was registered by the locals during the monitoring period regarding environmental safeguards.

168. In the previous semester DFO Kunhar watershed division lodged complaint related to damages to the trees at access road (R3) for which series of consultations were carried out by EPC/PMC and PIU and complaint was settled by the department. DFO issued clear directions to BHPP to avoid any damage to BTTP/BTAP-10 plantation.

7.7.2 Economic Opportunities for Locals

169. The community is enjoying generous economic benefits and opportunities from the project, as unskilled labor is hired from locals. Local employment is being carried out on a transparent basis and no grievances received by the project office. Food stuff and other domestic necessities of the contractor workforce are being purchased from local markets of the project area. During reporting period, 336 locals out of 660 total manpower has been hired for BHPP construction site.

7.8 Environmental Safeguard Compliance Status

170. EEM visited the project facilities and monitored field activities for implementation and compliance with EIA/EMP/SSEMP. The deviations were noted along with photographic records. These issues were then discussed with PIU, PMC and contractor site management and mutually agreeable actions were. EMP compliance status of BHPP monitored by EEM is detailed in **Table 7-11**. Compliance status of KP EPA approvals granted for the BHPP was also assessed and details are provided in **Table 7-12**.

Table 7-11: EMP Compliance Status of Balakot HPP

S/N o	EMP Requirements		Key Performance Indicators	Status of EMP Compliance	EMP Level	Compliance
	Impact	Mitigation Measures				
Design and Pre-Construction Phase						
1	Terrestrial habitat loss caused by construction related activities	<p>Minimize disturbance to, or movement of, soil and vegetation</p> <p>Minimize project footprint.</p> <p>Retain as much natural vegetation as possible.</p> <p>Locate construction facilities based on a knowledge of the soil.</p> <p>slope and vegetation cover of the area to avoid disturbance to the natural environment</p>	Measures included in design documents	<p>Camp and temporary access roads are selected in such way that vegetation damage is avoided.</p> <p>Camps are established with minimum land requirements.</p> <p>GRC has established residential camp on already settled area at N-35 road.</p> <p>CGGC camps are multi story steel structures in which rooms, offices and residential cabins are structured.</p> <p>Vegetation clearance is minimized.</p> <p>No off tracking is practiced as area is hilly terrain.</p>	Complied	
2	Decline in abundance and diversity of terrestrial flora and fauna caused by construction related activities	<p>Locate vehicle yards away from open soils and top soil stockyard</p> <p>Maximize use of locally-sourced aggregate and borrow material</p> <p>Minimize contact of non-local aggregate and borrow material with native soil.</p> <p>Minimize disturbance to, or movement of, soil and vegetation.</p>	Measures included in design documents	<p>Vehicle yards are located within camp sites.</p> <p>Quarry material is being purchased from approved sites such as Ghumwan for coarse aggregates and Lawrencepur, Maira and Thakot for fine aggregates.</p> <p>No borrow area/quarry sites developed during reporting semester.</p> <p>No off tracking of vehicles reported. Only designated routes/tracks are being used.</p>	Complied	
3	Blasting may pose a health hazard due to flying debris	A minimum buffer of 500 m should be provided between the settlements and point of blasting.	Measures included in	Pre-condition assessment is part of blasting method statement provided in project SSEMP.	Complied	

S/N o	EMP Requirements		Key Performance Indicators	Status of EMP Compliance	EMP Level	Compliance
	Impact	Mitigation Measures				
			design documents			
4	Construction activities may cause alterations to groundwater flow patterns	Record location of the springs especially those in areas proximal to where the underground headrace tunnel will be closer to the ground level	Coordinates and map of spring locations	Identification of springs and underground water resources is yet no completed by the contractor.		Not Complied
5	Use of local water resources for construction activities may reduce the water availability for the local communities.	Prepare a water sourcing and abstraction Plan specifying the source, owner, total yield, current usage, allowable quantity and the duration for which water can be obtained.	Agreements between community, government and contractor	EPC contractor is using spring water through piped network in the GRC camp, CGGC camp, Adit-1 and Adit-2 location. For drinking purpose mineral water is being used. Sprinkling water is also transported through bowsers to the site. Analysis reports are in compliance to National Drinking Water Quality Standards.		Complied
		To the extent possible avoid, and where unavoidable, minimize the use of water from local sources (springs) for the Project where local abstraction is unavoidable	Water sourcing and abstraction plan	Springs water is being used from approved resources.		Complied
		Undertake an assessment of the local source identifying its total yield and current usage. If the abstraction from a single source extends three months, then repeat the assessment		There is a need to calculate total yield and safe yield of springs or other water sources identified for water usage.		Not Complied
		Fix the allowable quantity to not more than 50% of the available yield (total yield minus current usage)		EPC contractor shall monitor safe yield from springs used for water abstraction. There is a need to ensure that allowable yield shall not exceed 50% of the safe yield.		Complied
		Enter into a formal agreement with the owner for the water		EPC contractor has made agreement with owners of spring waters.		Complied

S/N o	EMP Requirements		Key Performance Indicators	Status of EMP Compliance	EMP Level	Compliance
	Impact	Mitigation Measures				
		source (or government if it is a public source)				
6	Increase in ambient noise levels due to operation of construction equipment, movement of construction traffic and blasting may create nuisance for nearby communities and visiting tourists.	Visual alarms in preferred to audible alarms.	Measures included in design documents	No extensive alarms are being used.	Complied	
		Locate noisy equipment behind parking lots, parks or behind sound barriers or sound absorbers, gravel stockpiles or constructed barriers. and away from potential sources of conflict		Noisy equipment is located away from parking lots and sensitive receptors. Ambient noise levels are well within National Environmental Quality Standards (NEQS) and therefore sound barriers are not required at this stage.		
		Use vibratory piling instead of impact piling.		Not applicable at this stage		
		Erect earth mounds around the site boundary which can provide acoustic as well as visual screening		Construction sites are located in hilly terrain and vegetation and mountain mounds are serving as the acoustic barriers.		
7	Failure of spoil dumping sites resulting in increased erosion and sediment load entering river	Dumping sites should have a flood prevention design for a 20- year flood	Detail plan and lease agreement of muck disposal	The EPC contractor has identified sites for muck disposal however PMC has not approved the sites yet. Muck material is being re-used as back fill for rising of platforms and road fill material. The remaining material will be disposed of at designated sites.	Complied	
		Preparation of spoil management plan	Spoil management plan	EPC contractor has prepared spoil management plan and part of SSEMP.	Complied	
8	Permanent impact in aesthetics due to	Develop and implement a site Rehabilitation and Landscaping Plan	Measures included in			

S/N o	EMP Requirements		Key Performance Indicators	Status of EMP Compliance	EMP Level	Compliance
	Impact	Mitigation Measures				
	proposed developments	Use colors that better integrate with the landscape Disguise elements with vegetation where possible Retain as much natural vegetation as possible	design documents	Not applicable at this stage.		
9	Improved accessibility due to construction of project internal roads	Consult communities during final design and location of site access roads	Measures included in design documents	Work on TRs are completed however final works such as protections works, road widening and slope stabilization is in progress. All TRs are identified within the project boundary and keeping in view the project requirements. Communities are consulted during final alignment. TRs generally unpaved compacted roads which, at the end of contract period, shall either be reinstated to pre-construction conditions or left in operational conditions subject to the demand of the locals. Work on Permanent access roads such as R1, R2, R3, R4, R5 and R6 is in progress and pilot cut completed. Access roads are being constructed as per alignment.	Complied	
10	Increase in congestion, due to increased traffic volume will cause delays	Make roundabouts for the congestion points.	Measures included in design documents	Project roads are designed with crossing junctions at regular intervals to avoid congestion. Further these roads are dedicated for project use to access various project facilities therefore no	Complied	

S/N o	EMP Requirements		Key Performance Indicators	Status of EMP Compliance	EMP Level	Compliance
	Impact	Mitigation Measures				
				<p>public traffic congestion observed and reported.</p> <p>Three permanent roads are included in the project design. These include a permanent road to dam, diversion tunnel and a permanent road to the powerhouse and residential colony sites.</p> <p>TR-3 will be converted to permanent road and it will provide access to staff colony. It will be further connected to TR-5 and TR-6 to access other project structures.</p> <p>TR-4 will be converted to permanent road and it will provide access to power house.</p> <p>All temporary and permanent roads are designed keeping in view future traffic requirements and sufficient crossing pass are provided.</p>		
		Retain as much natural vegetation as possible to reduce the impact of smoke due to vehicles.		No excessive vegetation clearance involved in alignment of temporary roads construction for BHPP.	Complied	
		Consult National Highway Authority for implementation of the above measures		EPC contractor will use Naran-Jhalkand road to access the project facilities. No traffic disruption/congestion from project vehicles is reported on N-35 during reporting semester.	Complied	

S/N o	EMP Requirements		Key Performance Indicators	Status of EMP Compliance	EMP Level	Compliance
	Impact	Mitigation Measures				
11	Loss of assets and livelihood as a result of land acquired	Land Acquisition and Resettlement Plan (LARP) implementation	Measures included in project LARP	Loss of assets and livelihood is covered under project LARP, and its implementation is in progress.	Complied	
12	Submergence of the graveyard	Plaster the graves with mud or cement.	Measures included in project LARP	There are 10-12 graves at dam site in Paras village which will be impacted. The affected community and the district administration agreed on shifting of graves. The committee has been notified for shifting of graves to determine compensation. At present no damage to graves has occurred as construction activity at dam site is not started yet.	Complied	
		If relocation of the graveyard cannot be avoided, then it shall be managed through the local religious authorities.				
13	Climate change enhance flood impacts such as during possible overtopping of spillway	Ensure minimal damage to dam structure from small amount of overtopping of spillway through design	Climate risk management plan prepared and measures are included on impact of climate change	Climate risk and vulnerability assessment is included in the project design covering flood management. The climate adaptation plan of the project is prepared and budget is allocated. Design related adaptation measures are being implemented by the EPC contractor while climate awareness and capacity building component is being implemented by NGO which is a JV of MM Pakistan and Development Alternatives.	Complied	
Construction Phase						
1	Construction impacts	SSEMP exhibiting areas to be cleared, vegetated areas to be protected or fenced, slopes to be	SSEMP prepared	Project SSEMP has been prepared and approved by Employer on Decemeber 30,	Complied	

S/N o	EMP Requirements		Key Performance Indicators	Status of EMP Compliance	EMP Level	Compliance
	Impact	Mitigation Measures				
		stabilized and solid waste disposal locations.	before initiation of works	2023. ADB provided concurrence on issuance of the SSEMP to contractors for necessary implementation and compliance.		
2	<p>Improvement of the river ecosystem through implementation of the BAP</p> <p>Loss of riverine ecosystem due to inundation by reservoir</p> <p>Degradation of the river ecosystem in the low flow segment downstream of the Project dam</p> <p>Degradation of the River Ecosystem Downstream of the Tailrace</p> <p>Terrestrial habitat loss caused by construction related activities.</p>	Implement BAP	<ul style="list-style-type: none"> BAP is prepared and implemented Allocated resources are budgeted Role and responsibilities are clearly defined 	<p>EPC contractor is taking work related measures to minimize impact on river ecosystem.</p> <p>PIU PEDO and KP Wildlife Fisheries department is in process of implementation of project specific BAP for which focal persons has been nominated.</p> <p>PIU/PMC has visited the KP Wildlife and Fisheries department identified sites for establishment of offices however sites are yet to be finalized.</p> <p>Concurrence to the revision in the BAP implementation arrangement was intimated on May 22, 2023, and thereafter confirmed by the ADB on June 15, 2023.</p> <p>The necessary budget for BAP implementation is allocated. Revised arrangements for BAP such as Finalization of various modalities, i.e., offices, human resources, payment procedure for BAP implementation remained in progress during reporting period.</p>	Partially Complied	

S/N o	EMP Requirements		Key Performance Indicators	Status of EMP Compliance	EMP Level	Compliance
	Impact	Mitigation Measures				
				For basin wide BAP implementation, PIU/PMC conducted two virtual meetings on November 14 & 17, 2023 with stakeholders of basin wide BAP such as Nelum Jehlum, Patrind and Suki Kinari HPPs. It was suggested that a larger consultation session shall be carried out in which Private Power and Infrastructure Board (PPIB), hydropower developers and ADB shall be invited to formulate a framework to plan and implement the BAP. Larger consultation meeting is planned in February, 2024 and proceeding will be discussed in upcoming EEM report.		
3	Terrestrial habitat loss caused by construction related activities.	<p>Provide awareness training to staff and contractors on: prevention of injury of animals; identification of likely species found on site; identifications of animal hazards (such as venomous snakes); and what to do if dangerous animals are encountered.</p> <p>Solid waste should only be disposed of at designated sites and a Waste Management Plan developed and implemented.</p>	<p>SSEMPs prepared before initiation of construction</p> <p>Visual confirmation of replantation</p> <p>Waste Management Plan</p>	<p>There is need to provide awareness training on wildlife sensitivity to the workers.</p> <p>Solid waste management plan is part of SSEMP. Solid waste is being disposed of through KDA.</p> <p>No environmental training plan on wildlife awareness and identifying species and animal hazards is available with EPC contractor.</p>		Partially complied

S/N o	EMP Requirements		Key Performance Indicators	Status of EMP Compliance	EMP Level	Compliance
	Impact	Mitigation Measures				
		<p>Provide environmental training plan and awareness on prevention of injury of animals and identifying likely species found on site; identifications of animal hazards (such as venomous snakes); and what to do if dangerous animals are encountered.</p> <p>Encourage personnel to report sightings of wildlife of conservation importance or incidents of poaching to PEDO.</p> <p>Minimize disturbance to, or movement of, soil and vegetation</p> <p>Prevent soil damage and erosion</p> <p>Prevent Alien Invasive Species (AIS) on exposed stored soil (do not store bare soil near known sources of AIS). The habitat most at risk is the Riparian Habitat. The species that are highest risk include Parthenium Weed, Common Weed and Castor Oil Plant</p> <p>Train and raise awareness regarding AIS among Project staff and contractors</p> <p>Retain as much natural vegetation as possible.</p>	<p>Environmental Training Plan</p>	<p>No wildlife sighting is observed and reported.</p> <p>Soil damage and vegetation disturbance is minimized.</p>		
		<p>Dispose solid waste only at designated sites, and develop and implement a waste management plan.</p>	<p>Solid waste disposal site identified</p> <p>Agreement/</p>	<p>At present construction waste generated from tunneling activity at Adit 1, Adit 2 and Adit 3 is being stored at site and being</p>	Partially Complied	

S/N o	EMP Requirements		Key Performance Indicators	Status of EMP Compliance	EMP Level	Compliance
	Impact	Mitigation Measures				
			NOC from KDA	used as fill material for rising of platform of protection works.		
			Agreement with landowners for quarrying and borrow areas	EPC contractor has requested KDA for NOC which has been obtained. KDA has placed waste containers at GRC and CGGC camp for waste collection and waste is being transported on a periodic basis. EPC contractor shall pursue NOC applications with DHO for disposal of hazardous waste. Color coded waste bins are not provided in GRC and CGCC camps.		
			Minimize the project footprint and clearly delineate and restrict access beyond work sites and other areas to be disturbed	Project footprint is minimized for camps, roads and other project facilities.		
		Within the quarry and borrow areas, restrict activities to areas far from perennial water channels to avoid disturbances to them, including the risk of siltation		No quarry and borrow areas are developed for the project at this stage. Quarry material will be purchased from approved sites such as Ghumwan for coarse aggregates and Lawrencepur, Maira and Thakot for fine aggregates.		Complied
4	Decline in abundance and diversity of terrestrial flora and fauna	Large flood lights should not be installed outside 50 m of the project fence.	Environmental Training Plan Training Schedule	No flood lights outside 50 m of project fence are installed.		Complied

S/N o	EMP Requirements		Key Performance Indicators	Status of EMP Compliance	EMP Level	Compliance
	Impact	Mitigation Measures				
	caused by construction related activities.	Direct lights towards project facilities, and not natural habitats.	Evidence of trainings and attendance lists Provision of required regulations in contract documents. Evidence of tree planting to required levels and yearly survival records.	Lights are directed toward project facilities instead of natural habitats.	Complied	
		Incorporate regulations for project staff and contractors to avoid illegal poaching in contract documents		All type of poaching is restricted in the contract documents.		
		Provide awareness training to staff and contractors on: prevention of injury of animals; identifying ying of likely species found on site; and animal hazards (such as venomous snakes); and what to do if dangerous animals are encountered.		No Wildlife sighting observed and reported during monitoring period.		
		Incorporate regulations for project staff and contractors to avoid illegal poaching in contract documents				
		Provide adequate knowledge to the workers on relevant government regulations and punishments for illegal poaching.				
		Encourage personnel to report sightings of wildlife of conservation importance or incidents of poaching to PEDO				
		Project staff and contractors to report kills of large mammals particularly designated species of conservation concern				
		Train and raise awareness regarding AIS among Project staff and contractors				

S/N o	EMP Requirements		Key Performance Indicators	Status of EMP Compliance	EMP Level	Compliance
	Impact	Mitigation Measures				
		<p>The Contractor shall prepare an Environmental Training Plan for all construction workers: The Plan shall address the following items:</p> <ul style="list-style-type: none"> All Contractor's employees shall comply with environmental protection procedures and provide evidence that they attended the training sessions detailed in the Plan; Educate all construction workers on the following issues among others: fire arm possession, traffic regulations, illegal logging and collection of non-timber forestry products, non-disturbance of resettlement communities, hunting and fishing restrictions, waste management, erosion control, H & S issues, all prohibited activities, Code of Conduct requirements and disciplinary procedures, and general information on the environment in which they will be working and living Proposed methods for conducting the training program, which shall include formal training sessions, posters, data in newsletters, signs in construction and camp areas and 'tool box' meetings 	<p>Environmental Training Plan Training Schedule Evidence of trainings and attendance lists</p>	<p>EPC contractor shall discuss in TBTs issues such as firearm possession, traffic regulations, illegal logging and collection of non-timber forestry products, non-disturbance of resettlement communities, hunting and fishing restrictions, waste management, erosion control, health and safety issues, all prohibited activities.</p>		Partially Complied

S/N o	EMP Requirements		Key Performance Indicators	Status of EMP Compliance	EMP Level	Compliance
	Impact	Mitigation Measures				
		Equipment emitting excessive noise in compare with other similar equipment will not be allowed to operate	SSEMP documents prepared before initiation of construction Air pollution control plan Continuous observation for non-compliance Vehicle and equipment maintenance logs	No equipment with excessive noise is used for construction activities.	Complied	
		Regularly maintain and tune equipment under use, and provided mufflers to minimize noise levels.		Equipment is regularly maintained and tuned.		
		Check equipment in poor state of maintenance, particularly without effective noise control to determine if it can be improved, and replace with less noisy equipment as soon as practicable		Equipment in poor state of maintenance shall be inspected and checked.		
		Prohibit blowing of on all sensitive areas except under emergency conditions		Blowing of horn is prohibited at the sites.		
		Plant compensatory trees. The EPC contractor will plant a minimum of ten trees for each tree removed from acquired land. PEDO will monitor and maintain the vegetation until it is established.		About 14,568 trees will be cut as part of clearing activities. Plantation plan has been prepared and submitted to ADB for review and approval. EPC contractor identified tree planation sites at Paras, Zamanabad, Kholian, Kappi Gali site A and Kapi Gali site B. Tree planation activity will be carried out in consultation with DFO Mansehra.		
5	Increase in ambient and ground level	Develop and implement an air pollution control plan	SSEMP documents	SSEMP is prepared by EPC contractor and approved by the	Complied	

S/N o	EMP Requirements		Key Performance Indicators	Status of EMP Compliance	EMP Level	Compliance
	Impact	Mitigation Measures				
	concentration of air pollutants from construction activities and vehicular movement may cause health impacts to the community.	Prepare a SSEMP (see Section 9.5.3) for each construction site. The SSEMP must outline areas to be cleared, vegetated areas to be protected or fenced, solid waste disposal locations, and sprinkling locations	prepared before initiating of construction	PIU. Concurrence on the same is also obtained from ADB.		
		<p>Fugitive and exhaust emissions from transport vehicles:</p> <ul style="list-style-type: none"> ♦ Cover all trucks hauling soil, sand, and other loose materials or require all trucks to maintain at least two feet of freeboard (i.e., the minimum required space between the top of the load and the top of the trailer). ♦ Install and maintain all vehicles and machinery with appropriate emission control equipment. ♦ Regularly maintain vehicles and equipment to keep emissions in check. ♦ Smoke from internal combustion engines should not be visible for more than ten seconds. ♦ To the extent possible, use new and low emission equipment and vehicles. ♦ Purchase best quality fuel and lubes and where possible use lead free oil and lubes. 	<p>Air pollution control plan</p> <p>Continuous observation for non-compliance</p> <p>Vehicle and equipment maintenance logs</p>	<p>Pollution prevention plan is part of SSEMP.</p> <p>There is need to maintain vehicle and equipment maintenance logs.</p> <p>Fugitive dust emissions are avoided by covering loose material with tarpaulin sheets/PE sheets.</p> <p>Periodic sprinkling on access roads and camps is carried out to suppress any dust generation.</p> <p>Wheel washing is done only at designated lined surfaces.</p> <p>There is a need to follow speed limit of 30 km/hour for light transport vehicle and 20 km/hour for heavy transport t vehicle.</p> <p>Appropriate maintenance of vehicles and machinery is being carried out.</p>	Complied	

S/N o	EMP Requirements		Key Performance Indicators	Status of EMP Compliance	EMP Level	Compliance
	Impact	Mitigation Measures				
		<ul style="list-style-type: none"> ♦ Sprinkle water on all unsealed roads used by vehicles that are within 200 m of any settlement. ♦ Cover loads and long-term piles of friable material to reduce fugitive dust emission. ♦ Reduce traffic speeds on all unpaved surfaces to 15 miles per hour or less. ♦ Paved roads shall be swept frequently if soil material has been carried onto adjacent paved, public thoroughfares from the project site. ♦ Install wheel washers where vehicle exit onto paved road from unpaved. ♦ Wheel washing of vehicles leaving the site. ♦ Wash vehicles/equipment prior to each trip. ♦ Use catalytic converters on vehicles, an emission control device, used to convert harmful pollutants to less harmful pollutants e.g. it converts the nitrogen oxides back into nitrogen and oxygen. ♦ Maintenance of vehicles and machinery 				
		Fugitive dust emissions from blasting	Blasting and explosives control plan document	Blasting management plan is updated and submitted to ADB relevant quarter concerns for review and approval.	Partially Complied	

