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 fourth Semi-Annual External Environmental Monitoring Report (SAEEMR) for the Balakot Hydropower Project (BHPP 300 megawatts) covering semester July-Dec, 2024.

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 Dec 2024.

3. Environmental compliance monitoring visit was carried out on 19-20 February, 2025 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 the reporting period, overall 13.83% physical progress achieved against the planned progress of 56.13%.

5. During the reporting period, civil works such as construction of Adits, head race tunnel, river diversions, main access tunnel, surge tunnel, construction of permanent staff residential colony, dam site, sub-base and sub-grade of permanent access roads (R3, R5 and R6), construction of toe walls on permanent access roads (R1, R3, R5 and R6), protection works and establishment of camp at power house site remained in progress.

6. Work on detailed engineering design, method statements, muck disposal sites, sedimentation tanks continued during reporting period.

7. PMC has submitted updated EIA for ADB/AIIB review in August 2024 on which comments received on October 31, 2024. After incorporation of ADB/AIIB comments, PMC re-submitted the revised EIA report to PIU on December 25, 2024 for further submission to ADB/AIIB for review and finalization.

8. During semester, ADB conducted mid-term review mission on October 10, 2024. Agenda of mission was progress review, environment portfolio progress (January to September 2024) review at the PEDO House in Peshawar. PIU and PMC presented the environmental safeguard progress to mission team. As part of MTR, mission team conducted field visit to BHPP construction sites and EPC camps dated October 16, 2024. Mission findings CAP was prepared and submitted to contractors for necessary implementation.

9. During reporting period, Under Basin wide BAP, PIU has recommended to hold activities until a consensus is developed with the prospective financiers of BAP. Previously matter

remained under discussion with ADB safeguard team and no larger consultation with financiers (i.e. Projects within Jehlum basin) was held by the PEDO owing to the fact those projects are not included in Indicative Generation Capacity Expansion Plan (IGCEP) by the KP government.

10. Under the Project specific BAP in the area of management, contracts with the Fisheries and Wildlife departments of the KP province will be signed upon the ADB/AIIB concurrence to the updated EIA report which is submitted in Dec, 2024.

11. During reporting semester, Project Management Consultant (PMC) granted approval for A2 & A3 muck disposal sites in November 2024. EPC contractor is in process of preparation of temporary access to muck disposal sites and work on method statement for muck disposal operation remained in progress. EPC contractor also identified a site for muck disposal site near downstream surge tunnel for which PMC has initiated due diligence process.

12. EPC contractor has imparted 3rd party external OHS training dated 27-28 Nov, 2024. Training was delivered by professional of Rescue 1122. EPC contractor also arrange training on blasting, operation of heavy machinery, and equipment at the site on 16 Nov, 2024 which was imparted by the trainers from Muzaffarabad Poly Technical Institute Azad Kashmir.

13. First six-month vocational training program for 18 students (7 males and 11 female) from the project-affected community was completed in October 2024.

14. Internal environmental monitoring reports on semi-annual basis were prepared by the PMC and accordingly ADB has cleared and disclosed these documents on the website. SAEMR of July-Dec, 2024 has been submitted to ADB for review and it will be disclosed once cleared.

15. As per requirements of ADB SPS, 2009, third party environmental monitoring contact is also in place and effective since July, 2022. Inception report, 1st External Environmental Monitoring (EEM) report covering the period of Jan-June, 2023 and 2nd EEM report covering July-Dec, 2023, 3rd EEM report covering period Jan-June, 2024 had been cleared and disclosed by ADB. This is the 4th EEM report covering period July-Dec, 2024.

16. In order to ensure compliance with KP EPA approval condition related to establishment of fish hatchery (‘’hh’’), PIU and PMC conducted meeting with officials of fisheries department on July 31, 2024. In this regard, Director General (DG) of the Fisheries Department submitted a proposal for the upgradation of existing Shino-Jared fish hatchery in Balakot instead of establishing the new hatchery in November, 2024. The proposal remained under discussion with fisheries head quarter and PIU till the end of reporting period.

17. An accident occurred at Headrace tunnel due to collapse of crown dated December 5, 2024. As a result, three workers got injured resulting in one fatality while other two labour were stable till the end of the reporting period.

18. 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, 2024 is provided in this EEM’s report to ensure safeguard compliance of BHPP as per ADB SPS, 2009.

19. EEM conducted field visits to all sites and recorded portfolio related observations on 19-20 February, 2025. 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.

20. 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.

21. A total of 46 environmental non-compliances of EMP/SSEMMP/BAP were recorded during monitoring period. About 12 non-compliances were minor, 30 moderate and 04 major non-compliances. Major non-compliances are; waste stabilization ponds are not constructed for tunnels, delay in establishment of muck disposal sites, improper dumping of muck cuttings near streams and septic tank constructed near stream at Adit-1. CAP to close out observed non-compliances is provided in this EEM report.

22. Implementation of SSEMP and EMP requirements at BHPP is an on-going process and capacity of contractors shall be increased though capacity building in form of formal and annual training sessions.

1.3 Acknowledgment

23. 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. Dedicated follow up on close of CAP shall be carried out by PMC/PIU to improve compliance level.

2 Project Description

2.1 Balakot Hydropower Development Project

24. 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.

25. 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.

26. 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 km^2 will be constructed. The gross storage capacity of reservoir at normal operating level is 3.56 (x106 m^3).
- **River diversion scheme** includes 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.
- **Powerhouse:** 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. The final tunnel 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.

27. 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 Coffer dam type	concrete gravity solution (which will be further converted to guiding structure)
Upstream Coffer dam crest elevation (masl)	1272.0
Downstream Coffer dam type	concrete gravity solution
Downstream Coffer dam 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 1 0
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 powerhouse 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

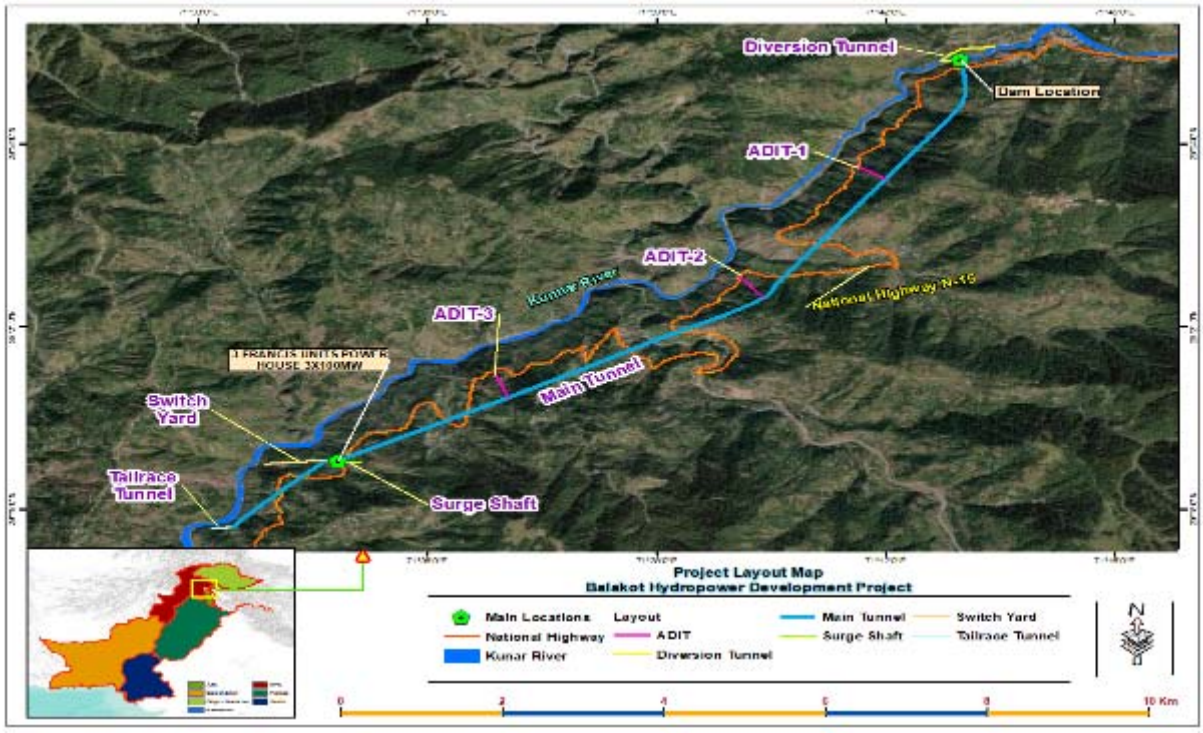
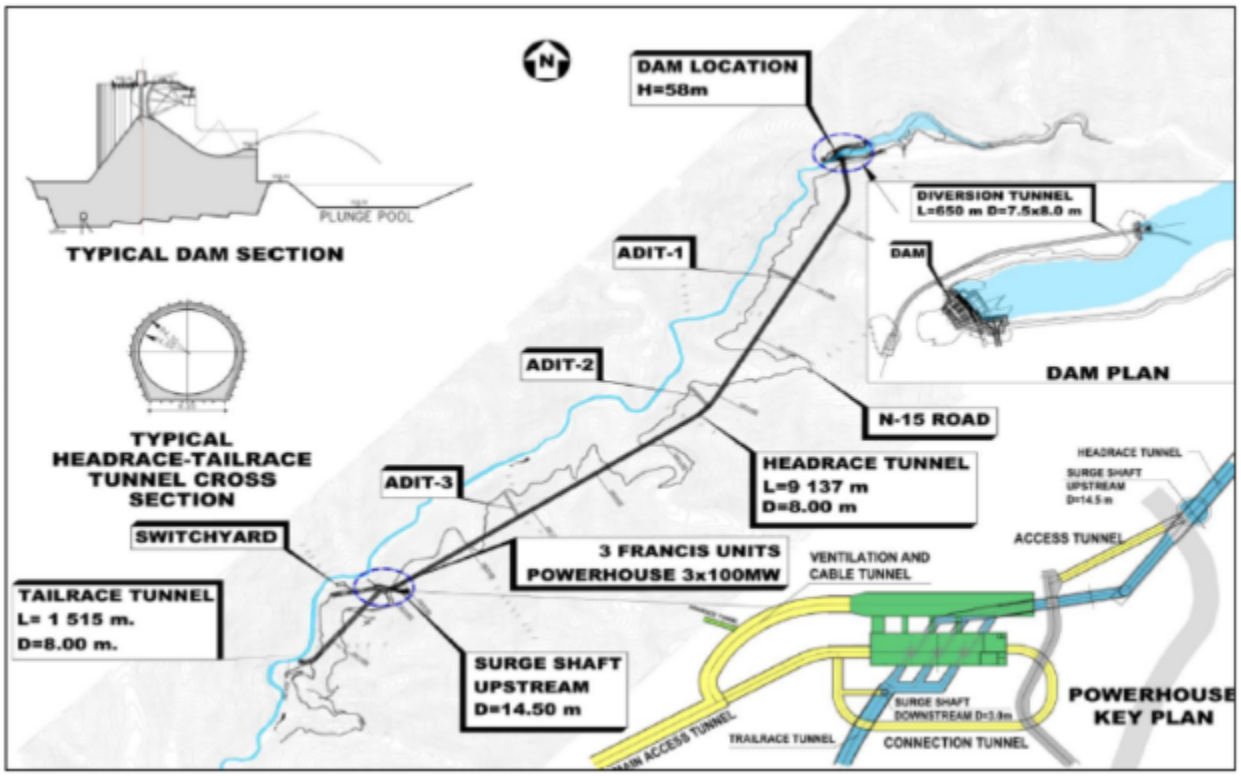


Figure 2-2: Schematic Layout Plan of BHPP



2.2 BHPP Project Area

28. 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

29. 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.