S/N o	EMP Requirements		Key Performance Indicators	Status of EMP Compliance	EMP Level	Compliance
	Impact	Mitigation Measures				
		<ul style="list-style-type: none"> ♦ Indicate the limits of a clearing land with highly visible markers. ♦ Leave a layer of about 5 m of undisturbed softs above the top of the overburden blasts. This will act as a blanket to contain air blast, dust and fly rock. ♦ Sprinkle water on the area where blasting is done to settle down the particulate matter emissions. 	<p>Blasting timetable available in nearby villages</p> <p>Results of preconstruction survey</p> <p>Availability of GRM</p>	<p>Blast design is being submitted and signed by the EPC Contractor construction department and safety department.</p> <p>Blasting is being carried out after necessary geological mapping and stabilization activities.</p> <p>Blasting is being carried out in Adits hence no impact on the outside community.</p> <p>Project GRM is available and functional.</p> <p>Workers in Tunnels are provided with N95 or P3 masks.</p> <p>There is need to conduct gas test in the tunnels to monitor LELs of various gases. Provisions shall be added in the contractor instructions.</p> <p>Silica dust monitoring shall be carried out in the tunnels with necessary budget .</p>		
		Fugitive dust emissions from quarry areas	SSEMP documents	No quarry areas are developed during reporting semester. Quarry material is being purchased from locally available resources.	Complied	

S/N o	EMP Requirements		Key Performance Indicators	Status of EMP Compliance	EMP Level	Compliance
	Impact	Mitigation Measures				
		<ul style="list-style-type: none"> Indicate the limits of a clearing land with highly visible markers. Avoid earth stripping or moving in periods of dry and windy weather. Carry out dust generating activities where maximum protection can be obtained through topography or in areas where prevailing winds will blow dust away from sensitive areas/uses. Water spraying of conveyors/conveyor transfer points, stockpiles and roads. Covering of fine dry loads or spraying of loads prior to exiting the site, and if necessary regular cleaning of public roads in the vicinity of the entrance. 	<p>prepared before initiation of construction</p> <p>Air pollution and control plan</p> <p>Continuous observation for non-compliance</p> <p>Vehicle and equipment maintenance logs</p>			
		<p>Fugitive dust emissions from concrete batching plants</p> <ul style="list-style-type: none"> Suspend earthworks operation when wind speed exceeds 20 km/hour in areas within 500 m of any settlement. Perform the whole process of weighing and mixing in a fully enclosed environment. Equip all mixers with dust collectors to prevent dust emission. 	<p>SSEMP documents prepared before initiation of construction</p> <p>Air Pollution and Control Plan</p> <p>Continuous observation for non-compliance</p> <p>Vehicle and equipment</p>	<p>There are 03 batching plants installed for construction works. These are installed at Staff colony site, Adit 2 and Adit 3 sites.</p> <p>There is a need to install wind sacks at the batching sites.</p> <p>Improper disposal of batching wash water at Adit-2 in Ghanool nullah observed which is non-compliance and creating soil contamination and bad aesthetics.</p>		Partially Complied

S/N o	EMP Requirements		Key Performance Indicators	Status of EMP Compliance	EMP Level	Compliance
	Impact	Mitigation Measures				
		<ul style="list-style-type: none"> ♦ Site the concrete batching plant out of prevailing high winds minimizing dust emissions. ♦ Site bunkers and conveyors in the leeward direction to minimize the effects of the wind. ♦ Provide natural or artificial wind barriers, such as trees, fences and landforms, to help control the emission of dust from the plant. ♦ Site batching plants on land that is not flood- prone. ♦ Keep batching plant near natural sinks to minimize emissions to ambient environment. ♦ Place all stacks vertically and at least 3 m above ground. 	<p>maintenance logs</p>	<p>Weighing and mixing are being performed in closed environment.</p> <p>Batching sites are located in valley depressions and surrounded with mountains.</p> <p>Batching sites are located on land which is not flood prone and away from settlements.</p> <p>Batching vent is vertical, located at top of silo with height above 3 m from ground.</p> <p>Batching wash water settling tanks are available at batching sites. EPC contractor is advised to avoid disposal into nearby streams.</p> <p>Batching plants are equipped with dust filters.</p> <p>There is need to ensure periodic water sprinkling in batching areas stock yards to suppress dust.</p>		
		<p>Fugitive dust emissions from aggregate production and handling system</p>	<p>SSEMP documents prepared before initiation</p>	<p>No fugitive dust emissions generated from aggregate production and handling system.</p>	<p>Complied</p>	

S/N o	EMP Requirements		Key Performance Indicators	Status of EMP Compliance	EMP Level	Compliance
	Impact	Mitigation Measures				
		<ul style="list-style-type: none"> ♦ Suspend operation when wind speed exceeds 20 km/hour. in areas within 500 m of any settlement. ♦ Consider the prevailing wind direction to ensure that aggregate handling systems located in the leeward direction to minimize the effects of the wind. ♦ Sprinkle water on all exposed surfaces, particularly those close and up-wind of settlements. 	of construction Air pollution and control plan Continuous observation for non-compliance Vehicle and equipment maintenance logs	Wind stacks shall be installed at batching sites.		
		<p>Wind-blown dust from exposed surfaces such as bare land and waste dumping sites</p> <ul style="list-style-type: none"> ♦ Cover all exposed surfaces, particularly those close and up-wind of settlements. ♦ All grading operations on a project should be suspended when winds exceed 20 miles per hour. ♦ Minimize disturbance to, or movement of, soil and vegetation. ♦ Sprinkle water on all exposed surfaces, particularly those close and up-wind of settlements. ♦ Retain as much natural vegetation as possible 		No windblown dust is generated from exposed bare land and waste dumping sites within the project corridor. Water sprinkling is carried out on a periodic basis.	Complied	

S/N o	EMP Requirements		Key Performance Indicators	Status of EMP Compliance	EMP Level	Compliance
	Impact	Mitigation Measures				
		<p>Wind-blown dust from stockpiles of dusty materials such as sand and other minerals</p> <ul style="list-style-type: none"> ♦ Cover on-site dirt piles or other stockpiled particulate matter; and install wind breaks, and water and/or soil stabilizers to reduce wind-blown dust emissions. ♦ Adequately wet, cover with plastic, or provide with wind shield all stockpiles to reduce dust emission. ♦ Sprinkle water on all exposed surfaces, particularly those close and up-wind of settlements. ♦ Minimize disturbance to, or movement of, soil and vegetation. ♦ Prevent soil damage and erosion. ♦ Retain as much natural vegetation as possible 		<p>Stock piles located at constructions sites are covered with plastic.</p> <p>Stock piles for batching plant are stored in dedicated concrete chambers. While stock piles for construction are covered with plastic sheets to avoid windblown dust.</p> <p>There is need to conduct sprinkling or wetting of stock piles if exposed to air.</p>	Complied.	
6	Vibration from blasting during the construction phase may disturb local communities.	Develop a blasting and explosives management plan and vibration monitoring plan.	Blasting and explosives control plan document	Blasting management plan is prepared and submitted to ADB for review and approval.	Complied	
		<ul style="list-style-type: none"> ♦ Conduct a pre-construction survey of structures at risk of vibration impacts on households. <ul style="list-style-type: none"> o In the initial stages, the blasting induced vibration shall be measured as a function of maximum instantaneous charge and 	Blasting timetable available in nearby villages	<p>Blast design is being submitted and signed by the EPC Contractor construction department and safety department</p> <p>Pre- construction survey for blasting operation is being carried out by EPC contractor.</p>	Complied	

S/N o	EMP Requirements		Key Performance Indicators	Status of EMP Compliance	EMP Level	Compliance
	Impact	Mitigation Measures				
		<p>distance from the blasting site. This data shall be then used to refine the Blasting Induced Vibration Risk Zones based on the adopted criteria.</p> <ul style="list-style-type: none"> o Using, the refined Blasting Induced Vibration Risk Zones maps and the tunnel boring schedule, the PMC in consultation with the PIU BHPP and the EPC contractor, shall identify the houses that will be affected and impact duration and schedule. o For the houses that will fall in the Structural Damage Risk Zone, a temporary relocation plan will be developed. An amendment to the Land Acquisition and Resettlement Plan (LARP) will be commissioned for this purpose. Before start of blasting, all residents of houses in the Structural Damage Risk Zone will be relocated as per the LARP. o A survey will be undertaken in both zones, to determine the pre-blasting conditions of the buildings. The survey will be commissioned by PMC and will identify and record any existing damage to the 	<p>Results of preconstruction survey</p> <p>Availability of GRM</p>	<p>The survey shall account for maximum blasting induced vibration and its impacts on surroundings.</p> <p>Based on the results vibration risk zones shall be refined for implementation of mitigation measures.</p> <p>No blasting shall be carried until pre-conditions survey report submitted by PMC and verified by PIU BHPP.</p> <p>Continuous community consultation need to be ensured during blasting operation.</p> <p>Community relocation plan shall be prepared, approved and executed before start of blasting operation (as and where applicable).</p> <p>Since blasting is being carried out within Adit Portals therefore no community relocation observed and reported.</p>		

S/N o	EMP Requirements		Key Performance Indicators	Status of EMP Compliance	EMP Level	Compliance
	Impact	Mitigation Measures				
		<p>structures. The survey will cover the following aspects:</p> <ul style="list-style-type: none"> ➤ Overall condition of the structures, both exterior and interior. ➤ Documentation of defects observed in the structure and pre-existing cracks using digital imagery along with notes, measurements and sketches. ➤ 				
		<ul style="list-style-type: none"> ♦ Following completion of the blasting, repeat the survey in the structural damage risk zone to determine the condition of the buildings and verify that they are safe for re-occupation. If the buildings are safe, then allow residents to return to their houses following any necessary damage repairs. ♦ If the buildings are damaged beyond repair then compensate to the owners as per the LARP. ♦ If there are any claims or reports of damage in the cosmetic damage risk zone, the affected house will be surveyed against the pre-Project survey then undertake repairs as appropriate. 		Not applicable at this stage.		

S/N o	EMP Requirements		Key Performance Indicators	Status of EMP Compliance	EMP Level	Compliance
	Impact	Mitigation Measures				
		<ul style="list-style-type: none"> ♦ Maintain meaningful contact with the community, and attend to their grievance in a timely manner. In this regard: ♦ A meaningful community engagement plan will be developed. The plan will identify the affected community, key contact persons, frequency of engagement, information to be shared, responsibilities to manage the plan, and the notice period to be given to the community for various blasting-related activities. ♦ GRM will be used to record, investigate, and respond to any complaints. Investigation of the complaints will be undertaken by the PMC. 		Not applicable at this stage.		
		<ul style="list-style-type: none"> ♦ Develop a vibration monitoring plan that will include monitoring of vibration levels and frequency around the blasting sites. The objectives of the monitoring will be to: <ul style="list-style-type: none"> o ensure that vibration levels in the communities are within the adopted criteria levels; o maintain record of vibration to settle any potential conflicts; and 		Not applicable at this stage.		

S/N o	EMP Requirements		Key Performance Indicators	Status of EMP Compliance	EMP Level	Compliance
	Impact	Mitigation Measures				
		<ul style="list-style-type: none"> monitor changes in the vibration levels due to possible changes in the rock formation and take appropriate corrective actions. 				
7	Blasting may pose a health hazard due to flying debris.	<p>Provide a minimum buffer of 500 m between the settlements and point of blasting.</p> <p>Leave a layer of about 5 m of undisturbed softs above the top of the overburden blasts. This will act as a blanket to contain air blast, dust and fly rock.</p> <p>Ensure that the holes are correctly collared with respect to the back-break/inclination of the face and digging alongside the initiation face is well controlled.</p> <p>Inadequate forward displacement of the front row burden arising out of the under charging of these holes will result in fly rock from vertical catering of the rear holes</p> <p>Where fly rock possesses a serious problem, the stemming length should not be less than the hole burden. Also use, an effective stemming material like crushed angular rock to prevent</p>	<p>Blasting and Explosives Control Plan document</p> <p>Blasting timetable available in nearby villages</p> <p>Results of preconstruction survey</p> <p>Availability of GRM</p>	<p>Blasting management plan is prepared and submitted to ADB for review and approval.</p> <p>Drilling of blast holes, collaring and adjustment of front row burden shall be carried out in systematic way to reduce flying debris.</p> <p>No blasting shall be carried until pre-conditions survey report submitted by PMC and verified by PIU BHPP .</p> <p>Workers in Tunnels shall be provided with N95 or P3 masks.</p> <p>There is a need to conduct gas test in the tunnels to monitor LELs of various gases. Provisions shall be added in the contractor instructions.</p> <p>Silica dust monitoring shall be carried out in the tunnels. The</p>		Partially Complied

S/N o	EMP Requirements		Key Performance Indicators	Status of EMP Compliance	EMP Level	Compliance
	Impact	Mitigation Measures				
		<p>premature venting of explosion gases through the stemming column.</p> <p>The forward fly rock could be fairly controlled to the commonly used 'inline open loop' pattern. The maximum inter-row delay interval consistent with the absence of cut off helped in minimizing the fly rock formation. As a rule of thumb an inter-row delay of 4-8ms/m of burden could be used for this purpose.</p> <p>Carefully connect the delay devices in the holes/rows, and check the initiation sequence before firing to avoid initiating blast holes out of sequence.</p> <p>Blasts designed on a face length to width ratio in the range of 3 to 4 produces minimum fly rock.</p>		<p>necessary budget shall be allocated.</p> <p>Use of PPEs shall be ensured.</p> <p>There is need to finalize spring survey report as springs encountered during drilling and blast activities in Adit portals. Spring water intrusion and spills observed in the portals which need to be fixed and avoided.</p>		
8	Alterations of natural passage of springs due to blasting for tunnels may disrupt the water supply for mountain spring users.	<p>Record locations of the springs especially those in areas proximal to where the underground headrace tunnel will be closer to the ground level i.e. high risk areas.</p> <p>Monitor flow for located springs and maintain records.</p> <p>Support the community in developing alternate water supply schemes through local NGOs</p>	<p>Map of identified springs</p> <p>Safe yield calculation and monitoring</p> <p>Agreement with land owner</p>	EPC contractor is using spring water through piped network in the GRC camp, CGCC camp, Adit-1 and Adit-2 location. For drinking purpose both mineral and spring water is being used. Sprinkling water is also spring water which is transported through bowsers to the site. Survey report on identified springs near Adits and headrace tunnel shall be prepared and submitted.	Partially Complied	

S/N o	EMP Requirements		Key Performance Indicators	Status of EMP Compliance	EMP Level	Compliance
	Impact	Mitigation Measures				
		Ensure the availability of water to the communities, and access to the water resources is not adversely affected.	Community consultation record	<p>There is a need to expedite the process.</p> <p>Survey report shall cover calculation of safe yield and monitoring reports.</p> <p>Survey findings shall be verified by PMC.</p> <p>Agreement with spring owners shall be submitted to PMC.</p>		
9	Use of local water resources for construction activities may reduce the water availability for the local communities.	<p>Develop water sourcing and abstraction plan</p> <p>Source water for construction from authorized abstraction sources agreed among the local communities, local government and EPC contractor.</p> <p>Develop and implement water conservation techniques by the EPC contractor.</p> <p>Keep access of the community to water sources clear so that the community's ability to meet its water requirements are not compromised.</p> <p>Exercise care while moving heavy machinery to avoid damage or</p>	<p>Agreements documents for water use.</p> <p>Water sourcing and abstraction plan</p> <p>Water use record documents</p>	<p>EPC contractor shall submit survey report on identified springs near Adits and Headrace tunnel to PMC for review and approval.</p> <p>PMC shall approve the sources of water abstraction in consultation with local communities.</p> <p>Water yield monitoring shall be carried out for approved sources.</p> <p>Access to the community to water sources will be ensured once sources are approved by PMC and agreement is made with the owners.</p>	Partially Complied	

S/N o	EMP Requirements		Key Performance Indicators	Status of EMP Compliance	EMP Level	Compliance
	Impact	Mitigation Measures				
		blockage of natural waterways and channels.		No damage or blockage of waterways and channels observed during reporting period.		
		Maintain records of water usage in all Project activities.		Record of water usage is being maintained and reported by EPC contractor.		
		Incorporate the above measures in the SSEMP		Mitigation measures related to use of local water sources are part of SSEMP.		
		Develop and implement a water quality management plan		Pollution prevention plan is part of SSEMP and being implemented.	Complied	
10	Discharge from construction activities can potentially result in the contamination of soil, groundwater and surface water.	Prepare and implement a spill prevention and response plan and inducted to the staff for any incident of spill.	Water quality management plan documents	Cutting spoil is dumped at portal site of Adit-2 near the stream.	Partially complied	
		Provide and use spill prevention trays at refueling locations.	Spill prevention and response plan	Tunneling waste stabilization pond of Adit-2 is of limited capacity and leakages observed.		
		Collect the run-off from maintenance workshops by impervious channels, and pass them through oil water separators before final disposal. Dispose the sludge and oil collected at the oil water separators properly.	Visual implementation of mitigation measures such as use of spill prevention trays and proper storage of fuel storage.	There is need to construct adequate capacity waste stabilization ponds at Adit portal works		
		Build separate impervious pits (with concrete walls and proper shed) at the construction sites for temporary		Spoil shall be placed away from the stream edge to ensure that it does not landslide/ contaminate the stream.		

S/N o	EMP Requirements		Key Performance Indicators	Status of EMP Compliance	EMP Level	Compliance
	Impact	Mitigation Measures				
		<p>handling and storage of contaminated soil and water if encountered during construction such as sludge from OWS.</p> <p>Keep all fuel storage tanks and lubricating oil drums in secondary containment impervious pits with impervious shed walls.</p> <p>Avoid on-site maintenance of construction vehicles and equipment, as far as possible.</p> <p>Regularly inspect construction vehicles and equipment to detect leakages.</p> <p>Store fuels and lubricants in covered and dyked areas, underlain with impervious lining.</p> <p>Make spill control kits (shovels, plastic bags and absorbent materials) available near fuel and oil storage areas, vehicle parking and maintenance areas at construction sites.</p> <p>Remove contaminated soil from the site and dispose them in a manner to ensure protection of water sources.</p> <p>Construct the bottom of any soak pit or septic tank at least 100 m away from springs and water bores.</p> <p>Maintain records of spills and volume of removed contaminated soil.</p>	<p>Record of spills and remedial actions taken</p> <p>Provision of spill kits at sites</p>	<p>Tunneling waste is being stored at site. Waste at Adit-2 is being used as fill material for rising of plat form while at Adit-1, it is being used as road fill material.</p> <p>Spring water impounding observed within Adits due to spills from top of adits.</p> <p>Kitchen washing water is being discharged to nearby stream without treatment. Contractors are advised to construct grease traps in the kitchens.</p> <p>Engine drums are placed at the GRC camp without secondary containment.</p> <p>Fuel storage is not marked and not stored in secondary containment.</p> <p>EPC contractor has not yet provided spill kits in all sites.</p> <p>Washing yard facility has not been constructed yet.</p> <p>EPC Contractor has identified locations for construction of Stabilization Ponds however PMC has not yet approved the sites.</p>		

S/N o	EMP Requirements		Key Performance Indicators	Status of EMP Compliance	EMP Level	Compliance
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		<p>Maintain record of remedial measures taken.</p> <p>Use silt traps to prevent contamination of river and streams.</p> <p>Incorporate the above measures in the Construction Site EMP</p>		<p>There is a need to develop waste stabilization ponds to manage tunneling waste.</p> <p>No on-site maintenance is practiced at the construction sites.</p> <p>Septic tank is constructed at CGGC and GRC camp. It is of adequate capacity and no leakage observed.</p> <p>Oil spill drills shall be planned and conducted</p> <p>There is need to ensure construction of stabilization ponds before start of tunneling activities.</p>		
11	Increased ambient noise levels due to operation of construction equipment, movement of construction traffic and blasting may create nuisance for nearby communities and visiting tourists.	<p>Develop a noise and vibration control plan</p> <p>Noise generated in construction sites from construction activities.</p> <ul style="list-style-type: none"> ♦ Select the quietest available plant and equipment that can economically undertake the work required. ♦ Undertake maintenance of the equipment as simple maintenance can reduce noise levels by as much as 50%. Parts may become loose, creating more noise because of improper operation or scraping against other parts. Grinding noises may 	<p>Noise and vibration control plan</p> <p>Maintenance record of equipment</p> <p>Records of community meetings</p>	<p>Noise and Vibration Impacts and measures are discussed in SSEMP.</p> <p>Mitigation measures related to noise impacts at construction sites are being implemented however there is need to maintain inventory of inspected equipment.</p> <p>Noise level monitoring near sensitive receptors is being carried out.</p> <p>Proper generator enclosures are constructed to avoid noise impacts.</p>	Partially Complied	

S/N o	EMP Requirements		Key Performance Indicators	Status of EMP Compliance	EMP Level	Compliance
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		<p>also occur as the result of inadequate lubrication.</p> <ul style="list-style-type: none"> ♦ Regularly maintain equipment under use , tuned, and provided with mufflers to minimize noise levels. ♦ Use visual alarms in preference to audible alarms. ♦ Enclose noisy equipment. ♦ Provide noise attenuation screens, where appropriate. ♦ Build an enclosure around the noise source so that noise is contained. The enclosure should be free from gaps, made of dense material and be lined with noise-absorbing material like glass or polyester batts. ♦ Locate noisy equipment behind parking lots or parks. ♦ Close liaison with the community and regular monitoring of the noise levels in the community are key to successfully implementation of the above mitigation measures. Specifically, inform communities of all major construction activities three days in advance. 	<p>regarding noise.</p> <p>Noise level monitoring in nearby communities</p>			
		<p>Construction noise from traffic</p> <ul style="list-style-type: none"> ♦ Fit and maintain appropriate mufflers on earth-moving and other vehicles on the site. 		<p>Earth moving vehicles are operating away from traffic roads.</p> <p>There is need to install mufflers on excavators, front end loaders, diesel operated generators.</p>	Complied	

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		<ul style="list-style-type: none"> ♦ Fit mobile plants such as excavators, front-end loaders and other diesel-engine equipment with residential class mufflers and other silencing equipment, as applicable. ♦ Haul roads within the site should have as low a gradient as possible, Consider paving if practicable where noise-sensitive receptors are likely to be affected; ♦ Owners and operators of existing facilities should implement special noise reduction measures, such as erecting purpose-built acoustic barriers, restricting opening hours and maintaining transport vehicle 		<p>TRs are being constructed with good gradient to suppress noise generation.</p> <p>Erection of purpose built acoustic barriers is not required as SRs are located away however machinery operating hours are restricted to daylight operations.</p>		
		<p>Construction noise from on-site plant operations and equipment</p> <ul style="list-style-type: none"> ♦ Select all fixed plant at the work sites appropriately and where necessary, fit them with silencers, acoustical enclosures and other noise attenuation measures. ♦ Modify the equipment or work area to make it quieter by substituting existing equipment with quieter equipment; retro-fitting existing equipment with damping materials, mufflers, or enclosures; erecting barriers; and maintenance. 		<p>Generators are placed at designated locations near the camps. There is a need to develop proper enclosures for generators to reduce noise.</p> <p>Design of acoustic enclosure needs to be submitted to PMC for approval.</p> <p>Ear plugs are provided to the workers.</p> <p>Use of PPEs at the sites is improved.</p>	Partially Complied	

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		<ul style="list-style-type: none"> ♦ Shift to a quieter construction process e.g pile driving is very loud as compared to boring which is a much quieter to do the same work. ♦ Combine noisy operations in the same time period. The total noise level will be significantly less than if the operations were performed separately. ♦ Maintain all plant and equipment regularly. ♦ Move static plant and equipment from sensitive boundaries, as work allows. A distance four times farther lowers the noise by 12 A-weighted dBs. A reduction of 10 A-weighted dBs will sound half as loud. ♦ Use sound attenuation measures for plant and equipment, such as baffles and specialized mufflers, acoustic enclosures, or partial enclosure housings. ♦ Design and build acoustic barriers if needed. Plant vegetated buffer zones to mitigate noise from operations using suitably selected native plantings local to the area. ♦ Reduce workers' exposure to high noise levels by keeping workers away from the noise source; restricting access to areas; rotating workers 		Training on noise hazards and mitigations shall be planned by PMC.		

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		<p>performing noisy tasks; and shutting down noisy equipment when not needed.</p> <ul style="list-style-type: none"> ♦ Use earplugs to reduce workers' exposure to high noise levels. 				
		<p>Noise generated from the blasting in quarry areas.</p> <ul style="list-style-type: none"> ♦ Use vibratory piling instead of impact piling. ♦ House conveyor belts and crushing/screening equipment for acoustic screening. ♦ Fit sound-reduction equipment to machinery, and maintain them properly. ♦ Erect earth mounds around the site boundary, which can provide acoustic as well as visual screening. ♦ Soft ground (e.g. grassland and cultivated fields) attenuation can sometimes have a greater impact in reducing noise than barrier attenuation, especially if the ground supports sound absorbing vegetation. 		Not applicable at this stage. No quarry area is developed for the project.		Complied
		<p>Noise emissions from concrete batching</p> <ul style="list-style-type: none"> ♦ Locate noisy equipment away from potential sources of conflict. ♦ Locate noisy equipment behind sound barriers or sound absorbers – for example, gravel 		Batching plants are fitted with rubber pads to reduce noise. Batching sites are located away from sensitive receptors. Batching operation is only carried out for limited time keeping in view the construction requirements.		Complied

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		<p>stockpiles or constructed barriers.</p> <ul style="list-style-type: none"> ♦ Install silencing devices to all pressure operated equipment 		<p>Provision and use of PPEs is being ensured at batching plant site. PMC shall ensure that ear plugs and ear muffs are provide to workers closely working at motors and Pumps of batching plant.</p>		
12	Contamination of soil as a result of accidental release of solvents, oils and lubricants can degrades soil fertility and agricultural productivity.	<p>Prepare a spill prevention and response plan and induct staff for any incident of spill.</p> <p>Appropriately mark fuel tanks by content and stored them in dyked areas with an extra 10% of the storage capacity of the fuel tank. Line the area with an impervious base.</p> <p>Install grease traps on the site, wherever needed, to prevent flow of oily water.</p> <p>Make spill cleaning kit (shovels, plastic bags and absorbent materials) available near fuel and oil storage areas.</p> <p>Carry cleanup kits in all fuel trucks.</p> <p>Allow fueling only over impermeable surfaces. Store other hazmat and use them over impermeable surfaces.</p> <p>The bottom of any soak pit or septic tank shall be at least 10 m above the groundwater table. Reduce the distance based on the soil properties if</p>	<p>Spill Prevention and Response Plan document Visual verification of conformance</p>	<p>Pollution prevention plan is part of SSEMP and being implemented.</p> <p>There is a need of periodic inspection of fuel storage areas, tanks and vehicles to check leaks/spills.</p> <p>Spill cleaning kits are not available at the site.</p> <p>Fuel supply is arranged through local pumps. Fuel is stored in fuel tank at the contractor camps from where it is filled in drums to further transport at construction sites and machineries.</p> <p>Drip trays shall be arranged for refueling purpose.</p> <p>Refueling shall be carried out on impermeable surfaces i.e. concrete pad with drains.</p>	Partially Complied	

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		it is established that the distance will not result in contamination of groundwater.		Septic tanks are located away from surface water bodies and above the ground water table.		
13	Soil Erosion	Develop an erosion control plan.	Erosion control plan Demobilization plan upon completion of works	Erosion and sediment control plan is part of SSEMP and being implemented.	Complied	
		Limit vegetation loss to demarcated construction area.		Vegetation loss is avoided to possible extent.		
		Cover areas such as muck disposal area, batching plant, labor camp and quarry sites after the closure shall with grass and shrubs.		Not applicable at this stage		
		Adopt slope stabilization measures such as adequate vertical and horizontal drains, drainage along roadsides, cross drainage and retaining walls.				
		Monitor slope movements around excavation work areas.				
		Salvage, store, and reuse all topsoil at all construction sites.				
		Minimize the height of the stockpile by increasing the size of the land for the stockpile.				
		Carefully strip topsoil to ensure that it is not mixed with subsoil..				
		Revegetate stockpiles to minimize loss of soil quality; minimize weed infestation; and maintain soil organic				

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		<p>matter levels, soil structure, and microbial activity.</p> <p>Put clear signposts on topsoil stockpiles for easy identification, and to avoid any inadvertent losses.</p> <p>Monitor declared plants on the stockpiles, and implement control programs as required.</p> <p>Treat the topsoil with temporary soil stabilization and erosion control measures.</p> <p>During removal of topsoil stockpile for restoration of project affected areas, preferably remove the soil in layers (less than 0.5 m thick) under a gradual process.</p> <p>Mix the top layer with the remainder of the stockpile to ensure that living organisms are distributed throughout the topsoil material at the time of final placement. The use of micro-organism inoculates may be necessary to re-establish micro-organisms in topsoil material.</p> <p>Select local species for plantation to restore the biodiversity of the area in consultation with Forest Department after completion of respective activities.</p>				
14	Failure of spoil dumping sites	Design dumping sites to prevent flood for 20 years.				

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	Impact	Mitigation Measures				
	resulting in increased erosion and sediment load entering river	The water drainage works consist of the masonry structures, and shall be designed to drain a 5-year rainfall every 10 minutes.				
		Constructed tailing hold structure will be of galvanized woven wire mesh gabions				
		All dumping sites will undergo vegetation restoration works comprising of a surface leveling, covering and forest/grass planting or agricultural land rehabilitation				
		<p>Develop a spoil disposal plan that includes the following measures:</p> <ul style="list-style-type: none"> ♦ Slope movements will be monitored around excavation work areas. ♦ Restore to the maximum extent possible the hydrological regime and reinstate natural drainage of the land (including provisions to maintain the water balance of the site and protect from flooding where appropriate). ♦ Reinststate topsoil (in case it was stripped before construction activities). ♦ Revegetate sites with suitable native plant species. ♦ Drain spoil piles to prevent the concentration of flow and to prevent rill and gully erosion. 	<p>Spoil disposal plan</p> <p>On-site inspection of spoil disposal sites to ensure that mitigations are applied</p>	<p>The EPC contractor has identified muck disposal site sites however PMC has not approved any sites due to access issues and large quantum of protection works involved.</p> <p>The EPC Contractor has hired services of a third party for identification of muck disposal sites and design of essential infrastructure thereof. Submission of the revised plan is however still awaited. There is need to expedite the identification and approval of muck disposal sites.</p> <p>Improper dumping of muck cuttings in Ghanool stream observed which is violation of SSEMP/EMP. PMC shall look</p>	Partially complied	

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		<ul style="list-style-type: none"> ♦ Separate organic material (e.g., roots, stumps) from the dirt fill and store then separately. Place the in long-term, upland storage sites, as they cannot be used for fill. ♦ Store “clean” material in a short-term disposal site (stockpile) if it will likely be re-used for fill or shoulder widening projects. ♦ Where feasible, recycle asphalt material in embankments and shoulder backing. Place the material where they will not enter the stream system. Asphalt that is 5 years old is considered “inert” (that is, all oils washed off). ♦ Do not add excess unusable material to permanently closed sites. ♦ Spread material not to be re-used in compacted layers, generally conforming to the local topography. ♦ Design the final disposal site reclamation topography to minimize the discharge of concentrated surface water and sediment off the site and into nearby watercourses. ♦ Cover the compacted surfaces with a 6-inch layer of organic or fine-grained soil, if feasible. 		<p>into the matter and ensure that EPC contractor has stopped this practice.</p> <p>Muck disposal and management plan is provided in the SSEMP. Spoil generated from tunneling activity at Adit 1 and Adit 2 is temporarily stored at site. Spoil of Adit-1 will be used as fill material for platform rising while Spoil of Adit-2 will be used for levelling of access road.</p> <p>To control erosion and destabilization protection measures such as reinstating of top soil, drainage of spoil piles, diversion of rain water and revegetation shall be carried out while developing spoil disposal areas.</p> <p>At present generated amount of spoil will be used as fill material however EPC contractor shall develop spoil disposal sites at priority following mitigation measures provided in EMP/SSEMP and spoil disposal and management plan.</p>		

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		<ul style="list-style-type: none"> ♦ After placement of the soil layer, track walk the slopes perpendicular to the contour to stabilize the soil until vegetation is established. Track walking creates indentations that trap seed and decrease erosion of the reclaimed surfaces. ♦ Revegetate the disposal site with a mix of native plant species. Cover the seeded and planted areas with straw compost, mulched with straw at a rate of 1 to 1 ½ tons per acre. Apply jute netting or similar erosion control fabric on slopes greater than 1:2 if site is erosive. ♦ Locate stockpiles away from drainage lines, at least 10 m away from natural waterways and where they will be least susceptible to wind erosion. ♦ Ensure that stockpiles and batters are designed with slopes no greater than 1:2 (vertical\ horizontal). ♦ Besides these measures, minimize erosion by regularly rehabilitating areas not in use for project activities during construction. These will include: Re-grading and immediate re-vegetation (using fast-growing species and different functional groups of plants for keeping soil 				

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		<p>in place) of slopes to minimize erosion.</p> <ul style="list-style-type: none"> ♦ Install erosion and sediment control measures, if possible before construction commences. Identify drainage lines and install control measures to handle predicted storm-water and sediment loads generated in the mini-catchment. ♦ Design and install erosion and sediment run-off control measures appropriate to site conditions to handle a one-in-two-year storm event (two-year average recurrence interval with intensity of six hours), for temporary structures, and a one-in-fifty year storm event, for permanent structures. ♦ Establish an adequate inspection, maintenance and cleaning program for sediment run-off control structures. Ensure that contingency plans are in place for unusual storm events. ♦ Continually assess the effectiveness of sediment control measures and make necessary improvements. ♦ Keep temporary disposal sites out of wetlands, adjacent riparian corridors, ordinary high-water areas, and high-risk zones such 				

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		as 100-year floodplain and unstable slopes. <ul style="list-style-type: none"> ♦ Anticipate sufficient storage area with no risk for sediment delivery for piles that may slump. Stress cracks indicate that the pile is at risk of slumping. ♦ Cover trucks that will be used for transporting spoil materials to disposal sites. ♦ . 				
15	Deterioration of aesthetics and visual amenity of nearby receptors due to construction activities, including vehicular movement on roads, may cause disturbance in aesthetics for tourists, businesses and nearby communities.	Minimize disturbance to, or movement of, soil and vegetation.	Cover used to disguise equipment Landscape and rehabilitation plan	Not applicable at this stage		
		Back fill to original levels.				
		Reshape to match with surrounding topography.				
16	Permanent impact in aesthetics due to proposed developments.	Develop and implement a site rehabilitation and landscaping Plan.	Cover used to disguise equipment Landscape and rehabilitation plan	Not applicable at this stage		
		Use colors that better integrate with the landscape.				
		Disguise elements with vegetation where possible.				
		Retain as much natural vegetation as possible.				

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17	Increase in traffic volume will deteriorate the air quality.	<p>Keep speeds slow (30 km/hr) on unsealed roads.</p> <p>Sprinkle water on unsealed roads that are used for construction traffic.</p> <p>Retain as much natural vegetation as possible to reduce the impact of smoke due to vehicles.</p> <p>Completely cover vehicles going on the spoil routes and passing through the communities to avoid dust emissions</p> <p>Strictly implement speed limits and defensive driving policies.</p> <p>Promptly and properly repair and maintain roads that are subject to damage by project activities.</p>	<p>Traffic management plan</p> <p>Speed limit for light vehicles: 30 km/hour on unsealed road. Speed limit for heavy machinery: 15 km/hour on unsealed road .</p>	<p>Traffic management plan is in place and part of SSEMP.</p> <p>Driver are trained with respect speed limits, covering of spoil disposal during transfer, road safety and community sensitization.</p> <p>Periodic sprinkling is being carried out at access roads to suppress dust.</p>	Complied	
19	Increased risk to community safety due to increased traffic volume during the construction phase near communities.	<p>Develop and implement a Traffic Management Plan.</p> <p>Identify suitable times to transport equipment.</p> <p>Road safety awareness education will also be included during community visits or information sessions, so that communities can be familiarized with common road signs and the types of vehicles and equipment that will be moving through the area</p> <p>Keep speeds slow (30 km/hour) where there is traffic exchange between roads.</p>	Traffic Management Plan	<p>Traffic management plan is prepared and part of SSEMP.</p> <p>Flagmen are provided by EPC contractors at access roads. At present no major traffic related issues observed and reported.</p> <p>There is a need to train drivers to ensure compliance with speed limits, covering of spoil disposal during transfer, road safety and community sensitization.</p> <p>Material and machinery movement is avoided during peak school/public business hours.</p>	Complied	

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		<p>Make roundabouts for the congestion points.</p> <p>Designate traffic wardens at roads on the transport route to manage traffic during school hours.</p> <p>Construction traffic will not travel during school starting and ending hours on designated road segments in front of schools on the transport route.</p> <p>Strictly implement speed limits and defensive driving policies.</p> <p>Maintain vehicles especially brakes.</p>		Compliance to speed limits need to be ensured.		
20	Degradation of the pavement due to use by heavy construction traffic	Promptly repair and maintain roads that are subject to damage by project activities.	No. of Pavement damages reported	Number of pavement damages reported during reporting semester.	Complied	
21	Direct, indirect and induced employment at the local levels, resulting in increased prosperity and wellbeing due to higher and stable incomes of people.	<p>Enhancement measures:</p> <ul style="list-style-type: none"> ♦ Ensure preferential recruitment of local candidates provided they have the required skills and qualifications. ♦ Include an assessment of the contractor's demonstrated commitment to domestic and local procurement and local hiring in the tender evaluation process. ♦ Coordinate recruitment efforts related to non-skilled labor, including for non-skilled labor positions required by contractors. 	Number and ratio of local employees to non-local employees	<p>EPC contractor has employed good ratio of local employees. About 237 employed out of 246 are locals.</p> <p>Number of local employment conflicts reported during reporting semester.</p>	Complied	

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		<p>Good practice measures:</p> <ul style="list-style-type: none"> Determine what are considered fair and transparent' in recruitment and distribution of jobs among different community groups, in consultation with local communities and their leaders. 				
22	Increased in the stock of skilled human capital due to transfer of knowledge and skill under the project resulting in enhanced productivity of the local labor.	<p>Support a 'vocational training program' to assist local people to qualify for semi-skilled positions focusing on issues such as procurement, involvement of vulnerable groups in project opportunities and continual professional development of staff.</p> <p>Assist local people having practical skills but lacking qualifications to obtain their certificates and thus increase their employment opportunities.</p> <p>Support initiatives promoting a culture of learning in local communities.</p> <p>Develop and implement training program for vulnerable groups to encourage their participation in economic opportunities created by the Project.</p> <p>Assist employees and local communities to improve basic personal financial life skills through training and awareness campaigns, respectively.</p>	<p>Vocational training program including annual schedule.</p> <p>Budget allocation for trainings. Documentary evidence including photographs and attendance lists of trainings.</p>	<p>EPC contractor has identified 04 vocational institutes in Balakot, Shinkiari, Sajwal and Manshera to execute its vocational training plan 2023-2027. EPC contractor will offer 06 months' vocation training to the selected candidates in the institutes.</p> <p>As of December 2023 EPC contractor failed to initiate vocational training plan.</p> <p>Training plan is prepared and part of SSEMP however there is need to implement the plan.</p>	Complied	

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		Consider further training programs to prepare retrenched workers to seek employment in sectors not related to dam construction.				
23	Increased recreational and subsistence fishing due to catch of fish following creation of favorable habitats for the fish in the Kunhar River.	Implement of the BAP	Monitoring of BAP requirements	Revised arrangements for implementation of project BAP is in progress. KP wildlife and fisheries departments has notified their focal persons. Consultation with the Fisheries and Wildlife department, for establishment of offices, deployment of requisite human and logistic resources etc. is in progress.	Partially complied	
24	Loss of income from sand and gravel mining due to change in sediment deposition pattern after dam construction.	Sediment mining and management guidelines are prepared, and will be implemented as part of the BAP. The guidelines will identify possible sand and gravel mining spots along the Kunhar River to meet community needs without harming the river ecology.	Hot spots for sediment mining are identified	Not applicable at this stage.		
25	Increased population due to in-migration of job seekers (in-migrants) leading to pressure on existing social infrastructure and services in the study area.	Development of a GRM Encourage local communities to use the grievance procedure for concerns related to deterioration of local services. Support local government in implementation of infrastructure projects.	Grievance register and records Influx management pan	Project GRM is notified, effective and implemented There is need for GRM dissemination through display of banners, announcements in the villages etc. near the sites. Contractor staff and workers shall be trained with respect to local	Partially Complied	

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		Support NGOs specializing in development of infrastructure to assist local government.		norms and community sensitization. No GRM dissemination observed at work sites e.g. Main dam site, TRs.		
26	Disputes over distribution of project employment within and between study area inhabitants and the in-migrants resulting in social unrest.	<p>Implement PEDO stakeholder engagement plan include the following:</p> <ul style="list-style-type: none"> ♦ maintain regular communication with local communities and other stakeholders to minimize tensions arising from project activities; ♦ maintain a grievance procedure, and encourage and facilitate stakeholders to use the mechanism to express concerns; and ♦ providing sufficient resources to the community relations officers to monitor negative perceptions and associated tensions, and to address them in a timely fashion. 	<p>Stakeholder engagement plan</p> <p>Minutes of community and stakeholder consultations</p> <p>Provision in budget for activities.</p>	<p>Stakeholder engagement plan is not prepared and implemented.</p> <p>There is need to develop stakeholder engagement plan with consultation objectives.</p> <p>Minutes of such consultations shall be recorded and maintained.</p> <p>Necessary budget shall be allocated for stakeholder engagement plan.</p>	Not complied	
27	Potential social unrest in the study area due to conflicting socio-cultural norms amongst the inhabitants and in-migrants.	<p>Plaster graves with mud or cement.</p> <p>If relocation of the graveyard cannot be avoided, it shall be managed through the local religious authorities.</p>	Photographic evidence	<p>There are 10-12 graves located in Paras village near dam site.</p> <p>The affected community and the district administration agreed in shifting the graves. Compensation assessment committee has been notified. At present no construction work at dam site started and graves are not impacted.</p>	Complied	