30. 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.

31. 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.

32. The expected project completion date is June, 2027. The expected loan closing date is December, 2027.

33. PEDO is the executing agency of the project and will execute the project through PIU established at Balakot.

34. 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.

35. The consultancy services have been 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”.

36. The EPC contract was awarded to a JV of CGGC China & GRC, Pakistan on March 9, 2021.

37. Consequent upon fulfillment of the requisite conditions of the EPC contract, the PEDO notified September 27, 2021 as an effective date for EPC contract.

38. During reporting semester, work on following project facilities continued upon issuance of work commencement to EPC contractor.

- Permanent access roads
- Permanent residential staff colony
- Camp facilities and Batching Plants
- Detailed design
- Headrace tunnel, Main access tunnel, Diversion Tunnel
- Adit Tunnels
- Dam site
- Diversion tunnel and power house site
- Reservoir area
- Muck disposal sites and sedimentation tanks

2.4 Environment Safeguards

39. 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.**

40. Based on the recommendations of ADB, an EIA update remained in progress 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. PMC has submitted updated EIA for ADB/AIIB review in August 2024 on which comments received on October 31, 2024. After incorporation of ADB/AIIB comments, PMC re-submitted the revised EIA report to PIU on December 25, 2024 for further submission to ADB/AIIB for review and finalization.

41. For Category A projects ADB SPS, 2009 requires that external environmental monitoring is carried out during project construction to ensure EMP compliance and to evaluate environmental performance of the project. In this regard the external environmental monitoring contract is in place and effective.

42. 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.

43. During reporting period, Under Basin wide BAP, PIU has recommended to hold activities until a consensus is developed with the prospective financiers of BAP. Previously matter remained under discussion with ADB safeguard team and no larger consultation with financiers (i.e. Projects within Jehlum basin) was held by the PEDO owing to the fact those projects are not included in Indicative Generation Capacity Expansion Plan (IGCEP) by the KP government.

44. Under the Project specific BAP in the Area of Management, contracts with the Fisheries and Wildlife departments of the KP province will be signed upon the ADB/AIIB concurrence to the updated EIA report which is submitted to PIU in Dec, 2024.

45. During reporting semester, ADB conducted mid-term review mission on October 10, 2024. As part of MTR, mission team conducted field visit to BHPP construction sites and EPC camps dated October 16, 2024. Based on mission findings CAP was prepared and submitted to contractors for necessary implementation.

2.5 External Environmental Monitoring

46. 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 is 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, ecological and 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

47. During the reporting period, civil works such as construction of Adits, head race tunnel, main access tunnel, diversion tunnel, surge tunnel, river diversions, construction of permanent staff residential colony, dam site, sub-base and sub-grade of permanent access roads (R3, R5 and R6), construction of toe walls on permanent access roads (R1, R3, R5 and R6), protection works and establishment of camp at power house site remained in progress.

48. During the reporting period, overall, 13.83% physical progress achieved against the planned progress of 56.13%.

2.7 Project Physical Progress

Balakot Hydropower Project

49. Project civil works started in September 2022 and about 8% of work got completed in December, 2023 while about 13.83% as of Dec, 2024.

50. Major activities that were carried out during reporting semester include preparatory works (83%), Basic design (100%), detail design (23%), Headrace tunnel (12%), Main access tunnel & ventilation/cable tunnel (5%), construction of roads and bridges (56%), and work on permanent staff residential colony (40.9%).

51. 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%	83.3% / 16.7%
Basic Design	21-Sep-21	27-Sep-22	100%	100.0% / 0.0
Detail Design	29-May-22	26 Dec-27	60%	23.2% / 76.8%
Procurement & Production & Test & transportation	29-Jul-22	30-May-26	63%	0.0% / 100.0%
River Diversion	1-Oct-22	27-Nov-23	100%	6.0% / 94.0%
Concrete Dam	19-Jun-23	27-Jan-27	42%	0.0% / 100.0%
Power Intake Works	28-Jan-23	28-Jul-24	100%	0.0% / 100.0%
Headrace Tunnel	13-Oct-22	27-Jun-26	60%	12.2% / 87.8%
Upstream Surge Tank, Pressure Shaft & Penstocks	23-Apr-23	28-Jul-25	75%	0.0% / 100.0%
Main Access Tunnel & Ventilation and Cable Tunnel	16-Nov-22	18-Oct-26	57%	5.0% / 95.0%
Powerhouse Works	4-Jun-23	20-Dec-25	52%	0.0% / 100.0%
Tailrace Tunnel Downstream Surge Shaft	29-Jul-23	27-Feb-26	55%	0.9% / 99.1%
Switchyard	16-Apr-23	15-Jan-24	100%	0.0% / 100.0%
Transmission Line Works	28-Sep-22	27-Aug-25	78%	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	56%	56.2% / 43.8%
Permanent Staff Residential Colony	28-Jun-23	28-Dec-25	60%	40.9% / 59.1%
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

52. Project area can be divided into two main components.

- Dam and reservoir area
- Powerhouse and staff colony

53. 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

54. 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. During reporting semester, contractor completed works 75% work on TR-1, 100% on temporary upstream dam bridge (BR1) and 20% downstream dam bridge (BR2) as of 31 Dec, 2024. No work on concrete dam structure executed during reporting semester.