S/N o	EMP Requirements		Key Performance Indicators	Status of EMP Compliance	EMP Level	Compliance
	Impact	Mitigation Measures				
28	<p>OHS risks such as physical hazards (rotating and moving equipment, electrical hazards, eye hazards, welding, hot work, vehicle/machinery operation, temperature for working equipment and work at height may occur if not planned and supervised.</p> <p>OHS risk such as chemical hazards (e.g. chronic repetitive exposure to toxic, corrosive, sensitizing or oxidative substances, respiratory hazards, fire and explosions, corrosive and oxidizing agents and reactive chemicals) may take place during construction activities.</p>	<p>Ensure Job safety analysis is carried out for the construction works.</p> <p>Design machines to eliminate trap hazards and ensure that extremities are kept under normal operating conditions.</p> <p>Implement Log Out Tag Out procedure</p> <p>Periodically maintain and service equipment and machinery</p> <p>Allow job rotation of workers where exposure is high</p> <p>Conduct periodic medical checkup of workers which are exposed to high noise, vibration or equipment temperature</p> <p>Periodically inspection of all electrical cords, cables and hand power tools</p> <p>Restrict access to high voltage area</p> <p>Use of proper PPEs to avoid Eye and Welding hazards</p>	<p>OHS Plan Document</p> <p>Provision of PPEs</p> <p>OHS Inspection and Monitoring Checklist</p> <p>OHS training program</p> <p>Procedures for working in confined spaces, working alone or isolated or work at height developed</p>	<p>OHS plan is part of SSEMP and is being implemented.</p> <p>There is need to conduct job safety analysis for critical jobs. OHS inspection and monitoring checklist is available.</p> <p>PPEs are provided to workers however strict compliance on use of PPEs need to ensure.</p> <p>Workers in Tunnels shall be provided with N95 or P3 masks.</p> <p>There is need to conduct gas test in the tunnels to monitor LELs of various gases.</p> <p>Silica dust monitoring shall be carried out in the tunnels.</p> <p>Hazardous material is stored at designated sites. Explosives are stored at magazine camps located away from communities. Necessary protocols of explosive storage are being complied with. There is need to train workers on procedures for working in confined spaces, working isolated and working at height.</p>	Partially complied	

S/N o	EMP Requirements		Key Performance Indicators	Status of EMP Compliance	EMP Level	Compliance
	Impact	Mitigation Measures				
	<p>OHS risks such as biological hazards including communicable diseases, infectious diseases, dengue larva, COVID-19 etc. may occur during execution of project activities.</p>	<p>Special hot work and fire prevention precautions and Standard Operating Procedures (SOPs)</p> <p>Installation of proper scaffoldings and its periodic inspection to ensure stability</p> <p>Trained and licensee operators will be hired</p> <p>Designated storage of hazardous material and chemicals</p> <p>Availability of Material Safety Data Sheets</p> <p>Placement of Hazard communication boards</p> <p>Corrosive oxidizing and reactive chemicals will be segregated from flammable materials and from other chemicals of incompatible class</p> <p>Handling of hazardous materials and chemicals by trained workers</p> <p>Procedures for working in confined spaces, working alone or isolated or work at height</p>		<p>Permit to Work procedure for critical jobs such as working in confined spaces, working isolated and working has been adopted by the EPC contractor.</p> <p>MSDS are available for hazardous materials.</p> <p>There is need to increase hazard communication boards at sites.</p>		

Table 7-12: EMP Compliance Status of KP EPA NOC Conditions

Sr. No	KP EPA NOC Conditions	NOC Conditions Compliance Status
1	The proponent will adopt all precautionary measures identified in EIA report as well as any unanticipated impacts during the construction and operation phases of project.	PIU BHPP adopting all precautionary measures identified in the EIA report. Unanticipated impacts are also covered and EIA is being updated based on design changes and recent information.
2	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 the project activities and a certificate in this regard should be submitted to EPA.	Project LARP including compensation to the affectees is prepared and being implemented. Money is deposited in district government department and disbursement is in progress. It will be ensured that there will be no conflicting issues regarding compensation packages to locals. Summary of compensation will be submitted to EPA in environmental monitoring reports.
3	The 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 the Agency before commencing of the construction activity; In light of the LARP, in addition to other compensation measures, at least one male and 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;	LARP is being properly implemented before execution of construction work. Verified land acquisition and compensation documents are available with PIU PEDO and will be shared with EPA through environmental monitoring reports. PIU and PMC are advised to consider option of eligibility of one male and one female of affected households for employment/labor or training or loan based on their willingness, based on the project requirement.
4	The existing natural water springs and water supply scheme/spring affected from the Project shall be properly compensated and alternate water supply for the affectees shall be ensured, Detail shall	Spring survey is being carried out by the EPC contractor and owners of affected springs will be compensated accordingly. Record of such compensation will be maintained for verification and auditing.

	shared with the Agency before commencing construction activity;	
5	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	Not applicable at this stage
6	Detail of steps/mitigation measures shall be taken to mitigate impacts of the project on River Kunhar/natural water streams;	Implementation of Revised Biodiversity Arrangements is in progress and project specific BAP is being implemented and monitored by the PIU, PMSCS and Regulators. BAP management committee will be formulated to review the arrangements.
7	The ROW of the River Kunhar shall be protected. Moreover, the river shall be also protected from all type of pollution from project activities;	Kunhar river will be protected from all type of pollution from project activities.
8	The natural rainwater water sheds ROW shall not be disturbed;	The natural water shed ROW is not disturbed from project activities, however, Kunhar river flow is diverted through bailey bridge at dam site in Paras.
9	The contaminated waste water of the tunnels shall be retained in confined pits of proper size ensuring proper treatment, complying with NEQS parameters before final disposal;	Proper waste collection and treatment arrangements are provided for tunneling works. In this regard water stabilization ponds will be developed to confine waste water of the tunnels to ensure proper treatment, complying with NEQS parameters before final disposal.
10	The existing ROW of the nearby villages shall not be affected or alternate routes shall be provided to the villagers;	No ROW of the nearby villages is affected. Temporary and permanent access roads are well designed and does not impact the public trespassing.
11	The affected existing houses, bridges, basic health unit, school, dispensaries, electric poles, mosque and other structures shall be relocated and compensated to other appropriate area before starting construction	All the affected existing Houses, Bridges, BHU, School, Dispensaries, Electric Poles, Mosque and other structures are compensated as per LARP provisions.
12	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;	GRC committees are notified for dam site, powerhouse and colony sites and nominated representative of affected communities are members of such committees. Affected communities representation at all GRC levels is ensured
13	To avoid traffic congestion issues, the management of the project shall formulate Traffic Management Plan and be submitted to the agency before commencement of Construction activity;	TMP is part of SSEMP. Flagmen are provided by the contractors to manage traffic. TMP is robust and effective with respect to traffic management at the construction sites.
14	The existing graveyard shall be properly protected and not be disturbed by the project activity, unless allowed by elders	The graveyards are properly protected and not disturbed by the project activity during reporting semester. There are 10-12 graves at the dam site in

	of the area/local committee by mutual agreement;	Paras which will be shifted. Committee has been notified in this for compensation assessment.
15	Proper mitigation plan shall be formulated and implemented to avoid soil erosion and land sliding before commencing construction activity;	Landslide management plan is part of SSEMP. Landslides hazards are included in the risk assessment and mitigation plan is provided to avoid soil erosion. Slope stabilization survey is being carried out before commencing construction activity.
16	As per Section Officer (Tech) letter No. SO 427/2021/PC dated July 6, 2021 , after report is submitted by Chief Conservator of Forest-II, there is no chance of disturbance to any vegetation and 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;	There is no major deviation observed which can increase project foot print during reporting semester.
17	Minimum environmental flow of 6.1 m ³ /sec, with 10% extra provision, if required, shall be maintained in the downstream. In light of the submitted EIA report, the project management shall make maximum efforts to operate the dam on preferable option of base load high protection operation mode;	Not applicable at this stage.
18	The muck/debris generated from the project shall be properly quantified, dumping sites for the same shall be properly identified and 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 ROW or water bodies. The same shall be stabilized by proper plantation and bio engineering and engineering techniques. Retention walls of proper size shall be erected along the muck disposal material/site.	At present produced muck is being used as road fill materials and raising platform for tunnel protection works. EPA contractor has identified muck disposal sites which are under review by PMC. A report on muck disposal sites will be prepared which contain feasibility of such sites and mitigation arrangements such as protection works, overflow protection and plantations around the disposal sites.
19	The BAP shall be implemented. Moreover, Wildlife, Forest and EPA department shall be consulted in improvement of the Biodiversity Action Plan to mitigate the impact of the project on aquatic life, fauna, flora and Environment;	Revised arrangements for BAP implementation is in progress. PIU and PMC has maintained correspondence with KP Wildlife and Fisheries department and focal persons has been notified.
20	Safety zone/adequate engineering measures should be provided to	Safety zones with respect to blasting activities are being identified and detailed in pre-blasting survey. Blasting activities will be communicated to nearby

	overcome fears of the residents regarding the project activities to their houses;	villages to overcome fears of the residents regarding project activities to their houses. Blasting management plan is submitted to ADB for review and approval. At present blasting is carried out in compliance to method statement and after detailed geological mapping and stabilization works.
21	The construction/installations shall be carried out keeping in view seismicity of the project area and ensuring implementation of updated building by-laws/codes.	Construction activities are designed keeping in view the seismicity of the project area.
22	Proper flood management plan shall be identified for the project and site and site specific mitigation measures shall be implemented during floods;	Climate risk and vulnerability assessment is included in the project design including flood management. Climate adaptation plan of the project is prepared and budget is allocated. Design related adaptation measures are being implemented by the EPC contractor while climate awareness and capacity building component is being implemented by NGO which is a JV of MM Pakistan and Development Alternatives.
23	Primary baseline data comprising analysis reports of surface water (River Kunhar/water bodies), soil, ambient air, noise etc. of the project area shall be collected from KP-EPA certified lab before commencing construction activity. Moreover, quarterly analysis reports shall be submitted to EPA.	Primary baseline data at project identified sites are being collected on quarterly basis. Environmental sampling is being carried out at identified sites to assess any departure from baseline values.
24	A sedimentation load study shall be carried out along with mitigation measures for the control of sedimentation from upstream of the reservoir;	Sedimentation load study was carried out at time of project EIA. To control sedimentation, a diversion tunnel will be constructed on left bank of Kunhar river which will also serve as sediment bypass tunnel and low level spillway.
25	Road/highway submerged/damaged due to project activity should be reconstructed/repared/rehabilitated to another suitable place in consultation with the concerned govt. department;	No road/highway was submerged and damaged due to project during reporting semester therefore no formal consultation with NHA was carried out. Consultation with national highway authority will be carried out as and when road diversion is required during construction phase of the project. In case of any road damage due to project activities due compensation will be paid to NHA following the set procedure.
26	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 designed facility;	The effluents generated during tunneling/blasting will be treated into stabilization ponds and then disposed of in nearby tehsil municipal administration designated drains. No effluent will be discharged to nearby surface water bodies.
27	In case, blasting is inevitable, the controlled techniques, in accordance with Pakistan	Controlled blasting is being practiced. Blasting management plan is prepared and part of SSEMP. Provisions of explosive acts are complied. Magazine

	Explosive Act should be adopted in sliding and perspective sliding prone areas;	camps are established at secure places away from settlements following the international protocols for establishing of such facilities.
29	The camp site, asphalt plants, crush plants and batching plants shall be at least 500 m away from residential area/villages;	The camps and batching plants are located at safe distances from residential areas.
30	The proponent shall ensure strict and efficient health and safety measures for protecting workers and passersby and backed by a comprehensive emergency response plan;	Strict and efficient HSE measures are being taken by the EPC contractor. HSE plan is further backed by the emergency response plan. Provision of HSE plan and emergency arrangements are in place in active construction sites. PIU and PMC are also monitoring and verifying the requirements of these plans.
31	A comprehensive corporate social responsibility (CSR) policy shall be formulated keeping in view, the demands/needs of the locals and quantum of the project activity. Detail shall be shared with this agency before commencing the construction activity;	As part of CSR, livelihood restoration plan (LRP) is included in the project for which NGO is hired to assess the demands/needs of the locals. Project also developed and budgeted vocational training plan to assist local people to qualify for semi-skilled positions focusing on issues such as procurement, involvement of vulnerable groups in project opportunities and continual professional development of staff. Community level gardening and farming is also part of project CSR through engaging local community.
32	Non-technical jobs shall be provided to local community/villages. Employment record for all positions shall be provided to EPA-KP and priority should also be given to locals in technical jobs. Regular trainings shall be arranged for the locals to acquire knowledge of technical jobs;	The project's contractors have actively engaged with the local community, employing a substantial number of skilled and unskilled workers. Out of the total workforce, an about 237 individuals were sourced from the local area.
33	Separate approval shall be obtained for establishing crushing plant, town/colony, asphalt plant, etc. under KP Environmental Protection Act, 2014 and the prevailing rules/regulations. For temporary colony, proper treatment plant shall be constructed for municipal effluents treatment and bringing within the NEQS parameters before final discharge.	EPC contractor submitted IEE report for establishing crush plant of capacity 50 tons/hour to KP EPA in compliance with KP Environmental Assessment Rules, 2021. KP EPA North Office Abbottabad granted approval in August, 2022 following due procedure. Separate approval for establishing crushing plant is attached as Annexure A . Construction of staff colony is covered under project main design for which EIA was prepared and NOC obtained. The colony will comprise residential units and offices for the project operational staff. It will be a permanent residential colony for the staff during the construction and operational phases of the project. It will house residential units of categories I-IV, community center, school, shopping market, mosque, hospital and other civic facilities including sewerage treatment plant and green spaces. Reasonable land is allocated in master plan of staff colony for sewage treatment plant and parks. Domestic sewerage will be treated in sewage treatment plant and will be disposed of into nearby drain in compliance with NEQS.
34	Fish ladder of proper efficiency shall be constructed for fish movement. Moreover, the conditions suggested by Fisheries Department with its letter No. 2084 dated	Provision of fish ladder is not feasible, and condition is withdrawn by KP EPA.

	June 16, 2021, shall be implemented to ensure survival of aquatic life. Furthermore, a Fish Hatchery shall be established in consultation with Fishery Department;	
35	A comprehensive plantation plan, in consultation with Forest Department, shall be submitted to this Agency along with Global Positioning System coordinates of the plantation sites. Moreover, a nursery shall be established in consultation with Forest Department and a forester along with other supporting staff shall be hired.	A comprehensive tree plantation plan in consultation with forest department is in progress, and has been submitted to PIU/ADB for review and approval.
36	Proper mitigation measures shall be adopted to control land sliding, soil erosion and sedimentation to the nearby river/water channel;	Proper mitigation measures are provided to control of land sliding, soil erosion and sedimentation to the nearby river/ water channel.
37	An Environmentalist along with team shall be hired for the environmental issues redressal.	Environmental experts are hired at various project tiers including staff in PIU, PMC and EPC contractors to implement NOC conditions. EEM is also hired to assess and report non-compliances to environmental approval conditions.
38	Copy of approval from Mines and Mineral Department shall be shared with this Agency prior to commencing construction.	Copy of permission from mines and minerals department is available with PIU and will be shared with the regulator.
39	The cultural values and social norms of the area shall be followed strictly;	Condition is complied with.
40	The proponent shall adopt the mitigations measures as mentioned in the Wildlife department letter No.4233/WI-M dated June 24, 2021 for fauna protection;	Mitigation measures mentioned in the wildlife letter will be implemented and complied with during project execution.
41	Refer to Mines and Minerals department vide letter No. 7082/MDW/MA/Misc (01)/2021 dated 30/06/2021, clearance shall be taken from Mines and Mineral department before commencing construction.	Necessary clearance from Mines and Minerals department is taken and activities commenced after necessary notification to the department.

7.9 Environmental non-compliances

196. EEM visited the project facilities and monitored field activities for implementation and compliance with EIA/EMP/BAP and SSEMP. Since during reporting period, construction activities started in full swing therefore number of minor and moderate non-compliances are observed and reported. It is expected that PMC and PIU PEDO will improve capacity of EPC contractor towards project environmental safeguards awareness, implementation and reporting. No grievance related to environment impact from project activity is reported in the GRM.
197. EEM visited the project construction sites and observed safeguard activities and non-compliances through document review and walk through survey. Photographs of EEM visit at various construction sites of BHPP are provided as **Figure 7-2**.

Figure 7-2: Photographs of EEM's Visits to Project Sites

	
<p>Meeting with PMC and CGGC management at Adit-2 camp</p>	<p>Visit to batching plant at Adit-2 portal</p>
	
<p>Inside monitoring of Adit-2 portal</p>	<p>Visit to staff colony site</p>



7.9.1 Details of Environmental Non-Compliances

198. Total of 34 environmental non-compliances of EMP/SSEMMP/BAP were recorded during monitoring period. About 15 non-compliances were minor, 16 moderate and 03 major non-compliances. Major non-compliances are absence of developed waste stabilization ponds to manage tunneling waste, Improper dumping of muck cuttings in Ghanool stream, Identification of springs and underground water resources is yet not completed by the contractor. CAP to close out observed non-compliances is provided in this EEM report.
199. Category wise breakdown of environmental non-compliances recorded during the reporting period are in **Table 7-13**, and **Figure 7-3**. Table 7-13 contains non-compliances which are based on this external monitoring in compliance to project EMP/SSEMP/SAEMR, details of which are discussed in Table 7-11. These non-compliances also include monitoring/verification of internal SAEMR non-compliances and corrective action taken by PEDO/PMC/EPC contractor. These non-compliances are clubbed in broader non-compliance categories for analysis and comparison. Category wise number of non-compliances will be used for comparison purpose in forthcoming SAEMR.

Table 7-13: Category wise Breakdown of Non-compliances

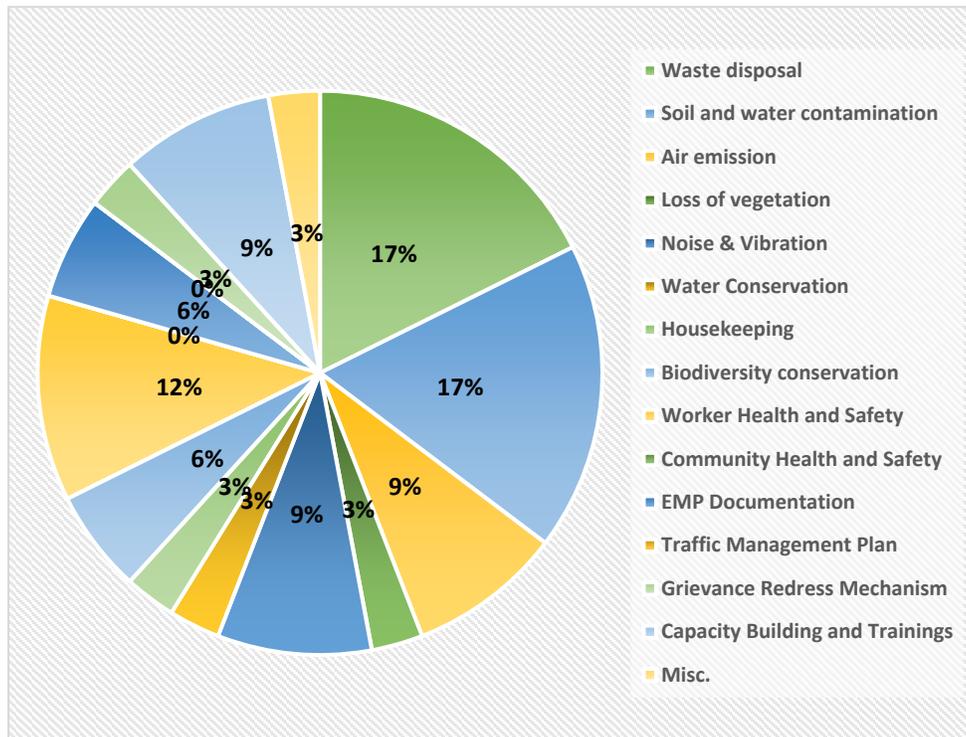
Category	Number	Detail of non-compliances
Waste disposal	06	<ul style="list-style-type: none"> • There is a need to develop waste stabilization ponds to manage tunneling waste and ensure construction of stabilization ponds before start of tunneling activities. • EPC contractor shall pursue NOC applications with DHO Mansehra for disposal of medical waste. • Color coded waste bins are not provided in GRC and CGGC camps. • There is a need to expedite the identification and establishment of muck disposal sites.

Category	Number	Detail of non-compliances
		<ul style="list-style-type: none"> Tunneling waste stabilization pond of Adit-2 is of limited capacity and leakages were observed. Cutting spoil is dumped at portal site of Adit-2 near the stream. Improper dumping of muck cuttings in Ghanool stream observed which is violation of SSEMP/EMP. PMC shall investigate the matter and ensure that EPC contractor has stopped this practice.
Soil and water contamination	06	<ul style="list-style-type: none"> Identification of springs and underground water resources is yet not completed by the contractor. Improper disposal of batching wash water at Adit-2 in Ghanool stream observed which is non-compliance and creating soil contamination and bad aesthetics. Improper disposal of drilling water due to leakages from stabilization ponds observed. There is need to construct adequate capacity waste stabilization ponds at Adit portal works. Kitchen washing water is being discharged to nearby stream without treatment. Contractors are advised to construct grease traps in the kitchens. Fuel storage is not marked and not stored in secondary containment. EPC contractor has not provided spill kits at all sites.
Air emission	03	<ul style="list-style-type: none"> There is need to install wind sacks at the batching sites. There is need to conduct gas test in the tunnels to monitor LELs of various gases. Provisions shall be added in the contractor instructions. Silica dust monitoring is not carried out in the tunnels. Necessary budget shall be allocated.
Loss of vegetation	01	<ul style="list-style-type: none"> There is need to expedite review and approval of tree plantation plan.
Noise and Vibration	03	<ul style="list-style-type: none"> There is need to expedite approval and implementation of blasting management plan. There is need to construct proper enclosures for generators. There is need to install mufflers on excavators, front end loaders, diesel operated generators.
Water Conservation	01	<ul style="list-style-type: none"> There is need to finalize spring survey report. Spring water intrusion and spills observed in the portals which need to be fixed and avoided.
Housekeeping	01	<ul style="list-style-type: none"> No waste drums are placed at construction sites. There is need to place KDA container at Paras main dam site for waste collection.