55. Photographs of proposed dam site, reservoir area, upstream coffer dam and downstream coffer dam are provided as **Figure 3-3**.

3.3 Diversion Tunnel

56. A diversion tunnel is being 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 construction of the diversion tunnel are provided below.

Figure 3-1: Construction of Diversion Tunnel

	
Excavation of an inlet diversion tunnel	Excavation and support work for outlet of diversion tunnel

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

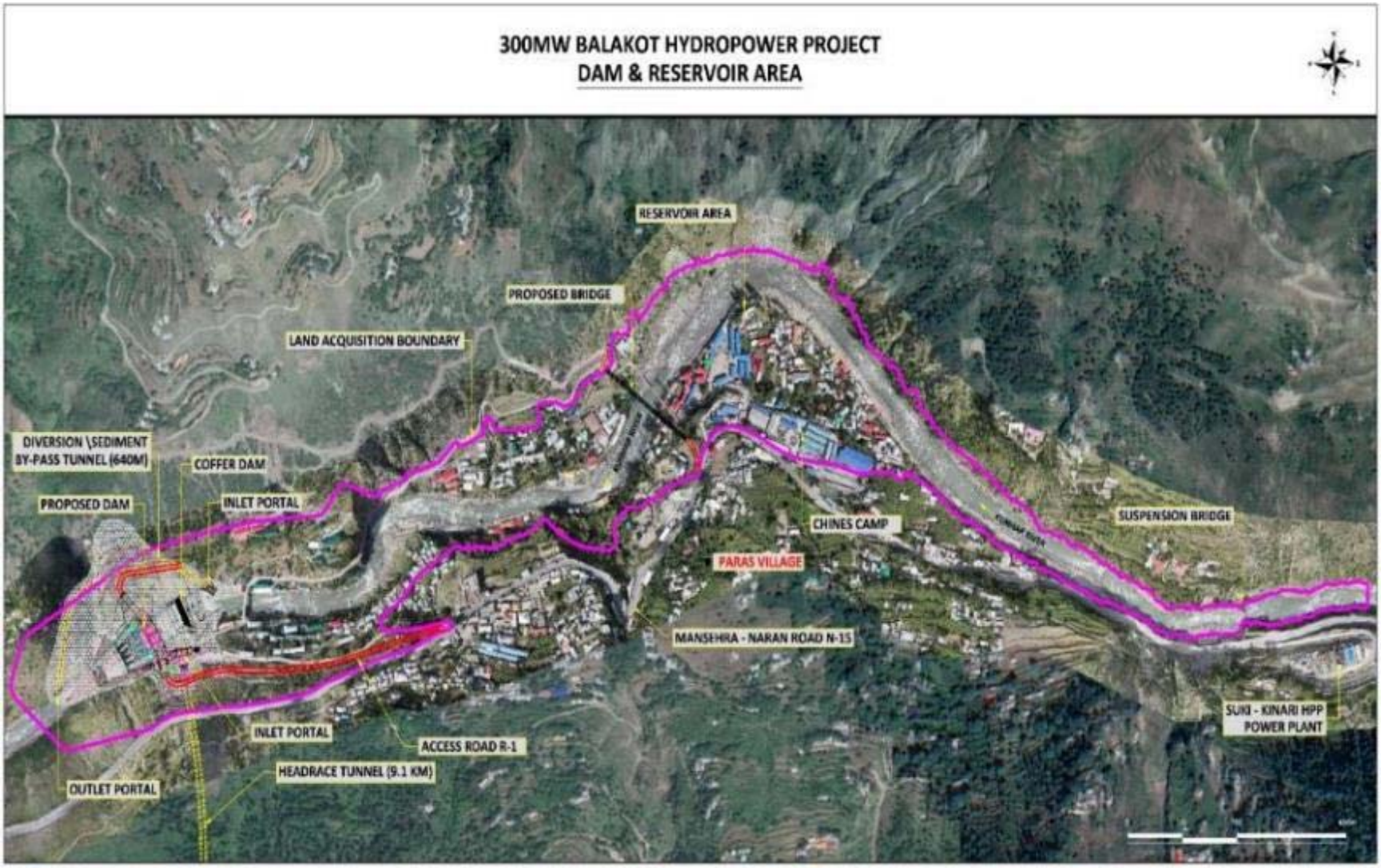


Figure 3-3: Typical Setting of Powerhouse and Colony Area

Figure 3-4: Construction of Reservoir, Main Dam and Coffer Dam

Construction of Inlet coffer dam works

Construction of Bailey bridge abutment

Installation of batching plant at dam site

Bridge piling works at dam site

3.4 Headrace Tunnel

57. A head race tunnel of 8 m diameter and about 9.1 km length will be constructed on the left bank of river. The tunnel will comprise of 03 ADITs for access and passage to the tunnel. The headrace tunnel traverses Kiwai, Zamanabad, Kholian, Barkot, Kappi Gali and Sandhu localities. Construction work on the headrace tunnel resumed during reporting semester. About 12% work against 60% planned work has been completed. Construction activities commenced so far and typical setting of tunnel is shown below.

Figure 3-5: Construction of Headrace Tunnel

3.5 Adit Tunnels

58. Construction work on Adit tunnels remained in progress during the reporting period. Excavation, primary support work of Adit 01, Adit 02 and Adit 03 was initiated in May, 2023 and completed in August, 2024. Construction works of Adit tunnels are shown in the below figure 3-6.

3.5.1 Main Access Tunnel

59. During reporting semester, work on main access tunnel remained in progress. About 4% work against 54% planned work has been completed.

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

<table>
<tr><td>  </td><td>  </td></tr>
<tr><td>Completed work at Adit-1</td><td>Construction works at Adit-2</td></tr>
<tr><td>  </td><td>  </td></tr>
<tr><td>Construction work at Adit-3</td><td>Excavation and support work in prgoress at Main access tunnel</td></tr>
</table>

3.6 Surge Shaft, Pressure Tunnel and Powerhouse

60. 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. An underground cavern-type

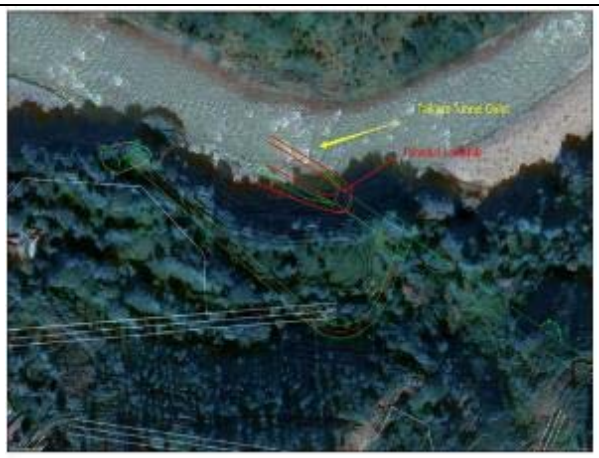
powerhouse will be constructed. Construction work of surge shaft, pressure tunnel and powerhouse is shown below.

Figure 3-7: Construction work of Surge Shaft, Pressure Tunnel and Power House

	
Construction of downstream surge tunnel	Powerhouse site

61. The tailrace tunnel will be constructed up to 1.565 km 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

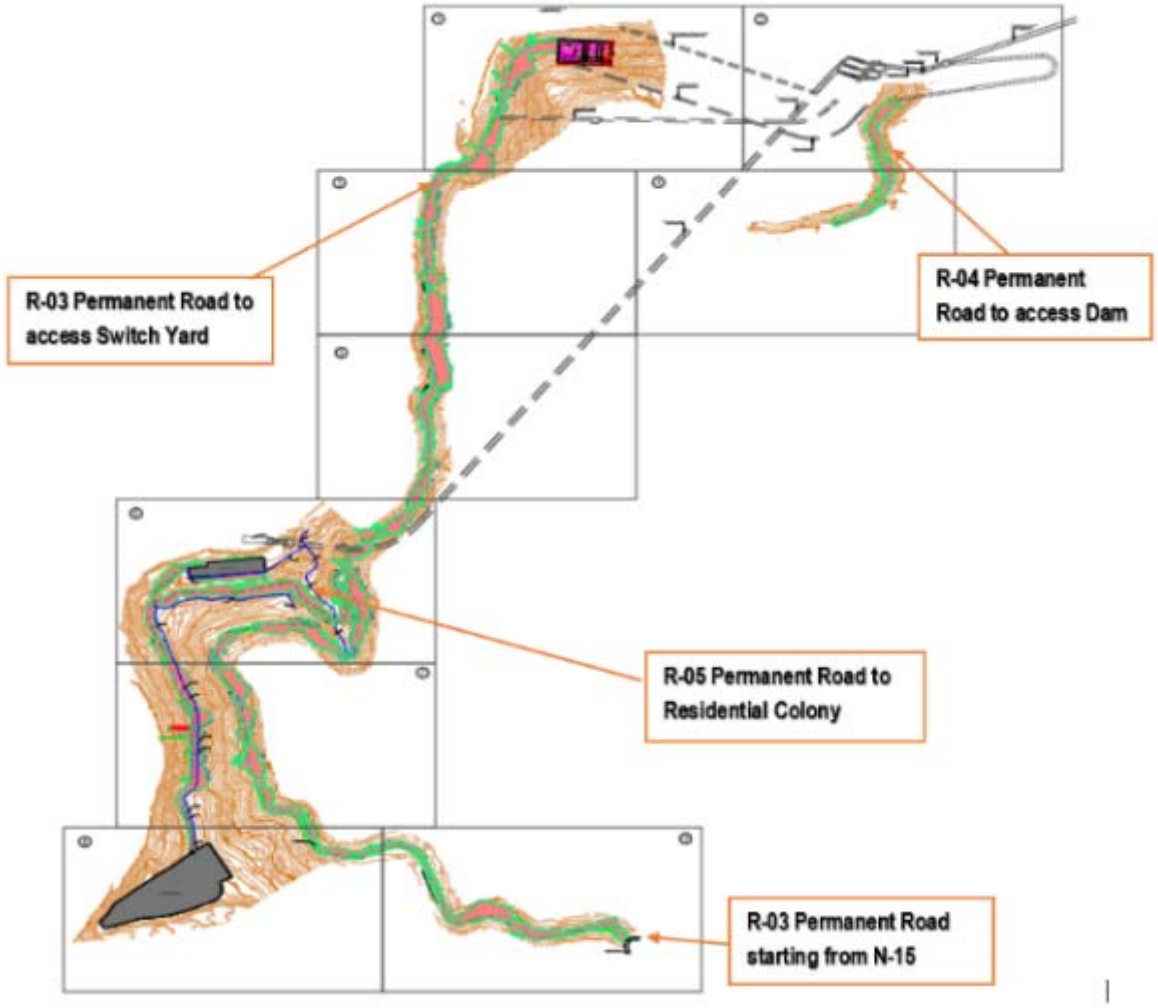


3.7 Permanent Access Roads

62. 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 asphalting 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