Category	Number	Detail of non-compliances
Biodiversity conservation	02	<ul style="list-style-type: none"> Revised arrangements for project specific BAP implementation by the KP government is in progress. There is need to expedite consultation with the Fisheries and Wildlife department, for establishing offices and deploying requisite human and logistic resources. There is need to conclude basin wide BAP implementation arrangements. PIU/PEDO/ADB shall review the findings and suggestions of consultative sessions of basin wide BAP. and a way forward shall be sought.
Worker Health and Safety	04	<ul style="list-style-type: none"> There is a need to increase hazard communication boards at sites. There is need to develop and maintain HSE data at each individual site. There is need to maintain 3rd party inspections of construction machinery and allied gears. First aid kits shall be maintained at all construction sites.
Community Health and Safety	00	<ul style="list-style-type: none"> No non-compliance reported in this category.
EMP Documentation	02	<ul style="list-style-type: none"> There is need to develop stakeholder engagement plan with consultation objectives, plan. Separate record on water use, fuel use, waste generated, manpower, TBTs conducted, permit to work issued shall be maintained for each I site.
Traffic Management Plan	00	<ul style="list-style-type: none"> No non-compliance reported in this category.
Grievance Redress Mechanism	01	<ul style="list-style-type: none"> No GRM dissemination observed at work sites e.g. Main dam site, TRs and staff colony..
Capacity Building and Trainings	03	<ul style="list-style-type: none"> No contractor training plan covering issues such as fire arm possession, traffic regulations, speed limits, covering construction material during transport, non-disturbance of resettlement communities, hunting and fishing restrictions, waste management, erosion control, H&S issues is prepared and documented. Training on EMP/SSEMP requirements shall be prepared and tabular record of such trainings including photographic records and training report shall be kept and maintained to monitor continual improvement.

Category	Number	Detail of non-compliances
		<ul style="list-style-type: none">• There is need to appoint full time environment specialist in PMC and Contractor staff.
Misc.	01	<ul style="list-style-type: none">• Climate risk and vulnerability study needs to be carried out.
Total	34	

Figure 7-3: Category wise breakdown of Non-compliances



7.9.2 Photographs of Environmental Safeguard Activities and Non-compliances

200. Photographs of environmental non compliances observed during EEM visit and required corrective actions are provided as **Figure 7-3**.

Figure 7-4: Photographs of Environmental Non-Compliances





Inadequate capacity of waste stabilization ponds at portal sites



Improper disposal of batching wash water disposal



Wash water is openly drained at staff colony site



Spills observed from generator



Minor oil spills in parking area of GRC camp



Poor drilling discharge management at ADIT portal sites

	
Unattended waste thrown back side of the contractor- CGCC camp	No project information and GRM dissemination at main dam site

Table 7-14: Significance wise Breakdown of Environmental Non-compliances

Significance Category	Number of Non-compliances July-Dec, 2023
Minor	16
Moderate	15
Major	03

7.9.3 Status of ongoing issues

201. All environmental non-compliances were discussed with PIU PEDO and PMC for necessary close outs.

7.10 Corrective Action Plan (CAP) for Environmental Non-compliances

202. CAP for the environmental non-compliances observed and reported during the monitoring period along with required actions, responsibilities and timeline is provided in **Table 7-15**.

Table 7-15: Corrective Action Plan of Environmental Non-Compliances during Reporting Period

Sr. No	Details of Environmental Non-compliances	Required Actions	Responsibility		Timeline
			Execution	Supervision/ Monitoring	
1	There is need to develop waste stabilization ponds to manage tunneling waste and ensure construction of stabilization ponds before start of tunneling activities.	Waste stabilization ponds shall be constructed before start of tunneling activities. These ponds shall be well designed to accommodate tunneling waste and waste from ponds shall be removed on periodic basis to prevent overflow. Layout of ponds shall be reviewed and approved by PMC.	EPC Contractor	PMC/PIU	April, 2024
2	EPC contractor shall pursue NOC applications with KDA and DHO.	EPC contractor shall communicate and make follow up with DHO for issuance of NOC or memorandum of understanding for disposal of domestic and hazardous waste.	EPC Contractor	PMC/PIU	June, 2024
3	Color coded waste bins are not provided in GRC and CGCC camps.	EPC contractor shall arrange color coded waste drums for GRC and CGGC camps.	EPC Contractor	PMC/PIU	April, 2024
4	There is need to expedite the identification and establishment of muck disposal sites.	Muck disposal sites shall be finalized by EPC contractor on priority basis. Map of disposal sites shall be prepared. Report on muck disposal sites for the project along with location, size, capacity and protection measure and lease agreements shall be prepared by EPC contractors and approved by PMC. To control erosion and destabilization protection measures such as reinstating of topsoil, drainage of spoil piles, diversion of rain water and revegetation shall be carried out while developing spoil disposal areas.	EPC Contractor	PMC/PIU	April, 2024

Sr. No	Details of Environmental Non-compliances	Required Actions	Responsibility		Timeline
			Execution	Supervision/Monitoring	
5	Tunneling waste stabilization pond of Adit-2 is of limited capacity and leakages observed.	There is need to establish appropriate stabilization pond with enough capacity to handle tunneling waste.	EPC Contractor	PMC/PIU	April, 2024
6	Cutting spoil is dumped at portal site of Adit-2 near the stream. Improper dumping of muck cuttings in Ghanool stream observed which is violation of SSEMP/EMP. PMC shall look into the matter and ensure that EPC contractor has stopped this practice.	Cutting spoil dumping into Ghanool stream shall be prohibited and, in such events, necessary penalties shall be imposed. EPC contractor shall not use Ghanool stream for dumping of cuttings. Cuttings shall be transported to the disposal site or stored away from stream in case of temporary storage.	EPC Contractor	PMC/PIU	April, 2024
7	Identification of springs and underground water resources is yet to complete by the contractor.	EPC contractor shall submit spring survey report on priority basis since springs encountered during ADIT tunnels works and spills of spring water observed. Drilling blast machine activities shall be carried out keeping in view the spring proximity and necessary stabilization works shall be ensured.	EPC Contractor	PMC/PIU	June, 2024
8	Improper disposal of batching wash water at Adit-2 in Ghanool stream observed which is non-compliance and creating soil contamination and bad aesthetics.	Batching wash water shall not be discharged into Ghanool stream. EPC contractor shall develop procedure for handling batching wash water in available settling tanks. After retention tanks shall be dewatered and disposed or reused as sprinkling of roads.	EPC Contractor	PMC/PIU	April, 2024
9	Improper disposal of drilling water due to leakages from stabilization ponds observed.	Stabilization ponds of adequate capacity shall be constructed at ADIT portal sites.	EPC Contractor	PMC/PIU	April, 2024
10	Kitchen washing water is being discharged to nearby stream without treatment. Contractors	Discharge of kitchen wash water into nearby stream shall be stopped. CGGC is advised to construct proper grease trap and after treatment	EPC Contractor	PMC/PIU	April, 2024

Sr. No	Details of Environmental Non-compliances	Required Actions	Responsibility		Timeline
			Execution	Supervision/Monitoring	
	are advised to construct grease traps in the kitchens.	wash waster shall be disposed of in the septic tank.			
11	Fuel storage is not marked and not placed in secondary containment. EPC contractor has not provided spill kits at all sites. There is need for periodic inspection of fuel storage areas, tanks and vehicles to check leaks/spills. Drip trays shall be arranged for refueling purpose.	Fuel storage at GRC and CGGC camps shall be marked and placed in secondary containments. EPC contractor shall arrange spill kits including shovel, polyethene bags and absorbent sponge at fuel storage area. Weekly inspection of fuel storage areas, tanks and vehicles/machinery shall be carried out. Records of such inspections shall be prepared and verified by PMC. Appropriate number of drip trays shall be arranged by the EPC contractors.	EPC Contractor	PMC/PIU	April, 2024
12	There is need to install wind sacks at batching plant sites.	Wind sacks shall be installed at batching plant sites.	EPC Contractor	PMC/PIU	April, 2024
13	There is need to conduct gas test in the tunnels to monitor LELs of various gases. Provisions shall be added in the contractor instructions.	Gaseous LELs monitoring shall be carried in all tunnel works. EPC contractor is advised to arrange potable gadgets for gas testing in the tunnels.	EPC Contractor	PMC/PIU	June, 2024
14	Silica dust monitoring is not carried out in the tunnels. Necessary budget shall be allocated.	Silica dust monitoring within the tunnels shall be carried out. Requirements shall be added in instrumental monitoring plan of the project and necessary budget shall be allocated.	EPC Contractor	PMC/PIU	June, 2024
15	There is need to expedite review and approval of tree plantation plan.	Tree plantation plan has been submitted to ADB and early approval will ensure that necessary plantation arrangements can be made by PIU.			April, 2024
16	There is need to expedite approval and implementation of blasting management plan.	Detailed pre-condition assessment report for blasting shall be prepared and submitted to PMC for approval. Preparation of pre-blasting report shall be part of blasting management plan and vibration impacts and mitigation measures are included.	EPC Contractor	PMC/PIU	April, 2024
17	There is need to construct proper enclosures for generators.	Proper noise acoustic enclosures shall be installed for generators. Although EPC contractor has constructed enclosures however still not completely enclose to serve the purpose.	EPC Contractor	PMC/PIU	April, 2024

Sr. No	Details of Environmental Non-compliances	Required Actions	Responsibility		Timeline
			Execution	Supervision/Monitoring	
18	There is need to install mufflers on excavators, front end loaders, diesel operated generators.	Mufflers shall be installed on excavators, front end loader and diesel generators to reduce noise impacts in the surroundings.	EPC Contractor	PMC/PIU	April, 2024
19	No waste drums are provided at construction sites.	Waste drums shall be provided at all active constructions sites such as main dam site, ADIT tunnel works, colony Site and access road works.	EPC Contractor	PMC/PIU	April, 2024
20	There is need to place KDA container at Paras main dam site for waste collection.	Dedicated KDA container shall be placed at main dam works so that waste can be temporarily store and disposed of through KDA vehicle.			April, 2024
21	Revised arrangements for BAP implementation are still under review and approval by the KP government. There is need to expedite consultation with the Fisheries and Wildlife department, to establish offices and deploy requisite human and logistic resources.	Revised arrangements for BAP implementation shall be finalized and concluded by EPC contractor at priority. Consultations shall be completed in a timely and conclusive manner. PIU PEDO and PMC shall expedite the revised approval arrangements, finalize memorandum of understanding with fisheries department and start implementation as soon as possible.	EPC Contractor	PMC/PIU	June, 2024
22	There is need to expedite and conclude basin wide BAP implementation arrangement.	PIU/PEDO/ADB shall review the findings and suggestions of consultative sessions with Basin wide BAP stakeholders and a way forward shall be sought.	EPC Contractor	PMC/PIU	Q3, 2024
23	There is need to increase hazard communication boards at sites.	Project information boards shall be placed at main works. Necessary HSE signage and communication board shall be displayed.	EPC Contractor	PMC/PIU	April, 2024
24	Develop and maintain HSE data at each site.	EPC contractor is advised to maintain HSE data for individual site. PMC shall provide guidance to contractor for necessary data generation and reporting.	EPC Contractor	PMC/PIU	April, 2024
25	There is need to maintain 3 rd party inspections of construction machinery and allied gears.	Third party inspection of construction machinery shall be carried out and inspection record shall be maintained.	EPC Contractor	PMC/PIU	April, 2024

Sr. No	Details of Environmental Non-compliances	Required Actions	Responsibility		Timeline
			Execution	Supervision/Monitoring	
26	First aid kits shall be maintained at all construction sites.	First aid kits shall be maintained at all construction sites			April, 2024
27	There is need to develop stakeholder engagement plan.	Stakeholder engagement plan shall be developed which shall outline future consultation on environmental safeguards with stakeholders. SSEMP awareness consultations can be clubbed with stakeholder consultation plan under LARP, LRP and vocational trainings for effective results and to avoid duplication of efforts.	EPC Contractor	PMC/PIU	April, 2024
28	There is a need of GRM dissemination through display of banners, announcements in the villages etc. near the sites.	GRM and compliant hotlines shall be well disseminated in the project area and nearby villages.	EPC Contractor	PMC/PIU	April, 2024
29	No contractor training plan covering issues such as fire arm possession, traffic regulations, speed limits, covering construction materials during transport, non-disturbance of resettlement communities, hunting and fishing restrictions, waste management, erosion control, H&S issues is prepared and documented.	EPC contractor shall develop training plan covering issues such as fire arm possession, traffic regulations, speed limits, covering of construction material during transport, non-disturbance of resettlement communities, hunting and fishing restrictions, waste management, erosion control, H&S issues	EPC Contractor	PMC/PIU	April, 2024
30	Limited training on EMP/SSEMP requirements	Training on EMP/SSEMP requirement shall be prepared and tabular record of such trainings including photographic record and training report shall be kept and maintained to monitor continual improvement.	EPC Contractor	PMC/PIU	April, 2024
31	There is need to appoint full time environment specialist in PMC and Contractor staffing.	Keeping in view the quantum of project works project has adequate staffing in HSE domain however limited positions for environmental safeguard staffs. Environmental staffing in EPC	EPC Contractor	PMC/PIU	April, 2024

Sr. No	Details of Environmental Non-compliances	Required Actions	Responsibility		Timeline
			Execution	Supervision/Monitoring	
		and PMC contracts shall be increased so that EMP/SSEMP requirements shall be effectively implemented and monitored.			
32	Climate risk and vulnerability study need to be carried out.	There is need to conduct climate risk and vulnerability study keeping in view the baseline survey and future projections. Special focus shall be made on extreme events analysis and associated climate risks to the project. Based on the study necessary climate mitigation measures shall be adopted.	EPC Contractor	PMC/PIU	April, 2024

8 Instrumental Monitoring Plan

203. Instrumental monitoring has been carried out to capture the effects of development activities on environmental parameters as defined in EIA and SSEMP report. A comprehensive instrumental monitoring plan was made part of the construction contract with budgetary provisions thereof.
204. To implement the instrumental monitoring, EPC contractor hired services of KP EPA certified lab Integrated Environmental Laboratory based in Peshawar. The 3rd quarter monitoring was carried out in month of October 2023 while 4th quarter monitoring in December, 2023.
205. Instrumental monitoring was carried out on points which were selected at the time of baseline monitoring. These points are selected based on their selection in EIA report (which will be used as baseline), comparison of the results of risk matrix and sensitivity of these areas from environmental point of view.

8.1 Environmental Monitoring Points

206. Environmental monitoring including ambient air quality (particulate matter 2.5 micron size (PM_{2.5}) and particulate matter 10 micron size (PM₁₀), ambient noise level, drinking water, waste water quality and soil quality was assessed during monitoring period. Semi-annual environmental monitoring report (internal) details the results of environmental sampling and comparative analysis of 3rd and 4th quarter of 2023.
207. Monitoring is being carried out by KP EPA certified lab following approved procedures and verified by EEM. Details of environmental monitoring points are provided in **Table 8-1**.

Table 8-1: Location of Environmental Monitoring Points

Environmental Quality	Parameters	Standards/G uidelines	Locations	Monitoring period/ Frequency
Air quality	SO ₂ , oxides of nitrogen (NO), carbon monoxide (CO), O ₃ , suspended particulate matter, PM ₁₀ , PM _{2.5} , humidity, wind direction, wind speed, temperature etc.	Air quality standards by NEQS, WHO	MP-1 Dam site MP-2- Adit 1 MP-3- Adit 2 MP-4 Adit 3	Quarterly (24 hours duration)
Dust	Dust control	Air quality standards by NEQS, WHO	MP 5- Powerhouse MP-6 Upstream tailrace	Quarterly (24 hours duration)
Noise level	dB(A)	Noise pollution control NEQS, WHO	MP-7 GRC Camp MP-8 Staff colony	Quarterly (24 hours duration)
Water quality	Surface water, temperature, turbidity, pH, TDS,	Water quality standards by		Quarterly

Environmental Quality	Parameters	Standards/Guidelines	Locations	Monitoring period/Frequency
	EC, TSS, DO, COD, BOD ₅	NEQS, WHO		
	Ground water: color, odor, taste, temperature, turbidity, pH, TDS, EC, TSS, CaCO ₃ , hardness, potassium, nitrate, nitrite (as NO ₂), phosphate, arsenic, COD, DO, TSS, total <i>coil form</i> , <i>faecal coliform</i> and <i>E. Coli</i>	Water quality standard by NEQS, WHO		Quarterly
Soil pollution	Soil texture, pH, EC, available phosphorus and sodium absorption ratio.	NEQS, Government of Pakistan		Twice a year

8.2 Monitoring of Air, Noise and Water

8.2.1 Ambient Air Quality Monitoring

BHPP

208. Ambient particulate matter (PM₁₀ and PM_{2.5}) and gases were monitored for twenty-four (24) hours at the pre-identified locations. In 3rd and 4th quarter of reporting year, monitoring was carried out at eight locations which comprise of dam site, Adit-1, Adit-2, Adit-3, GRC camp, upstream tailrace, powerhouse and staff colony. Location of monitoring points are shown in **Figure 8-1** while the results obtained in graph given in **Figure 8-2**. It is important to regularly monitor and assess dust levels and compliance with the environmental standards to ensure continued adherence to regulations and to address any potential concerns that may arise.
209. The PM₁₀ concentration at most of the sampling points (except tailrace tunnel) is in excess to the WHO guidelines but fall well below the NEQS. Higher PM₁₀ concentrations were monitored in 3rd quarter while these slightly declined in 4th quarter. Values in both quarter are higher than baseline which shows that project activities such as earthwork activities at Adit-01, powerhouse and Adit-03 resulted in increased PM₁₀ concentration. Another reason for high PM₁₀ values in 3rd quarter is increased traffic volume at N-15 due to tourist surge in the area. PM₁₀ values gradually decrease in 4th quarter as a result of water sprinkling and decrease traffic in winter months on N-15. EPC contractor is advised to

procure handheld PM sampler to monitor the dust in the project area and take appropriate mitigation measures to avoid air pollution.

210. The results obtained for PM_{2.5} at monitored locations shows that values are complying to NEQS however fall exceedance to WHO guidelines in both 3rd and 4th quarter. High values are recorded for Adit-1, Adit-3, Powerhouse and Colony area however still in compliance to NEQS. Increased concentration of PM_{2.5} are mainly attributed with excavation for access roads, land leveling at colony site and earthwork activities at Adit tunnels.
211. The results obtained for CO concentration shows that values are well within WHO and NEQS in both 3rd and 4th quarter and no additional mitigation measures are required.
212. The results obtained for NO concentration shows that values are will within WHO and NEQS values in both 3rd and 4th quarter. Highest values are recorded for Adit-3 and Power house which are about 20 mg/m³ which is due to continuous vehicular operation for construction activities.
213. The obtained results for NO₂ concentration at all monitored location fall well within WHO and NEQS values in both 3rd and 4th quarter.
214. The obtained results for SO₂ concentration at all monitored location fall well within WHO and NEQS values in both 3rd and 4th quarter.