63. 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	46.4%
R2	-	-	-
R3	3256 m	N-15 to Switchyard	64%
R4	370 m	N-15 to Surge shaft	49%
R5	823 m	N-15 to Tailrace tunnel	62%
R6	613	N-15 to Staff Colony	68%

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

Figure 3-10 Construction Pictures of Access Roads

Retaining wall works on R-1

Construction of R3 Toe wall

WBM spreading and compaction work at R3

Work in progress at R-4

	
Typical alignment of R-5	Work in progress at R-6

3.8 Staff Residential Colony

65. Construction of staff colony is part of the 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 the 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 Dec, 2024, works on category II, III and Category IV buildings of staff colony remained in progress. About 46% physical work out of 60% planned progress is completed. Master plan of staff residential colony is provided as **Annexure F.**

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

	
Aerial view of permanent staff colony	Construction of staff colony is in progress

4 Project Contactors and Construction Camps/Facilities

66. EPC contractor has constructed six temporary camps within the project corridor. These camps are constructed with pre-fabricated materials through construction of platform and protection works. Location of EPC contractor camps and status on physical progress is provide below.

Table 4-1: Location of Contractor Camps and Physical Progress

Sr. No	Contractor camps location	Physical Progress
1	Living camp/office and Adit-01	100%
2	Living camp/office and Adit-02	100%
3	Living camp/office and Adit-03	100%
4	Living camp/office at Tailrace area	100%
5	Living camp office at Sanghar	100%
6	New Living camp/office at Sanghar	100%

67. Also, the warehousing system, mixing system, explosive magazine, batching plant, crush plant, air compressor station, supply station, has been installed.

68. M/S GRC entered into a rental agreement with a private landowner at Thobi area to acquire about 23 Kanal land for construction of site camp. The camp is located in Kiwai village.

69. M/S CGGC entered into rental agreement with locals for construction of camps at Adit 1, Adit 2 and Adit 3, Tailrace area and Sanghar.