Figure 8-1: Location of Instrumental Monitoring Points for BHPP

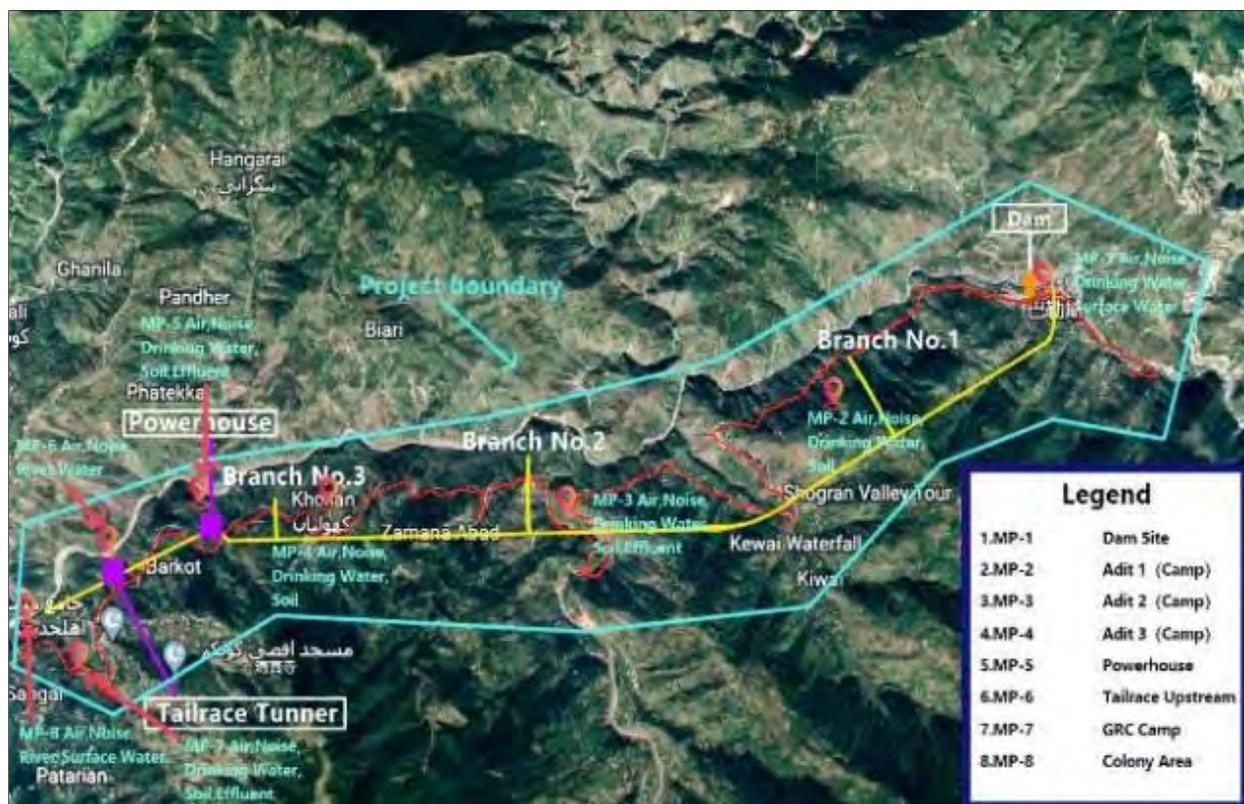
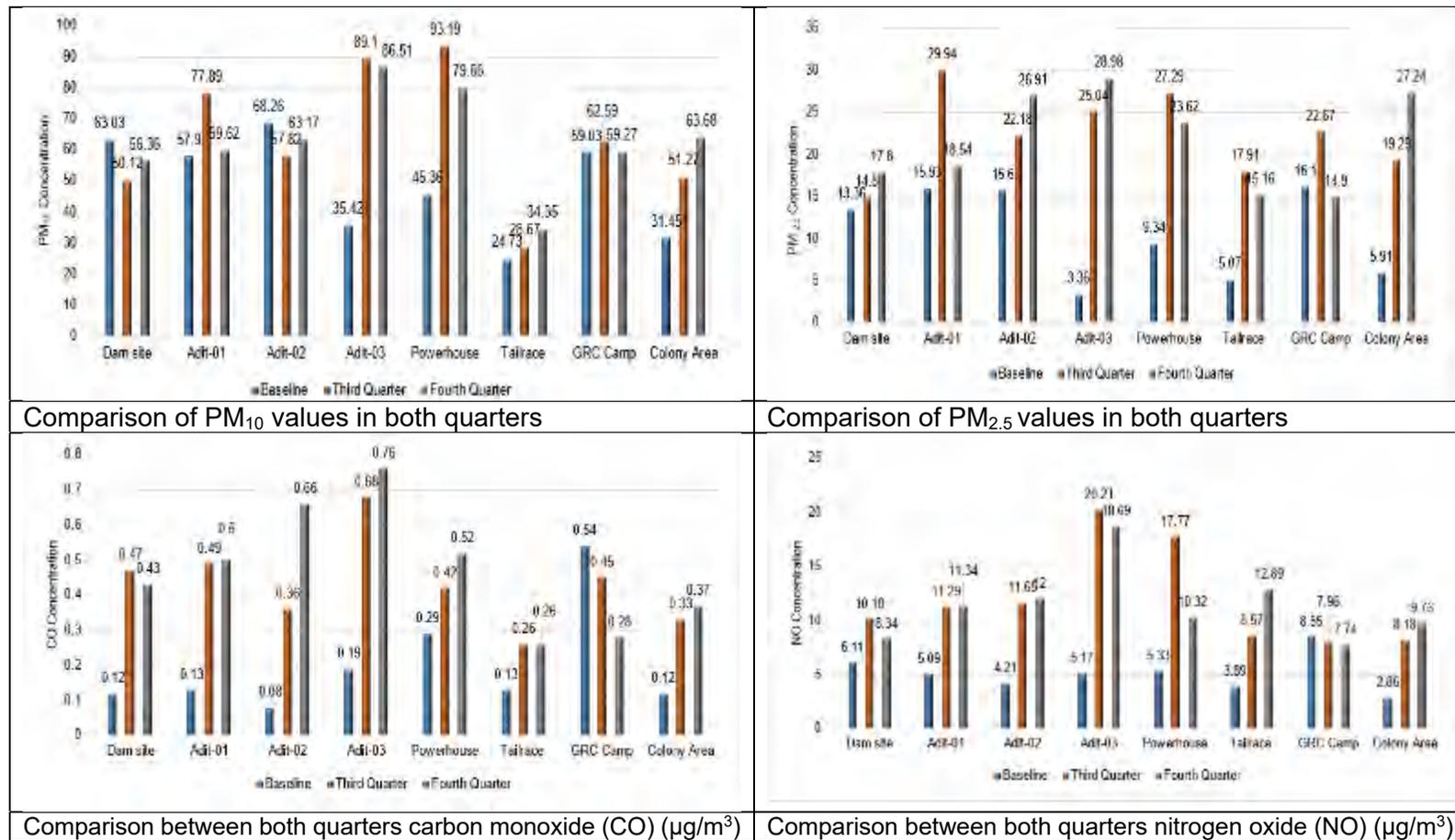
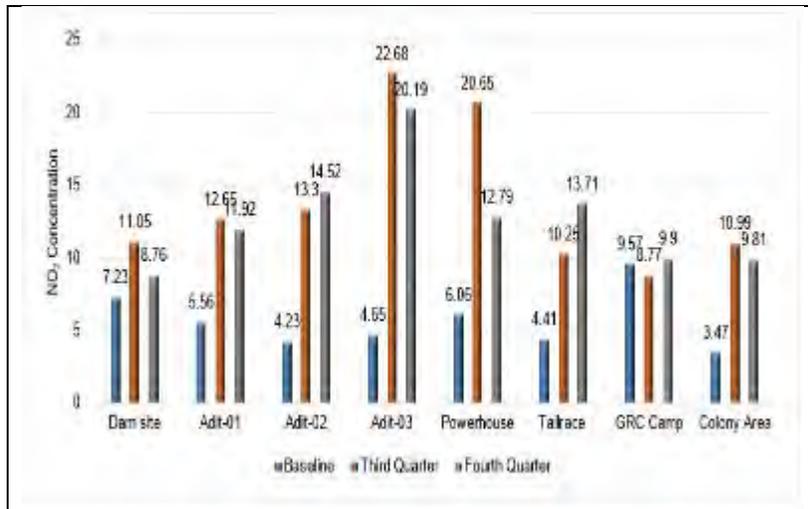
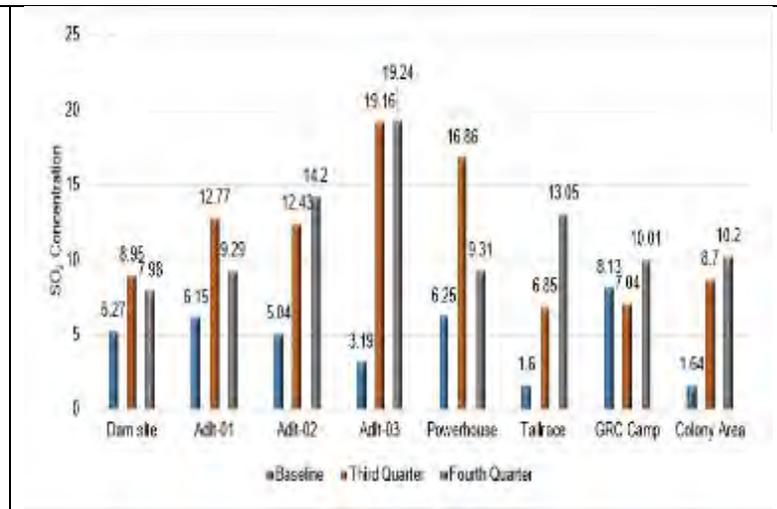


Figure 8-2: Ambient Air Quality Analysis BHPP





Comparison both quarters nitrogen dioxide (NO₂) (µg/m³)



Comparison both quarters sulfur dioxide (SO₂) (µg/m³)

8.2.2 Noise Monitoring

215. The 24hours results for ambient noise level monitoring show that the recorded noise levels at GRC camp exceeds the NEQS guideline value of 55 dB. As the camp is located adjacent to the N-15, hence, excessive noise levels are primarily attributed to the vehicular traffic on N-15 because, apparently, there are no other stationary sources that may cause noise pollution.
216. Although, the noise levels recorded at almost all work sites, are in exceedance of NEQS guideline values of 55 dB, however they mostly fall within WHO permissible limits. As the current works sites are located away from the nearby settlements or sensitive receptors, and there is no continued stationary noise generating sources hence no special arrangements are needed to bring the noise level to 55 dB. Furthermore, most of the settlements in the project area, particularly at the dam site, are exposed to the noise pollution associated with the vehicular traffic on N-15 and other inter village roads.

8.2.3 Drinking Water Quality

217. During the reporting period, the drinking water quality tests were conducted at the sample points identified on the map given under **Figure 8-1** above. The results obtained from the analysis of drinking water sources in the project area indicate that nearly all of the measured parameters are within the acceptable limits defined by the WHO and National Standard for Drinking Water Quality.

8.2.4 Surface Water Quality

218. Samples were collected from three locations at Kunhar River i.e. dam site (upstream of temporary diversion dam, just downstream of the Sukki Kinari HPP tailrace), tailrace upstream (Barkot), and downstream side of the project which is residential colony area. The analysis of surface water revealed that most of the measured parameters are within the acceptable limits set by the NEQS.

8.2.5 Soil Quality

219. Soil analysis was also carried out at the pre identified six locations which comprise of Dam Site, Adit-1, Adit-2, Adit-3, GRC camp, Upstream Tailrace, Powerhouse and Staff Colony.
220. The monitored parameters remain unchanged, indicating that the properties of the soil in the camps and workshops still correspond to the baseline properties.
221. The results obtained from the soil analysis are presented for comparison in **Table 8-2**, displayed below.

Table 8-2: Soil Quality Report

S/No	Parameters		Sampling Points and Results														
			Adit 1			Adit 2			Adit 3			GRC Camp			Powerhouse		
			Baseline	First Quarter	Second Quarter	Baseline	First Quarter	Second Quarter	Baseline	First Quarter	Second Quarter	Baseline	First Quarter	Second Quarter	Baseline	First Quarter	Second Quarter
1	Soil Texture	Sand %	14	13	19	8	10	13	17	21	19	16	15	17	12	14	16
		Silt%	57	54	49	58	53	49	49	56	53	43	46	45	61	59	57
		Clay %	29	33	32	34	37	38	34	23	28	41	39	38	37	27	27
		Texture Class	Silty Clay Loam	Silty Clay Loam	Silty Clay Loam	Silty Clay Loam	Silty Clay Loam	Silty Clay Loam	Silty Clay Loam	Silty Clay Loam	Silty Clay Loam	Silty Clay Loam	Silty Clay Loam	Silty Clay Loam	Silty Clay Loam	Silty Clay Loam	Silty Clay Loam
2	pH		8.1	8.1	8.1	8.1	8.1	8.1	8.1	8.0	8.0	8.0	8.0	8.0	8.1	8.1	8.1
3	Electrical Conductivity (μSm^{-1})		238	238	238	238	238	238	238	231	231	231	231	231	229	229	229
4	Phosphorus (mgkg^{-1})		2.01	2.01	2.01	2.01	2.01	2.01	2.01	3.2	3.2	3.2	3.2	3.2	2.9	2.9	2.9
5	Sodium Absorption Ratio		4.07	4.07	4.07	4.07	4.07	4.07	4.07	3.54	3.54	3.54	3.54	3.54	3.37	3.37	3.37

9 Change Management Statement

222. There are no major changes in the project design which warrant preparation of change management statement or major departure from EIA/EMP findings and SSEMP. The construction activities at various sections of BHPP are in progress in accordance with the Engineer's approved methodology and specifications.
223. Project EIA is being updated to incorporate impacts of minor design changes and revised BAP implementation arrangements. Updated EIA after addressing ADB is expected to be submitted to ADB for review and concurrence in Q2, 2024.

10 Conclusion and Recommendations

224. The EEM report concludes that project stakeholder including PIU BHPP, PMC and the EPC contractors are in process of improving the compliance status of environmental safeguard requirements vested in the EIA/EMP, SSEMP, BAP, Corrective Action Plans and KP EPA NOC conditions. Basic safeguard controls are in place however development of tunneling waste stabilization ponds, construction of muck disposal sites, feasibility and assessment of springs along corridor of ADIT portals and approval/implementation of blasting management plan, tree management plan are safeguard requirements that needs to be addressed/complied. All stakeholders shall play their roles towards implementation, monitoring and reporting of environmental safeguards. There is need to increase capacity building of contractors towards compliance of environmental safeguards through both external/internal trainings and toolbox talks.
225. Total of 34 environmental non-compliances of EMP/SSEMMP/BAP were recorded during the monitoring period. About 15 non-compliances were minor, 16 moderate and 03 major non-compliance. Major non-compliances are absence of developed waste stabilization ponds to manage tunneling waste, Improper dumping of muck cuttings in Ghanool stream and Identification of springs and underground water resources is not completed by the contractor. CAP to close out observed non-compliance is provided in this EEM report.
226. Environmental safeguard requirements including hiring of qualified safeguard staff, traffic management plan, blasting management plan, spoil management plan, emergency response plan, solid waste management plan, grievance redressed mechanism, instrumental environmental monitoring plan, efficient resource utilization, EMP documentation and internal/external EMP compliance monitoring/reporting are in place. During reporting semester overall EMP compliance level was found satisfactory, however, improvement is required in waste disposal/management, soil and water contamination, workers HSE and EMP documentation.
227. EMP/SSEMP awareness sessions shall be conducted on periodic basis by PIU/PMC/EPC contractor in order to improve capacity to ensure compliance during construction activities. PIU shall expedite the project specific BAP implementation arrangements in consultation with Fisheries and Wildlife department and establishment of fish hatchery. PIU/PMC shall work closely with EPC contractor to implement the CAP and environmental safeguard requirements during construction of BHPP.

ANNEXURES

Annexure A

KP EPA APPROVALS OF BHPP and CRUSH PLANT



**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.

Dir EIA Services 2011/Section-II/Hydro Power Project/300MW Balakot HPP District Managers

**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°



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;
- 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.
 - 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

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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;

JM 06/07/2021

- 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 redressel.
- 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

1502/16/190
Jmw
F

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.**



EPA NORTHERN DIRECTORATE, ABBOTTAHAD,
Forestry, Environment & Wildlife Department
Govt. of Khyber Pakhtunkhwa

No. EPA/N/D/ATD/ 483

Dated: 26th May, 2022



To

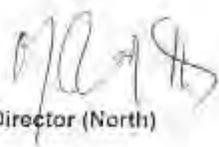
✓ Mr. Ghulam Rasool (Owner)

Ghulam Rasool construction company

GRC Site camp Thobi village Kiwai Tehsil Balakot District Mansehra

Subject: PLANT DESIGN PROCUREMENT AND CONSTRUCTION OF BALAKOT HYDROPOWER PROJECT SUBMISSION OF LAYOUT PLAN AND X-SECTIONS OF TEMPORARY SITE CAMP FOR BALAKOT HYDRO POWER PROJECT.

Reference to your application No GRC.JV/BKHPP/EPA/0001 dated 25/01/2022 on the subject cited above and to state that Environmental approval for Batching plant is not mandatory under Khyber Pakhtunkhwa Environmental Assessment Rules, 2021 and IEE/EIA Regulation-2000, as the subject project is not included in any category of Schedule-I, III & IV of Khyber Pakhtunkhwa Environmental Assessment Rules, 2021.


Director (North)

House No. CB-1118/1, Ghost Market Supply Abbottabad. Phone No. 0992-9310472



EPA NORTHERN DIRECTORATE, ABBOTTABAD,
Forestry, Environment & Wildlife Department
Govt. of Khyber Pakhtunkhwa



No. EPA/NORTHERN/DIRECTOR/BHP 686
Dated: 1st August, 2022

To:

✓ Mr. Ghulam Rasool & Company, Village Thobi,
Kiwai, Tehsil Balakot, District Manshera.

Subject: SUBMISSION OF IEE REPORT FOR THE INSTALLATION OF
CRUSH PLANT AT GRC THOBI CAMP LOCATION (BALAKOT
HYDROPOWER PROJECT)

I am directed to refer to the subject cited above and to enclose herewith Environmental Approval/decision note on IEE Report of GRC Crush Plant at Village Thobi, Kiwai, Tehsil Balakot, District Manshera for your information and further implementation.

Moreover, schedule X must be submitted to this Agency within a month on stamp paper as an undertaking for the compliance of term and condition as mentioned in the Environmental Approval as well as mitigation measure proposed in the IEE report. (Copy enclosed).

DIRECTOR (NORTH)



EPA NORTHERN DIRECTORATE, ABBOTTABAD,
Forestry, Environment & Wildlife Department
Govt. of Khyber Pakhtunkhwa

No.EPA/ND/ATD/IEE/CP/GRC-626

Dated: 1st August, 2022



SCHEDULE-VIII

Decision on IEE

1. **Name, address of proponent:** Mr. Ghulam Rasool & Company, Village Thobi, Kiwai, Tehsil Balakot, District Mansehra.
2. **Description of project:** The proposed crush plant namely GRC Crush Plant is proposed to be installed at Village Thobi, Kiwai, Tehsil Balakot, District Mansehra. Total Capacity of the project is 50 Tons/hour. A 3500 KW generator will be installed to operate the proposed crush plant. 400 KVA transformers will be installed to fulfill the need of energy. About 15 labor and Technicians will work during construction phase, whereas 20 Staff will work for the operation of the project.
3. **Location of the project:** Village Thobi Kiwai, Tehsil Balakot, District Mansehra.
(GPS N: 34.636349, E: 73.428441)
4. **Date of filling of IEE:** 19/01/2022
EPA, Northern Directorate (Dairy No.513)
5. After careful review of IEE report and field visit report carried out by official of this Agency on 03-03-2022, the Environmental Protection Agency, Northern Directorate, Abbottabad, Govt. of Khyber Pakhtunkhwa has decided to accord approval of the Initial Environmental Examination of **GRC Crush Plant at Village Thobi Kiwai, Tehsil Balakot, District Mansehra**, of Khyber Pakhtunkhwa in line with the Khyber Pakhtunkhwa Environmental Assessment Rules 2021 subject to the following terms & conditions:



**EPA NORTHERN DIRECTORATE, ABBOTTABAD,
Forestry, Environment & Wildlife Department
Govt. of Khyber Pakhtunkhwa**

No. EPA/ND/ATD/IEE/CP/GBC/ 686

Dated: 1st August, 2022



- a) The proponent will adopt all precautionary and mitigation measures identified in IEE report as well as any unanticipated impacts during the construction and operation phase of project.
- b) The proposed crush plant must be constructed as per the Rule-6 of Khyber Pakhtunkhwa Powers Crushers (Installation, Operation and Registration) 2020".
- (c) Employment should be provided to local people particularly for unskilled jobs.
- (d) Carry sprays twice a day i.e 9:00 AM and 3:00 PM on non-metal roads during construction and operation phase in order to minimize dust during delivery.
- (e) The proponent should cover the delivery vehicles properly.
- (f) Health & Safety equipments (mask, helmet, glasses, gloves, shoes, air plugs, etc) should be provided to the workers.
- (g) The proponent shall plant Chinar & Walnut plants in available space around the crush plant.
- (h) Water spray should be carried out on material through a water pump connected with pipelines and water spraying nozzles.
- (j) The proponent will install Air/Dust Control System as per SOPs of stone crush plant: Specification and drawing of Dust/Air Pollution Control System is given as below:

M. Khan



House No.CB-1118/1, Gosht Market, Supply, Abbottabad. Phone No. 0992-9310472

~ 2 ~



EPA NORTHERN DIRECTORATE, ABBOTTABAD,
Forestry, Environment & Wildlife Department
Govt. of Khyber Pakhtunkhwa



No. EPA/ND/ATD/TELE/CP/GRC 686

Dated: 9th August, 2022

- (k) The proponent should submit undertaking on stamp paper regarding protection of rainy water stream/Nullah and avoid throwing/dumping of waste material (Khaka) into the stream.
6. The proponent shall be liable for replacement/upgradation of the Air/Dust Pollution Control System, if the above Air/Dust Pollution Control System failed to bring the dust emission within National Environmental Quality Standards (NEQS).
7. Environmental Management Plan must be strictly followed.
8. The proponent shall be liable for correctness and validity of the information supplied by the environmental consultant.
9. The proponent shall be liable for compliance of section 15 (1), 18, 19 and 20 of Khyber Pakhtunkhwa Environmental Assessment Rules 2021, regarding approval, written confirmation of compliance, entry, inspection and monitoring.
10. This approval is accorded only for the "CONSTRUCTION PHASE" of project.
11. The proponent will obtain approval for "OPERATION OF THE PROJECT" in accordance with the section 15 (1) and 20 of the Khyber Pakhtunkhwa Environmental Assessment Rules 2021.
12. Any change in the approved project shall be communicated to EPA, Northern Directorate, Abbottabad, Khyber Pakhtunkhwa and shall be commenced after obtaining the approval.
13. 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.
14. There is no legal case pending in the courts against the project.
16. In exercise of the power under Section 14 of the Khyber Pakhtunkhwa Environmental Protection Act, 2014 and The Delegation of Powers Vide letter No. EPA/050/01/93/ Peshawar, dated the May 19, 2017, the undersigned is pleased to approve the IEE Report



**EPA NORTHERN DIRECTORATE, ABBOTTABAD,
Forestry, Environment & Wildlife Department
Govt. of Khyber Pakhtunkhwa**



No.EPA/ND/ATD/IEE/CP/GRC/ 686

Dated: 1st August, 2022

GRC Crush Plant at Village Thobi Kiwai, Tehsil Balakot, District Mansehra, with the above mentioned terms and conditions.

17. This approval shall be treated as null and void if all or any of the conditions mentioned above is/are not complied with.

Dated: Abbottabad 1st August, 2022

Tracking File No.EPA/ND/IEE/CP/GRC/BHPP/ 686


**DIRECTOR (NORTH)
EPA, NORTHERN DIRECTORATE
CB-1118/1, GOSHT MARKET, SUPPLY,
ABBOTTABAD.**

CC:

1. Director General, Environmental Protection Agency, Peshawar.
2. Deputy Commissioner, District Mansehra

House No.CB-1118/1, Gosht Market, Supply, Abbottabad, Phone No. 0992-9310472 ~ 4 ~

Annexure B

EPC Contractor's Correspondences for NOCs

Nomination of Focal Person from Wildlife Department

Received to SS
Office of the DFO Wildlife
Mansehra
08-08-23

To
The Project Director
Balakot Hydro Power Project,
PEDO, Peshawar

No. WL(E) Dated Peshawar the 4/8 /2023

Subject: JOINT CONSULTATION MEETING ON BIODIVERSITY ACTION PLAN (BAP) OF BALAKOT HYDROPOWER PROJECT (300MW)..

Reference: Project Director Balakot HPP, PEDO, Pesh letter No. 134-137/PEDO/PD Balakot HPP 2023-24/764 dated: 26-07-2023.

Please refer to above and it is to inform you that Syed Sarmad Hussain Shah, Divisional Forest Officer Wildlife (BPS-18) Mansehra Wildlife Division of this department is hereby nominated as focal person on the subject matter to coordinate with the project team of Balakot Hydropower Project. His particulars are as under for your reference.

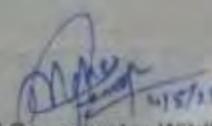
#	Name	Designation	Department	Contact Number	Email Address	Whether hostel facility is required?
2	Syed Sarmad Hussain Shah	Divisional Wildlife Officer (BPS-18)	KP Wildlife Department	03427470763	mansehra.wildlife@peshawar.com	Yes

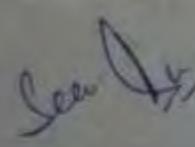
Chief Conservator Wildlife
Khyber Pakhtunkhwa
Peshawar

No. 1150-51 /WL(E)

Copy forwarded for information & necessary action to the :-

1. Conservator Wildlife Hazara Circle, Abbottabad.
2. Divisional Forest Officer Wildlife Mansehra. He is requested to coordinate with the project team and report accordingly.


 Chief Conservator Wildlife
 Khyber Pakhtunkhwa
 Peshawar



NOC from Fisheries Department



**OFFICE OF THE
DEPUTY DIRECTOR FISHERIES
MANSEHRA**
Phone & Fax No#0997-381422
Email:-fisheries_mansehra@yahoo.com

No 2084 DDF/M Dated 16/06/2021

To, /

The Project Director
Balakot HPP (300MW)
PEDO, Peshawar

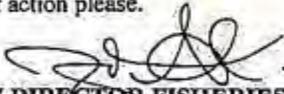
Subject: - **NON OBJECTION CERTIFICATE (NOC) AND COMMENTS ON E-FLOW
FROM THE FISHERIES DEPARTMENT FOR BALAKOT
HYDROPOWER PROJECT (300MW)**

Reference your office letter No. 337/PEDO/PD/BHPP/Envl Vol-1 dated 21/05/2021 regarding issuance of NOC from the department.

After downloading your documents from Asian Development Bank website its throughout study this office is ready to issue NOC subject to the following conditions.

1. The department has no issue with the E-Flow i.e 6.1 cumec.
2. As per last discussion with the Deputy Director Environment PEDO, wherein it was decided that the project will establish a fish bio-diversity center in the project area or adjacent to it for the propagation of affected species and their replenishment in the natural water bodies. The area and feasibility will be decided by the departmental committee upon start of the project.
3. The watch & ward of the project area during the project period will be the responsibility of BHPP and also the staff to be hired/recruited and will be supervised by Fisheries Department.
4. The BHPP will also ensure the implementation of the bio-diversity action plan in its fullest form & spirit in consultation/coordination with the Fisheries Department Khyber Pakhtunkhwa.

Submitted for information and further course of action please.



**DEPUTY DIRECTOR FISHERIES
MANSEHRA**

CC:-

The Director General Fisheries Khyber Pakhtunkhwa Peshawar.



**DEPUTY DIRECTOR FISHERIES
MANSEHRA**

NOC from Forest Department



GOVERNMENT OF KHYBER PAKHTUNKHWA
FORESTRY, ENVIRONMENT & WILDLIFE DEPARTMENT

No: SO (Tech)/FE&WD/V-427/2021/PC
DATED PESHAWAR THE, 06/07/2021

To

The Director General,
Environmental Protection Agency,
Khyber Pakhtunkhwa, Peshawar.

Subject: - NO OBJECTION CERTIFICATE (NOC) FROM THE FOREST DEPARTMENT FOR BALAKOT HYDROPOWER PROJECT (300 MW).

I am directed to refer to Chief Conservator of Forests, Northern Forest Region-II, Abbottabad letter No.90/GB dated 02/07/2021 addressed to this department and copy to others as well as to your good office on the subject cited above and to say that as reported by Chief Conservator of Forests-II vide letter under reference that issuance of NOC from Forest Department is irrelevant as the depth of land measuring 4-5 km underneath the proposed tunnel (passing 1.3 km under Paras Guzara Compartment No.3 and Kawai Guzara Compartment No.2) will pass far away the maximum possible depth of root system of any tree species. Therefore, there is no chance of disturbance to any vegetation and soil cover of the land;

Provided that no deviation shall be made in the project design and the designated forest/trees shall not be disturbed at any cost, please.

(Muhammad Alam Zeb)
Section Officer (Tech)

Endst: No: & Date even

Copy forwarded for information to:

1. Chief Conservator of Forests, Central Southern Forest Region-I, Peshawar w/r to Chief Conservator of Forests-II letter No. quoted above.
2. Chief Conservator of Forests, Northern Forest Region-II, Civil Line Forest Offices, Abbottabad w/r to his letter No. quoted above.
3. PS to Secretary, Forestry, Environment & Wildlife Department Khyber Pakhtunkhwa.
4. PS to Secretary, Energy & Power Department Khyber Pakhtunkhwa.
5. PS to CEO, PEDO, Peshawar.

Section Officer (Tech)

Scanned with CamScanner

NOC for KDA for Solid Waste Disposal

**GOVT. OF KHYBER PAKHTUNKHWA**
TOURISM, CULTURE, ARCHAEOLOGY, & MUSEUMS DEPARTMENT
KAGHAN DEVELOPMENT AUTHORITY (KDA)
MANSEHRA
Ph No. 0997-302115 E-Mail: directorgeneralkda@gmail.com

No. 21503 /KDA/acknowledgement Dated: 11/08/2023

ACKNOWLEDGEMENT

It is acknowledged that CGGC camp II at Ghanool, tehsil Balakot, District Mansehra, containing 53x rooms, has entered into an agreement with Kaghan Development Authority Mansehra for collection & disposal of kitchen waste / house hold from the camp site to KDA's dumping ground at Malkandi for a period of 1 year starting from 1st July 2023.


DEPUTY DIRECTOR (ADMIN)
KAGHAN DEVELOPMENT AUTHORITY
MANSEHRA

Distribution:

1. Mr. Moazzam Ali, EPI ,Kaghan Development Authority Mansehra.
2. Office Record.

Application for NOC for Medical Waste Disposal



中国葛洲坝集团股份有限公司
 CHINA GEZHOUBA GROUP COMPANY LIMITED



Ref. No: DHO-2023-001

Date: 28th March 2023

To: District Health Officer
Manshera Khyber Pakhtunkhwa:

PROJECT: DESIGN SUPPLY AND INSTALLATION, TESTING AND COMMISSIONING OF BALAKOT HYDRO POWER PROJECT INCLUDING THE RELATED CIVIL WORKS FOR RIVER DIVERSION

SUBJECT: APPLICATION FOR MEDICAL WASTE MANAGEMENT

Dear Sir,

Reference to the subject captioned above CGGC-GRC-JV wants to used incinerator presents in Government hospital to dump our medical waste, so for that purpose we requesting you to allow us and gave us an NOC for our documentational requirement, please let us know the criteria of issuing NOC as well as waste management, we are looking forward to your prompt response, your early response will be highly appreciated.

With Profound Regards!

Mr. WANG YANWEI
Authorized representative of CGGC-GRC JV

30/3/23

巴基斯坦伊斯兰堡 F6/1 区 30 街 2 号
 Islamabad Office: House No 2, Street No 30, F6/1, Islamabad, Pakistan
 Tel: +92-51-8746578 / Fax: +92-51-8746579 Email: CGGCRCJV@163.com

Annexure C

ATTENDANCE SHEET OF HSE PROGRESS REVIEW METINGS

Attendance Sheet HSE Trainings/TBTs

300 MW BALAKOT HYDROPOWER PROJECT

TBTs Attendance Sheet

Date: 24-01-2024

Brief Description of TBTs: HSE TBTs conducted for Dam Safety inside Area A2 about Fire Safety, Standard Emergency plan

TBTs Conducted By: M. AJMAL Location: CPH 2 Signature: [Signature]

Sr. No	Name of Trainee	Designation	Signature	Remarks
1	Baman	DM/Kong work	[Signature]	Good
2	Shabeer	"	[Signature]	
3	Asif	"	[Signature]	
4	Faisal	"	[Signature]	
5	Atif	"	[Signature]	
6	Saqib	"	[Signature]	
7	Shaukeel	"	[Signature]	Good/Nil
8	Abrar	"	[Signature]	
9	Nazim/At Khan	"	[Signature]	
10	Hafeez	Foreman	[Signature]	
11	Baber	Foreman	[Signature]	
12	Mahammad Atif	concrete	[Signature]	
13	Faisal Khan	"	[Signature]	
14	Shahid	"	[Signature]	Good/Nil
15	Naveed	"	[Signature]	
16	Akmal Hussain	"	[Signature]	
17	Mehran Ahsan	"	[Signature]	
18	Tauqeer	"	[Signature]	
19	Jahangeer	Labour	[Signature]	
20	Hameed	"	[Signature]	
21	Baber	"	[Signature]	
22	Zahar	DM/Kong work	[Signature]	
23	Altaf	"	[Signature]	
24	Mazhar Khan	"	[Signature]	

TBTs Attendance Sheet

Date: 2024/02/14

Brief Description of TBTs: HSE Culture (TBTs) Regarding work at height + Falling objects + Working Environment + confined space Data Record

TBTs Conducted By: M. AJMAL Location: A-2 Signature: [Signature]

Sr. No	Name of Trainee	Designation	Signature	Remarks
1	M-Baber	Foreman	[Signature]	Good/N
2	Bkeshon	Foreman	[Signature]	Good/N
3	Tahid	Skilled	[Signature]	Good/N
4	Jhangeer	"	[Signature]	Good/N
5	Khurshed	"	[Signature]	Good/N
6	Abdul Rehman	"	[Signature]	Good/N
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9

SHOT ON OPPO

300 MW BALAKOT HYDROPOWER PROJECT

TBTs Attendance Sheet

Date: 19-02-2024

Brief Description of TBTs: HSE (TBT) Regarding manual crane use carefully and to follow safety rules for working at height and use of double (30)

TBTs Conducted By: M. AJMAL Location: A2 Signature: [Signature]

No.	Name of Trainee	Designation	Signature	Remarks
1	Babar Hussain	Foreman	[Signature]	Nice
2	Abdul Hafeez	Director	[Signature]	}
3	ATIF KHAN	"	[Signature]	
4	Zameer	"	[Signature]	
5	ASIF	"	[Signature]	
6	Shakeel Ali	"	[Signature]	
7	ALHAZ KHAN	"	[Signature]	
8	Safar	"	[Signature]	
9	Abbas	"	[Signature]	
10	AZHAR KHAN	"	[Signature]	
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Annexure D

GRC COMMITTEES NOTIFICATIONS



PEDO
PAKHTUNKHWA ENERGY DEVELOPMENT ORGANIZATION
GOVERNMENT OF KHYBER PAKHTUNKHWA



Dated Peshawar the 03 /01/2022

NOTIFICATION

No. 38-42 /PEDO/CEO/216 The Competent Authority is pleased to notify the attached Grievance Redress Mechanism (GRM) & Grievances Redress Committees (GRCs) at Village level and at Project level for 300MW Balakot Hydropower Project District Mansehra for implementation in true letter & spirit.

The attached GRM is for compliance for 300MW Balakot HPP Project, PEDO.

-Sd/-
 Chief Executive Officer
 PEDO, Peshawar.

Endst. No. & Date as above.

Copy forwarded for information to:-

1. The Chief Engineer (Development/Plan), PEDO, Peshawar.
2. The Director (P&F) PEDO, Peshawar.
3. The Project Director Balakot HPP (300 MW) District Mansehra
4. PS to CEO PEDO, Peshawar.
5. PA to Director (Admn/HR) PEDO, Peshawar.

Assistant Director (Admin),
 PEDO, Peshawar

1 GRIEVANCE REDRESS MECHANISM (GRM)

1. The Pakhtunkhwa Energy Development Organization (PEDO) being carrying out the construction of Balakot Hydropower Development Project (300MW), in District Mansehra of Khyber Pakhtunkhwa (KP), Pakistan, as an Engineering, Procurement and Construction (EPC) Contract, through a proposed loan from Asian Development Bank (ADB) and Asian Infrastructure Investment Bank (AIIB).
2. The Balakot Hydropower Project (300 MW) is category "A" Project as per ADB safeguard criteria, for which a detailed Grievance Redress Mechanism (GRM) has been developed with the aim to mediate conflicts and response to complaints related to environment and social performance of the project. GRM also provide a forum to general public/community who might believe that they are adversely affected by the ADB/AIIB financed project.
3. The proposed GRM is consist of two-tier Grievance Redress Committees (GRCs) i.e., at village level and at Project level. In both the GRCs, the Project area community represented by the villager's nominated representatives. Having members based in the village, the village-level GRC is helpful in swift resolution of the grievance(s) without indulging in lengthy documentation/legal proceedings. The local participation further build local capacity in dispute resolution and decision-making and provide leadership support in the implementation of the Project.
4. Cases, which are not satisfactorily resolved or affected persons remain aggrieved, the case then forwarded to the Project-level GRC as the prime floor for resolution of the grievances.
5. However, if any disputant remains dissatisfied with the GRC decision/resolution the disputant can seek redress from a court of law.

1.1 Composition of Grievance Redress Committees

6. Under the current arrangements, two village level GRCs have been formed i.e. One at Paras (Dam Site), and the other at Sangar (Powerhouse/Colony Site). Following is the composition of the Village and the Project level GRCs.

Table 11.1: Grievance Redress Committee at Paras (Dam Site)

S/No	Organization	Member
1	Pakhtunkhwa Energy Development Organization (PEDO)	Deputy Director Social & Resettlement (Chair Person)
2	Pakhtunkhwa Energy Development Organization (PEDO)	Deputy Director Environment, and Gender (Member)
2	Revenue Department	Concerned Patwar (Member)
3	DamSiteCommunity	Person Nominated by the Community

Grievance Redress Committee at Sangar

S/No	Organization	Member
1	Pakhtunkhwa Energy Development Organization (PEDO)	Deputy Director Social & Resettlement (Chair Person)
2	Pakhtunkhwa Energy Development Organization (PEDO)	Deputy Director Environment, and Gender (Member)

Consultancy Services for 300 MW Balakot HPP
Land Acquisition and Resettlement Plan

INTERNAL. This information is accessible to ADB Management and staff. It may be shared outside ADB with appropriate permission.

3	Revenue Department	Concerned Patwari (Member)
4	Powerhouse/Colony/Site Community	Person Nominated by the Community

Grievance Redress Committee Project level

S/No	Organization	Member
1	Pakhtunkhwa Energy Development Organization (PEDO)	Project Director (Chair Person)
2	Revenue Department	LAC or LAC's Representative
3	Powerhouse/Colony/Site Community	Two persons Nominated by the Community (One each from Dam and Powerhouse/ Colony Site Villages) *

*The community representation in the Project level GRC shall not be the same as that of the village level GRC.

1.2 GRC's Scope of Work

7. The scope of work of the GRC include the following:
- i. The village GRC ensures that all grievances related to social and environmental issues are registered, formally recorded, reviewed, resolved and the concerned person is informed in a timely manner.
 - ii. The Project GRC monitor the working of the village GRC and work as a forum for appeal against the decision of the village GRC.
 - iii. GRC-at any level- not consider complaints related to the procurements or with any matters pending in the court of law.
 - iv. In resolving the disputes, the GRCs take into consideration the following:
 - Merit of the complaints/case received for consideration;
 - Evidences to take a decision on the complaint;
 - Witness statements;
 - Plausibility of the case in the light of related project activity;
 - Applicable laws, environmental guidelines of Pakistan, initial environmental examination and environmental review document of the project, and ADB/AIIB environmental guidelines;
 - Observations made on the field; and
 - Available information on previous complaints of similar nature.

1.3 Orientation of GRC Members

8. All GRC members attend a training and orientation meeting prior to commencement of their work. The training is provided by competent technical experts in social/resettlement and environmental management. The training addressed the policy aspects, compliance requirements, expectations of the community, and need for rapport and communication with the affected communities, and finally need for independence and transparent views in dealing with grievances.

1.4 Grievance Redress Procedure

*Consultancy Services for 300 MW Belakot HPP
Land Acquisition and Resettlement Plan*

INTERNAL. This information is accessible to ADB Management and staff. It may be shared outside ADB with appropriate permission.

9. Following procedure is adopted to resolve grievances received by the GRCs.

1.5 Filing of Grievances to Village GRC

10. For grievances related to social and environmental safeguards, the aggrieved person (or their authorized representatives) may file a grievance with the village-level GRC in one of the following ways:

- i. Submit a written complaint to any member of the village GRC
- ii. Given the local cultural context, any aggrieved women may submit complaints to GRCs directly or through the head of the household.

11. For complaints registration, Complaint Registration Forms are available with the secretary of the village level GRCs and complaints are registered on Grievance Log.

1.6 Hearing and Resolution of the Cases by Village GRC

12. The procedure for hearing and resolution of the complaint are follows.

- i. On receipt of a complaint:
 - Secretary of village GRC log the complaint in a register called Complaint Register.
 - Contact other members of the GRC to conduct a meeting within 10 calendar days of the logging of the complaint.
 - If needed, request the complainant or his/her representative to meet the Village GRC on the appointed date to discuss his/her complaint.
 - Prepare all the relevant information and document relevant to the complaint prior to the meeting and provide copies to all members.
- ii. The GRC meet on the appointed date during which it may:
 - Deliberate on the nature and circumstances of the complaint;
 - Investigate the complaint based on evidence provided by the complainant;
 - Meet with the complainant and other persons;
 - Visit the site; and
 - Take a decision.
- iii. If the GRC needs extra time to investigate or deliberate on the complaint, the secretary informs the complainant of the time when a decision is expected. In any case, all complaints shall be resolved within 30 calendar days of logging.
- iv. Once the complaint is resolved, the secretary document the decision and prepare full documentation on the process including minutes of meeting, photographs of visits, documents reviewed, and reasons of the decision.

- v. The GRC ensure that the complainant is fully informed of the decision and is also informed about his/her right to appeal to the Project GRC and to the court of law at any point.
- vi. In case follow-up action is required, the chairperson of the village GRC ensure that the actions are taken and are documented.

1.7 Hearing and Resolution of the Cases by Project GRC

13. The procedure for hearing and resolution of the complaint by the Project GRC will be as follows.

- i. On receipt of a complaint from:
 - Secretary of Project GRC request all the concerned documentation from the secretary of the concerned village GRC.
 - Contact other members of the Project GRC to conduct a meeting within 15 calendar days of the logging of the complaint to the Project GRC.
 - If needed, request the complainant or his/her representative to meet the Project GRC on the appointed date and place to discuss his/her complaint.
 - If needed, request the members of the village GRC to meet the Project GRC on the appointed date and place.
 - Prepare all the relevant information and document relevant to the complaint prior to the meeting and provide copies to all members.
- ii. The Project GRC meet on the appointed date during which it may:
 - Deliberate on the nature and circumstances of the complaint;
 - Investigate the complaint;
 - Meet with the complainant and other persons;
 - Visit the site; and
 - Take a decision.
- iii. If the GRC needs extra time to investigate or deliberate on the complaint, the secretary informs the complainant of the time when a decision is expected. In any case, all complaints shall be resolved in 45 calendar days of logging with the Project GRC.
- iv. Once the complaint is resolved, the secretary document the decision and prepare full documentation on the process including minutes of meeting, photographs of visits, documents reviewed, and reasons of the decision.
- v. The GRC ensure that the complainant is fully informed of the decision and is also informed about his/her right to appeal to the court of law.
- vi. In case follow-up action is required; the chairperson of the Project GRC ensure that the actions are taken and are documented.

*Consultancy Services for 300 MW Balakot HPP
Land Acquisition and Resettlement Plan*

INTERNAL. This information is accessible to ADB Management and staff. It may be shared outside ADB with appropriate permission.

1.8 GRM Related Information and Documentation

14. The PIU ensure that it receives copies of all complaints, meeting notices, decisions, and documentations related to proceedings of the village and Project GRCs.

15. The PIU maintain complete record of the complaints in a database or tabular form consisting of the following fields.

- i. Project name.
- ii. Village, union council, tehsil, and district.
- iii. Name of complainant.
- iv. Nature of complaint like environment (trees cutting, Noise, Dust, Waste, Air– Water– Soil Pollution etc.), social (damage to infrastructure, land, privacy, Favoritism/Nepotism issues, etc.), Gender (gender equality, empowerment, privacy etc.) and non–compliance to the Govt. /Donor provided guidelines.
- v. Date of logging of complaint with village GRC.
- vi. Date of first meeting of village GRC.
- vii. Information on members attended, number of meetings, meeting with complainant, and site visit.
- viii. Date of decision of village GRC.
- ix. Follow–up actions, responsibilities, and completion with dates.
- x. Date of logging of complaint with Project GRC.
- xi. Date of first meeting of Project GRC.
- xii. Information on members attended, number of meetings, meeting with complainant, and site visit.
- xiii. Date of decision of Project GRC.
- xiv. Follow–up actions, responsibilities, and completion with dates.
- xv. The PMU will prepare periodic report on the GRM reporting on, for example:
- xvi. Number of complaints received and resolved by village GRC, Project GRC and nature of complaint;
- xvii. The average time of it took to resolve the complaint; and
- xviii. The fraction to complaints that were resolved at the village GRC level.

The Notification of GRM as attached as **(Appendix-N Volume -02)**

Annexure E

COPY OF THE KUNHAR RIVER WATERSHED COMPLAINT

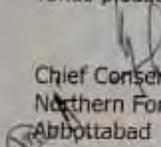
CHIEF CONSERVATOR OF FORESTS Northern Forest Region-II		Civil Line Forest Offices Abbottabad 0992-9310410 Fax 0992-9310343 E-mail: ccfnorth@gmail.com
No. <u>3239</u> /B&A dated Abbottabad the <u>12</u> October/2023		

The Project Director
 PEDO Hydro Power Project

Subject: **FINAL REMINDER FOR DAMAGE DONE TO THE PLANTATION SITES BY THE CONSTRUCTION ACTIVITIES OF GRC & CGGC UNDER PEDO**

Memo: Reference DFO Kunhar Watershed Division Mansehra letter No.309-13/KWM dated 04.10.2023

Please refer to the letter cited above and it is requested to direct the GRC Company and CGGC Company (contractors) to avoid any kind of damage to afforestation and badland etc as a huge amount has been spent on execution of these activities out of BTTP/10-BTTP funds please.


 Chief Conservator of Forests
 Northern Forest Region-I
 Abbottabad

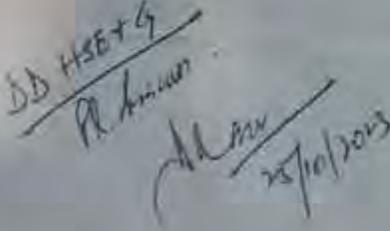
No. /B&A

Copy with reference to DFO Kunhar Watershed Division Mansehra letter cited above forwarded to:

1. The Conservator of Forests Watershed Management Circle Abbottabad for information and necessary action.
2. The Divisional Forest Officer Kunhar Watershed Division Mansehra for information and necessary action. He is directed to keep strict watch over the working of contractors to avoid any sort of damage to the BTAP/10-BTAP assets.

Chief Conservator of Forests
 Northern Forest Region-I
 Abbottabad

Dated: 25-10-23


 SB HSE+S
 R. Anwar
 25/10/2023

☎ 0997-381001 ☎ Fax: 0997-381001		OFFICE OF THE DIVISIONAL FOREST OFFICER KUNHAR WATERSHED DIVISION MANSEHRA
No. <u>959</u> /KWM dated <u>Mansehra</u> the <u>11</u> / 01 / 2023		

To

The Project Director
PEDO Balakot Hydro Power Project.

Subject:- **DAMAGE TO PLANTATION SITES.**

Memo:-

It is submitted that Mr. Fawad Ahmed Forest Guard of Balakot Watershed Range has reported vide his application dated 20.12.2022 duly forwarded by the concerned Range Forest Officer, Balakot Watershed Range (Copy enclosed) that the construction of Audit Tunnel road and other works by CGGC at Kholian Ghanool is in progress due to which plantation activities carried out under BTAP/10BTAP is badly suffering. Kail, Chir, Deodar and other species of plants are damaging on daily basis and Government is sustaining huge losses. The concerned authority has badly failed to obtain necessary NOC from Forest Department (Kunhar Watershed Division Mansehra).

The Range Forest Officer along with his staff has already held meeting with the concerned officer of CGGC on 3.1.2023 both on the site and Head Quarter at Shohal as well.

You are requested to stopped the construction works and obtained an NOC from Kunhar Watershed Division Mansehra accordingly as well as in order to compensate the damage of planting site till date.


 Divisional Forest Officer
 Kunhar Watershed Division
 Mansehra

No. /KWM,

Copy forwarded to the:-

1. The Chief Conservator of Forests, Northern Forest region-II Abbottabad.
2. The Conservator of Forests, Watershed Management Circle Abbottabad.
3. The Deputy Commissioner Mansehra.

For information and necessary action please.

Divisional Forest Officer
Kunhar Watershed Division
Mansehra

DD Kind-3 / DTL

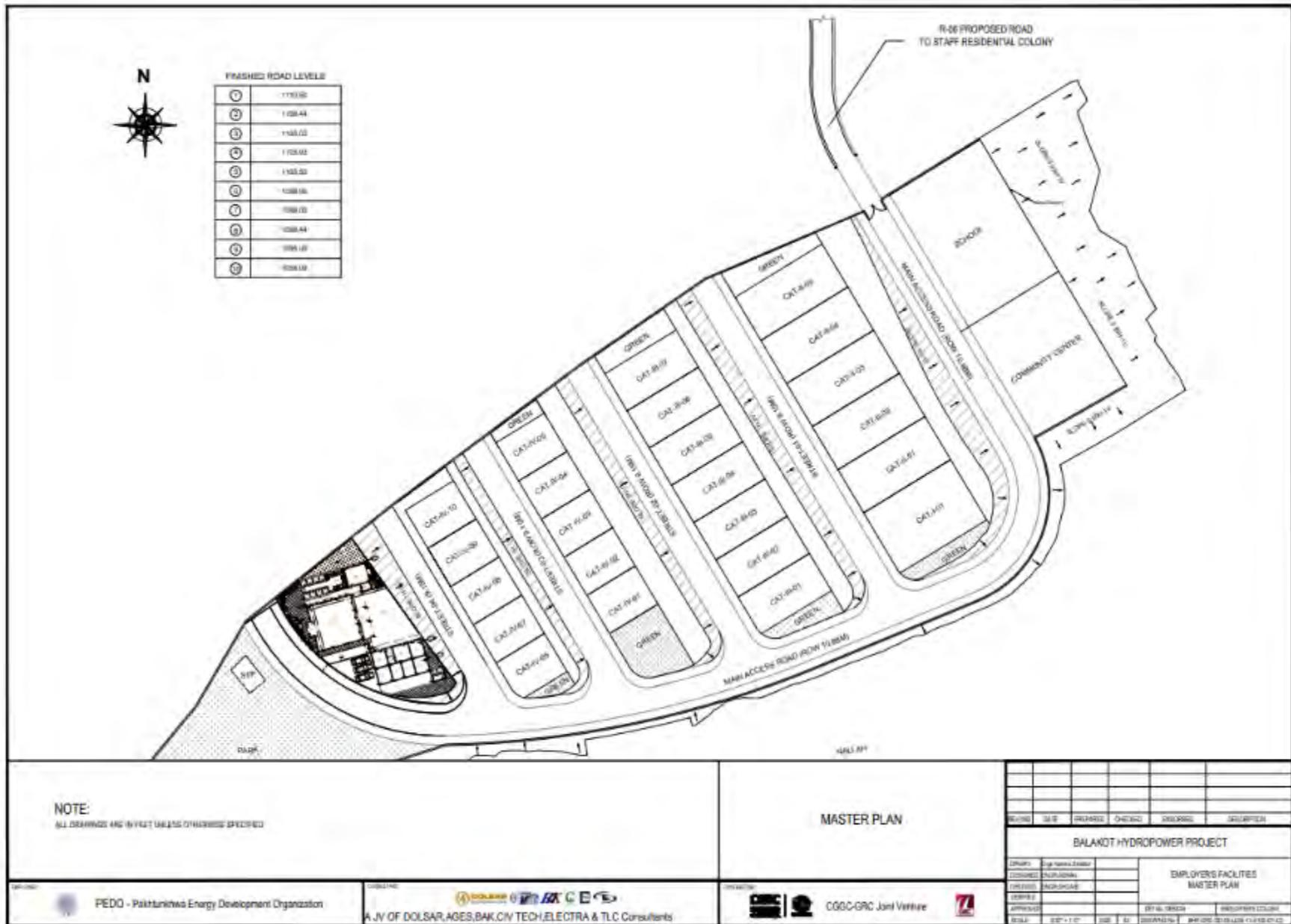
Pl. address the issue
 got answers with the concerned
 Forest staff.

[Signature]
 18/01/2023

Project Director Balakot
 Diary No. 384
 Dated: 18-01-2023

Annexure F

Layout Plan of Staff Residential Colony



ANNEXURE-F

Annexure G

Environmental Monitoring Checklist

External Environmental Monitoring Checklist

Inspection Items	Implemented?			Remarks (i.e. specify location, good practices, problem observed, possible cause of nonconformity and/or proposed corrective/preventative actions)
	Yes	No*	N/A	
1.Permits and Approvals				
EIA and Permits				
Have EIA reports been already prepared in official process?				
Have EIA reports been approved by ADB and KP EPA?				
Have EIA reports been unconditionally approved? If conditions are imposed on the approval of EIA reports, are the conditions satisfied?				
In addition to the above approvals, have other required environmental permits been obtained from the appropriate regulatory authorities of the host country's government?				
Is project SSEMP approved and issued to contractors				
Are other approvals from KP Fisheries, wildlife and irrigation departments has been obtained.				
Explanation to the Local Stakeholders				
Have contents of the project and the potential impacts been adequately explained to the Local stakeholders based on appropriate procedures, including information disclosure? Is understanding obtained from the Local stakeholders?				
Have the comment from the stakeholders (such as local residents) been reflected to the project design?				
Alternative Analysis				
Have alternative plans of the project been examined with social and environmental considerations?				

Inspection Items	Implemented?			Remarks (i.e. specify location, good practices, problem observed, possible cause of nonconformity and/or proposed corrective/preventative actions)
	Yes	No*	N/A	
2. River Water Quality				
Does the water quality of dam pond/reservoir comply with the country's ambient water quality standards? Is there a possibility that proliferation of phytoplankton and zooplankton will occur?				
Does the quality of water discharged from the dam pond/reservoir comply with the country's ambient water quality standards?				
Are adequate measures, such as clearance of woody vegetation from the inundation zone prior to flooding planned to prevent water quality degradation in the dam pond/reservoir?				
Is there a possibility that reduced the river flow downstream will cause water quality degradation resulting in areas that do not comply with the country's ambient water quality standards?				
Is the discharge of water from the lower portion of the dam on reservoir (the water temperature of the lower portion is generally lower than the water temperature of the upper portion) planned by considering the impacts to downstream areas?				
3. Ecosystem				
Does the project site encompass primeval forests, tropical rain forests, ecologically valuable habitats (e.g., coral reefs, mangroves, or tidal flats)?				
Does the project site encompass the protected habitats of endangered species designated by the country's laws or international treaties and conventions?				
Is there a possibility that the project will adversely affect downstream aquatic organisms, animals, plants, and ecosystems?				

Inspection Items	Implemented?			Remarks (i.e. specify location, good practices, problem observed, possible cause of nonconformity and/or proposed corrective/preventative actions)
	Yes	No*	N/A	
Are adequate protection measures taken to reduce the impacts on the ecosystem?				
Is there a possibility that installation of structures, such as dams will block the movement of the migratory fish species (such as salmon, trout and eel those move between rivers and sea for spawning)?				
Are adequate measures taken to reduce the impacts on these species?				
4. Hydrology				
Is there a possibility that hydrologic changes due to the installation of structures, such as weirs will adversely affect the surface and groundwater flows (especially in "run of the river generation" projects)?				
5. Topography and Geography				
Is there a possibility that reductions in sediment loads downstream due to settling of suspended particles in the reservoir will cause impacts, such as scouring of the downstream riverbeds and soil erosion? Is there a possibility that sedimentation of the reservoir will cause loss of the storage capacity, water logging upstream, and formation of sediment deposits at the reservoir entrance?				
Are the possibilities of the impacts studied, and adequate prevention measures taken?				
Is there a possibility that the project will cause a large-scale alteration of the topographic features and geologic structures in the surrounding areas (especially in run of the river generation projects and geothermal power generation projects)?				
6. Air Pollution Control				
Are the construction sites watered to minimize dust generated?				
Are stockpiles of dusty materials (size with more than 20 bags cement) covered or watered?				

Inspection Items	Implemented?			Remarks (i.e. specify location, good practices, problem observed, possible cause of nonconformity and/or proposed corrective/preventative actions)
	Yes	No*	N/A	
Cement debagging process undertaken in sheltered areas				
Are all vehicles carrying dusty loads covered/watered over prior to leaving the site?				
Are demolition work areas watered? (e.g. trimming activities by using breaker)				
Are dusty roads paved and/or sprayed with water?				
Are dust controlled during percussive drilling or rock breaking?				
Are plant and equipment well maintained? (any black smoke observed, please indicate the plant/equipment and location)				
Is dark smoke controlled from plant?				
Are there enclosures around the main dust-generating activities? (e.g. grout mixing)				
Hoarding (not <2.4m) provided along boundaries and properly maintained (any damage / opening observed, please indicate the location).				
Are speed control measures applied? (e.g. speed limit sign)				
Others (please specify)				
7. Water Pollution Control				
Are water discharge licenses valid?				
Are conditions of the license compiled with? (check the monitoring records and observe physically)				
Are wastewater treatment system being used and properly maintained on site? (e.g. desalting tank)				
Are there any wastewater discharged to the storm drains? Is the wastewater being treated?				
Are measures provided to properly direct effluent to silt removal facilities? (e.g. provide earth bunds / U-channels)				
Are u-channels and manholes free of silt and sediment?				

Inspection Items	Implemented?			Remarks (i.e. specify location, good practices, problem observed, possible cause of nonconformity and/or proposed corrective/preventative actions)
	Yes	No*	N/A	
Are sedimentation traps and tanks free of silt and sediment?				
Are all manholes on-site covered and sealed?				
Are sandbags/earth bund adopted to prevent washing away of sand/silt and wastewater to drains, catch pit, public road and footpath?				
Are vehicles and plants cleaned before leaving the site?				
Are wheel washing facilities well maintained to prevent overflow, flooding sediment?				
Is sand and silt settled out in wheel washing bay and removed?				
Is the public road/area around the site entrance and site hoarding kept clean and free of muddy water?				
Is domestic water directed to septic tanks or chemical toilets?				
Others (please specify)				
8. Noise Control				
Is the CNP (Construction Noise Permit) valid for work during restricted hours?				
Are copies of the valid Construction Noise Permits posted at site entrance/exit?				
Do air compressors and generators operate with doors closed?				
Is idle plant/equipment turned off or throttled down?				
Do air compressors and hand-held breakers have valid noise emission labels (NEL)?				

Inspection Items	Implemented?			Remarks (i.e. specify location, good practices, problem observed, possible cause of nonconformity and/or proposed corrective/preventative actions)
	Yes	No*	N/A	
Any noise mitigation measures adopted (e.g. use noise barrier / enclosure)?				
Are silenced equipment's utilized?				
Others (please specify)				
10. Waste Management				
Is the site kept clean and tidy? (e.g. litter free, good housekeeping)				
Are separate chutes used for inert and non-inert wastes?				
Are separated labeled containers / areas provided for facilitating recycling and waste segregation?				
Are construction wastes / recyclable wastes and general refuse removed off site regularly?				
Are construction wastes collected and disposed of properly by licensed collectors?				
Are chemical wastes, if any, collected and disposed of properly by licensed collectors?				
Does chemical waste producer license covers all major chemical wastes produced on site?				
Are chemical wastes properly stored and labelled?				
Are oil drums and plants/equipment's provided with drip trays?				
Are drip trays free of oil and water?				
Is there any oil spillage? Clean-up the contaminated soil immediately?				
Is litter, foam or other objectionable matters in the nearby water drain/sewer cleaned?				
Are asbestos wastes handled by registered professionals?				
Others (please specify)				

Inspection Items	Implemented?			Remarks (i.e. specify location, good practices, problem observed, possible cause of nonconformity and/or proposed corrective/preventative actions)
	Yes	No*	N/A	
Are earth and sand generated by excavation properly treated and disposed of in accordance with the country's regulations?				
11. Storage of Chemicals and Blast Material				
Are chemicals stored and labeled properly?				
Does storage of blast material comply with license conditions (include types and quantities blast material is available)?				
Are proper measures to control oil spillage during maintenance or to control other chemicals spillage? (e.g. provide drip trays)				
Are spill kits / sand / saw dust used for absorbing chemical spillage readily accessible?				
Others (please specify)				
12. Protection of Flora, Fauna and Historical Heritage				
Is the project site located in protected areas designated by the country's laws or international treaties and conventions? Is there a possibility that the project will affect the protected areas?				
Are disturbance to terrestrial flora minimized (e.g. plants to be preserved)?				
Are disturbance to terrestrial fauna minimized (if rare species identified)?				
Any historical heritage exists on site? If yes, ensure appropriate measures taken to preserve it				
Others (please specify)				
13. Resource Conservation				
Is water recycled wherever possible for dust suppression?				
Is water pipe leakage and wastage prevented?				

Inspection Items	Implemented?			Remarks (i.e. specify location, good practices, problem observed, possible cause of nonconformity and/or proposed corrective/preventative actions)
	Yes	No*	N/A	
Are diesel-powered plants and equipments shut off while not in use to reduce excessive use?				
Are energy conservation practices adopted?				
Are metal or other alternatives used to minimize the use of timber?				
Are materials stored in good condition to prevent deterioration and wastage (e.g. covered, separated)?				
Are pesticides used under the requirement of Agriculture, Fishers and Conservation Department?				
Others (please specify)				
14. Emergency Preparedness and Response				
Are fire extinguishers / fighting facilities properly maintained and not expired? Escape not blocked / obstructed?				
Are accidents and incidents reported and reviewed, and corrective & preventive actions identified and recorded?				
Others (please specify)				
15. Review of Implemented Mitigation Measures				
Are adequate measures considered to reduce impacts during construction (e.g., noise, vibrations, turbid water, dust, exhaust gases, and wastes)?				
If construction activities adversely affect the natural environment (ecosystem), are adequate measures considered to reduce the impacts? (c) If construction activities adversely affect the social environment, are adequate measures considered to reduce the impacts?				
16. Monitoring Plan				

Inspection Items	Implemented?			Remarks (i.e. specify location, good practices, problem observed, possible cause of nonconformity and/or proposed corrective/preventative actions)
	Yes	No*	N/A	
Does the proponent develop and implement monitoring program for the environmental items that are considered to have potential impacts?				
What are the items, methods and frequencies of the monitoring program?				
Does the proponent establish an adequate monitoring framework (organization, personnel, equipment, and adequate budget to sustain the monitoring framework)?				
Are any regulatory requirements pertaining to the monitoring report system identified, such as the format and frequency of reports from the proponent to the regulatory authorities?				
17. Review of Environmental Records				
Are environmental records has been prepared and maintained?				
Are training/drills records has been prepared and maintained.				
Is resources utilization record in being maintained?				
Are necessary agreements for camp sites, borrow area sites, magazine camp and temporary access roads been signed and filed?				

Annexure H

PMC Correspondence to EPC Contractor

BALAKOT HPP CONSULTANTS

A JV of DOLSAR, AGES, BAK, CIV TECH, ELECTRA & TLC Consultants

Ref No: 1018/1573Date: January 18, 2024

Mr. Mao Yiling,
Authorized Representative,
CGGC-GRC JV.

SUBJECT: SUBMISSION OF VARIOUS REPORTS AND RECTIFICATION OF NON-COMPLIED ACTIVITIES.

Dear Sir,

In continuation of our previous correspondences and reminders thereof, following shall be ensured till the target dates mentioned against each item.

The items and target dates given herein are those contained in the SAEMR for the period from July to December 2023, shared with the PIU, ADB and AIIB. The items are mostly those repeatedly conveyed to the EPC Contractor for necessary actions, and are part and parcel of the Corrective Action Plan (CAP) furnished for the Project.

S/No	Issue	Required Action	Responsibility	Timing (Target Dates)
1	Establishment of fully equipped dispensary under the full-time charge of the PMDC registered medical doctor	<ul style="list-style-type: none"> i. Hiring full time services of the PMDC registered medical doctor. ii. Full time deployment of fully equipped ambulance. 	EPC Contractor	January 30, 2024
2	Initiation of Vocational Training for community	<ul style="list-style-type: none"> i. Finalization of list containing eligible candidates from the affected community. ii. Securing admission in the identified government approved institute. 	EPC Contractor	January 30, 2024 or the earliest available date for admission.
3	Obtaining No Objection Certificates (NOC) for medical waste	Follow up of the applications submitted for NOC.	EPC Contractor with the assistance of PIU	January 30, 2024.
4	Disposal of A-02 Camp kitchen effluent	Construction of filter/treatment facility	EPC Contractor	February 15, 2024
5	Providence record of springs identified in the headrace tunnel alignment or which	Identification of springs/underground water sources along the headrace	EPC Contractor	January 25, 2024.

Four Seasons Hotel, Near PTCL Exchange, Shohal Najaf Khan, Kaghan Road Balakot,
District Mansehra, Khyber Pakhtunkhwa, Pakistan
Tel: +92-997-360155

1/2

BALAKOT HPP CONSULTANTS

A JV of DOLSAR, AGES, BAK, CIV TECH, ELECTRA & TLC Consultants



S/No	Issue	Required Action	Responsibility	Timing (Target Dates)
	may potentially be affected by the underground excavation work.	tunnel/underground works.		
6	Approval of muck disposal sites	Submission of method statements for review and approval containing muck disposal sites details.	EPC Contractor	January 25, 2024.
7	Design of sedimentation tanks	The EPC Contractor required to address the PMC review comments and submit design of sedimentation tanks with sufficient details for the PMC review and approval thereof.	EPC Contractor	January 25, 2024.
8	Identification and hiring services of the government approved vendor(s) for disposal of hazardous materials.	EPC Contractor has to identify the approved vendor and shall share his credentials with the PMC prior to engaging such vendor.	EPC Contractor	January 30, 2024.

Submitted for your necessary actions on priority basis.

With Regards,

Deputy Team Leader
Balakot Hydropower Project

CC:

- Project Director / PEDO, Balakot Hydropower Project
- Team Leader / PMC, Balakot Hydropower Project

Annexure I

ADB Incident/Near Miss Reporting Form

INCIDENT / NEAR MISS REPORT	QUALITY RECORDS / FORMS	
	Doc. Level:	Doc. Version: I
	Doc. No:	

HS.T.02	INCIDENT / NEAR MISS REPORT	
Title of Project:		
Location:		Date:

Objective(s)
To implement immediate and effective process in order to provide immediate treatment against any fatality, injuries, Casualty.

SECTION A: TO BE COMPLETED BY PERSON INVOLVED (OR BY SUPERVISOR OR HEALTH AND SAFETY REPRESENTATIVE IF WORKER IS INCAPACITATED) AND BY THEIR SUPERVISOR																																																																																																				
Details of the person involved in the incident/near miss																																																																																																				
Employee #: _____	Site Address: _____ Work phone: _____																																																																																																			
Name: _____	Father Name: _____																																																																																																			
Position: _____	Date of birth: _____ <input type="checkbox"/> Male <input type="checkbox"/> Female																																																																																																			
Please select one: <input type="checkbox"/> Member <input type="checkbox"/> Client Member <input type="checkbox"/> Sub Contractor <input type="checkbox"/> Visitor/Other																																																																																																				
Details of the: <input type="checkbox"/> Incident <input type="checkbox"/> Near miss <input type="checkbox"/> Medical																																																																																																				
Date: _____	Time: _____ A.M /P.M																																																																																																			
City: _____	Location: _____																																																																																																			
Was the incident/near miss reported to your supervisor, immediately: <input type="checkbox"/> Yes <input type="checkbox"/> No																																																																																																				
Part of the body injured																																																																																																				
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