70. 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

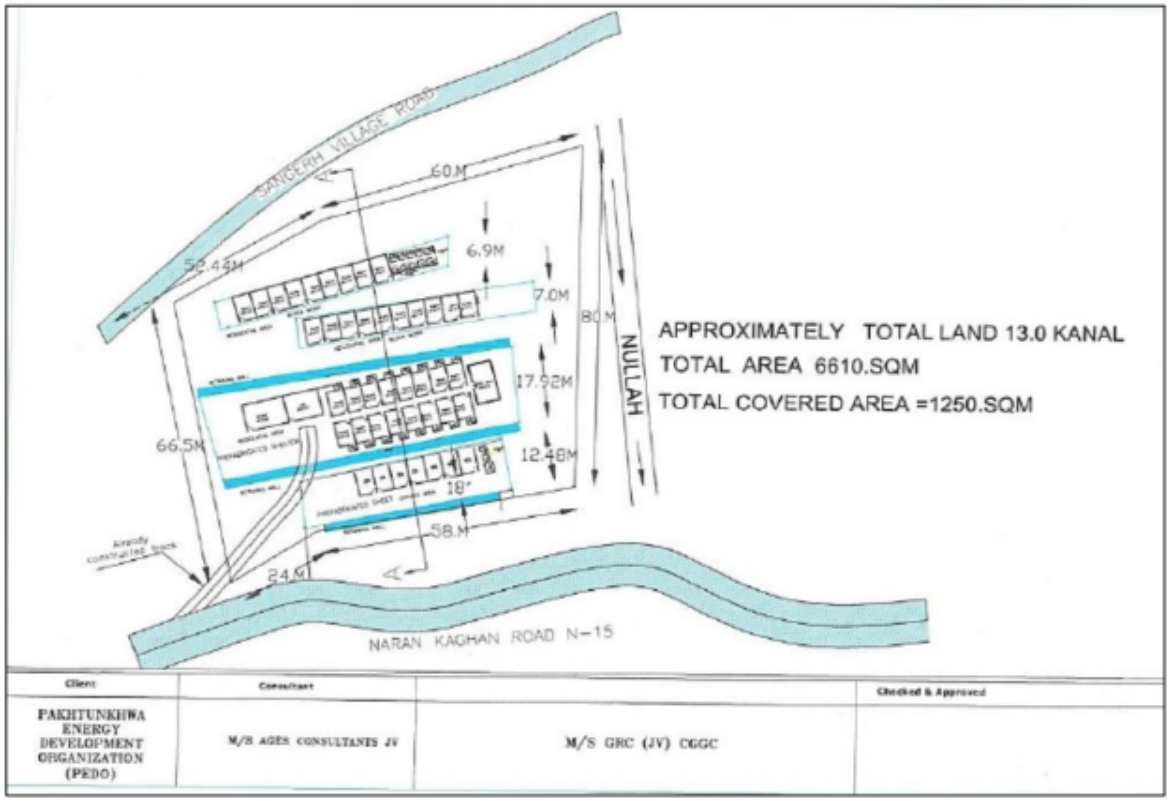


Figure 4-2: Camp Layout Plan constructed at Adit-2

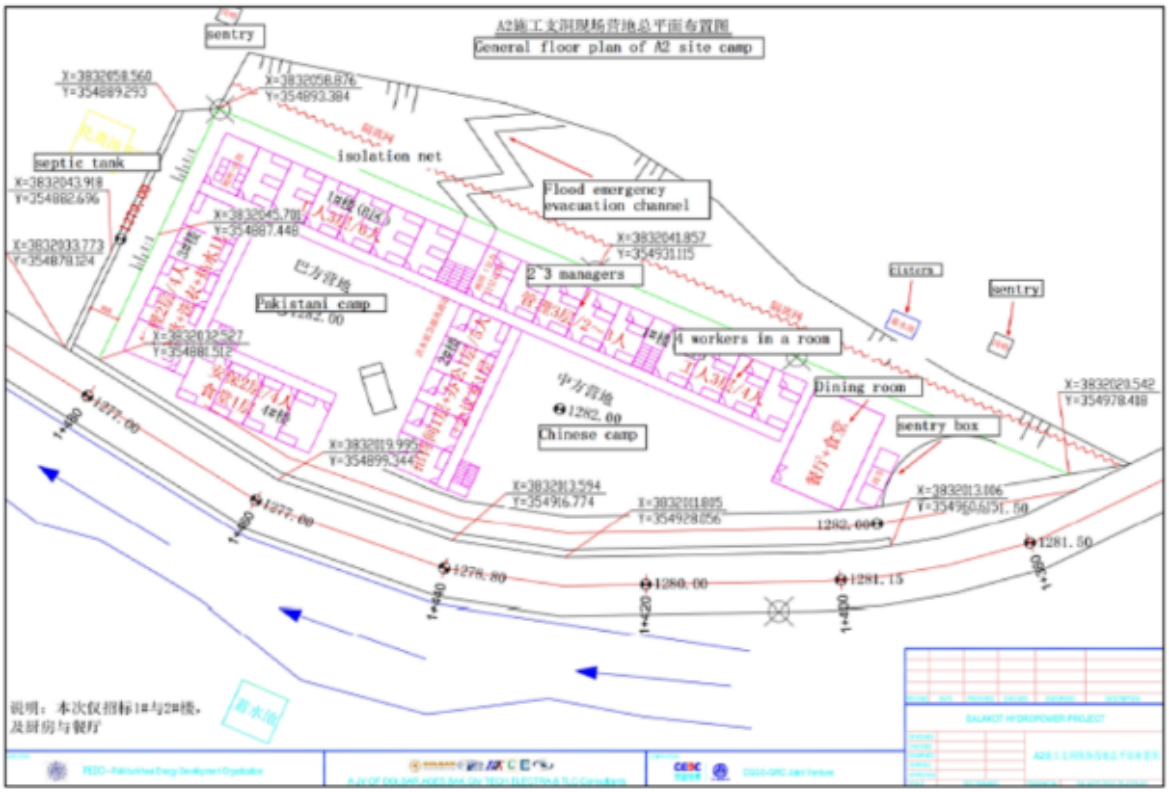


Figure 4-3: Camp Layout Plan constructed at Adit-3

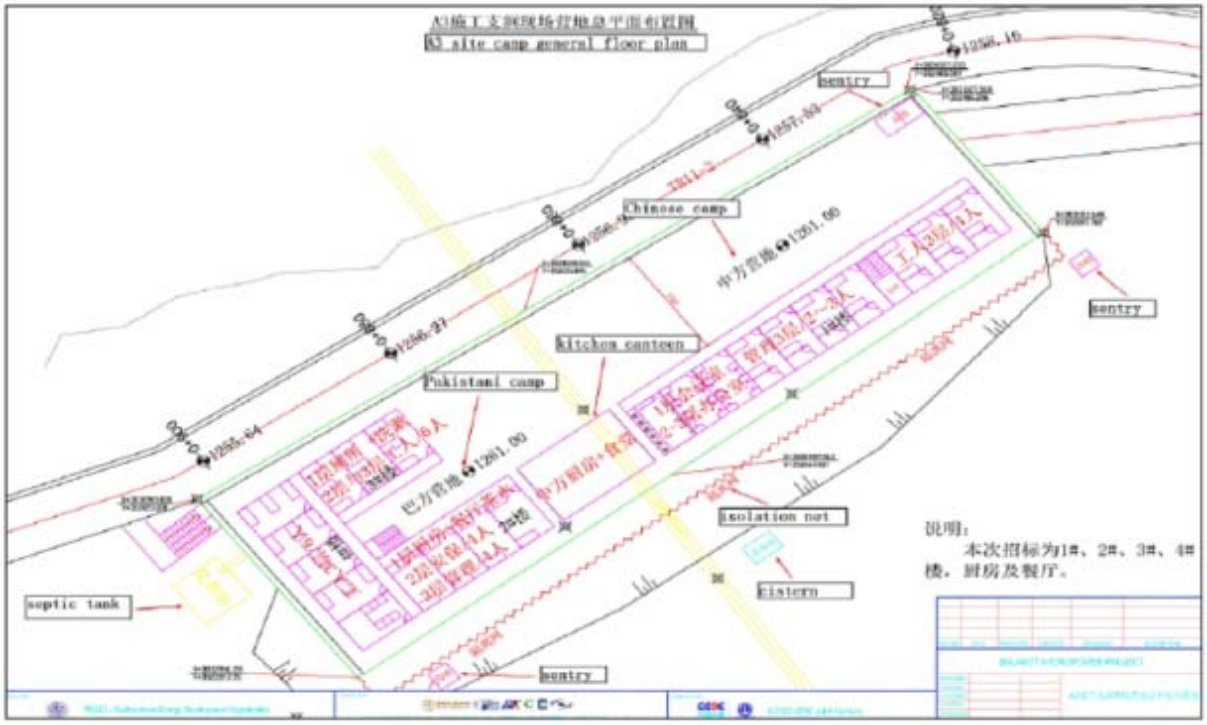
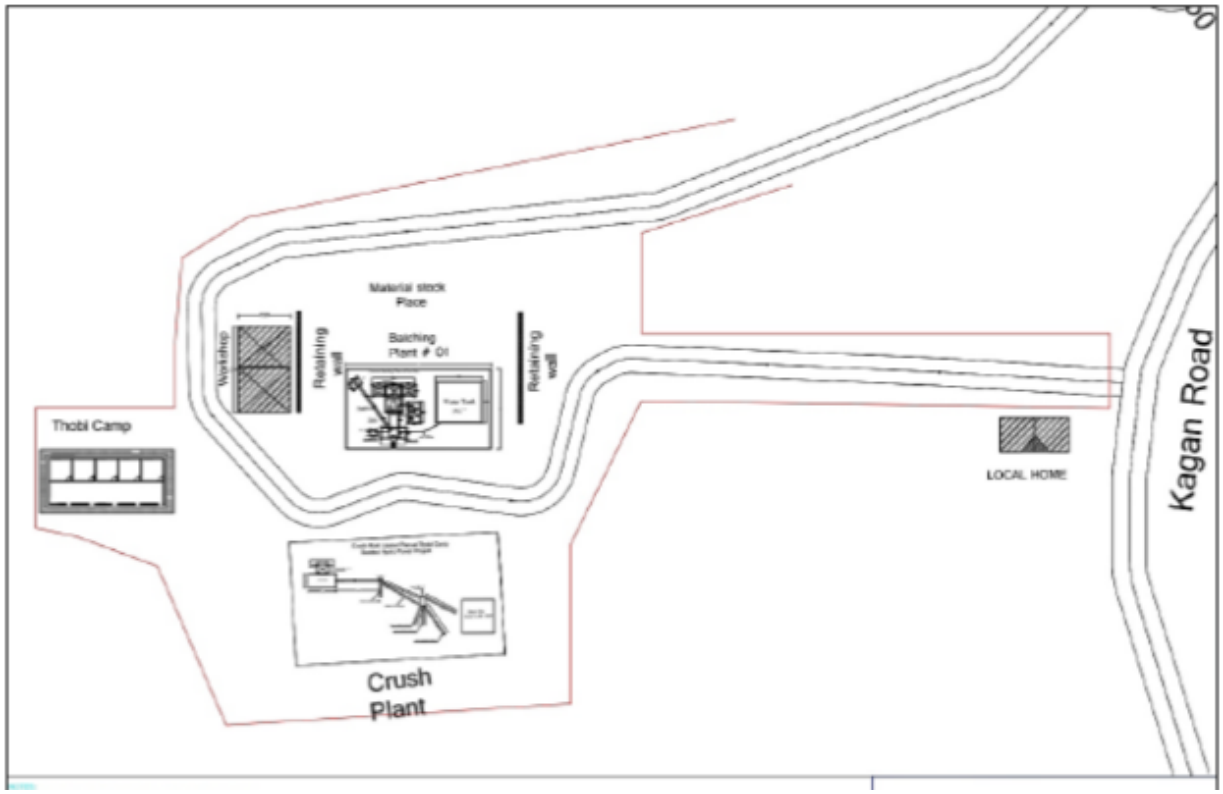
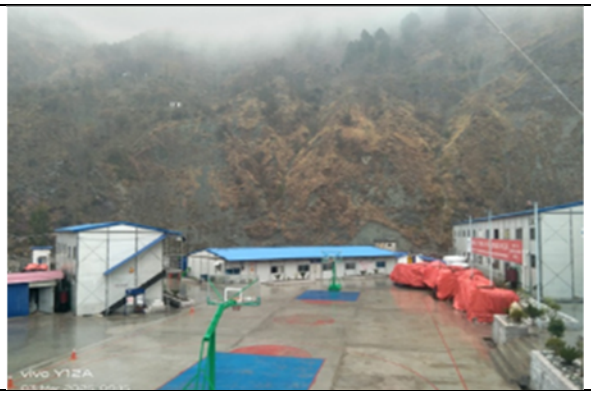


Figure 4-4: Layout Plan of Crush and Batching Plant



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

Figure 4-5: Various Facilities of Contractor Camps

	
CGGC Adit-02 camp: Lat 34.619898°; Long 73.417356° (Ghanool)	CGGC Adit-03 camp: Lat 34.61191° Long 73.387468°
	
GRC camp at Sangar: 34°35'5"N; 73°22'25"E	CGGC camp at sangar (power house area) 34.593363°; 73.366212°
	
CGGC camp at Dam site 34.663437°; 34.663437 °	GRC camp at Thobi 34.636125 °; 73.428597°

	
Batching plant at Powerhouse area	Batching plant at Adit-1
	
Batching plant at residential colony	Batching plant at Thobi camp
	
Batching plant of CGGC at Adit-3	Batching plant of CGGC at Adit-2
	
Small batching plant at Adit-01	Batching plant at Dam area

	
Generator placed at CGGC camp	Generator placed at GRC Camp
	
Fuel storage tank at GRC camp	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 are established following international standard practices to control HSE risks in storage and operation of blasting material. Established magazine camp near Adit 1, Adit-2 and Adit-3 camp and temporary magazine camp for downstream surge tunnel 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

<table>
<tr><td>  </td><td>  </td></tr>
<tr><td>Explosive Magazine Camp near Adit-2</td><td>Explosive Magazine camp at Adit 3</td></tr>
<tr><td>  </td><td>  </td></tr>
<tr><td>Explosive Magazine camp at Adit 1</td><td>Temporary Magazine camp downstream surge tunnel</td></tr>
</table>

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

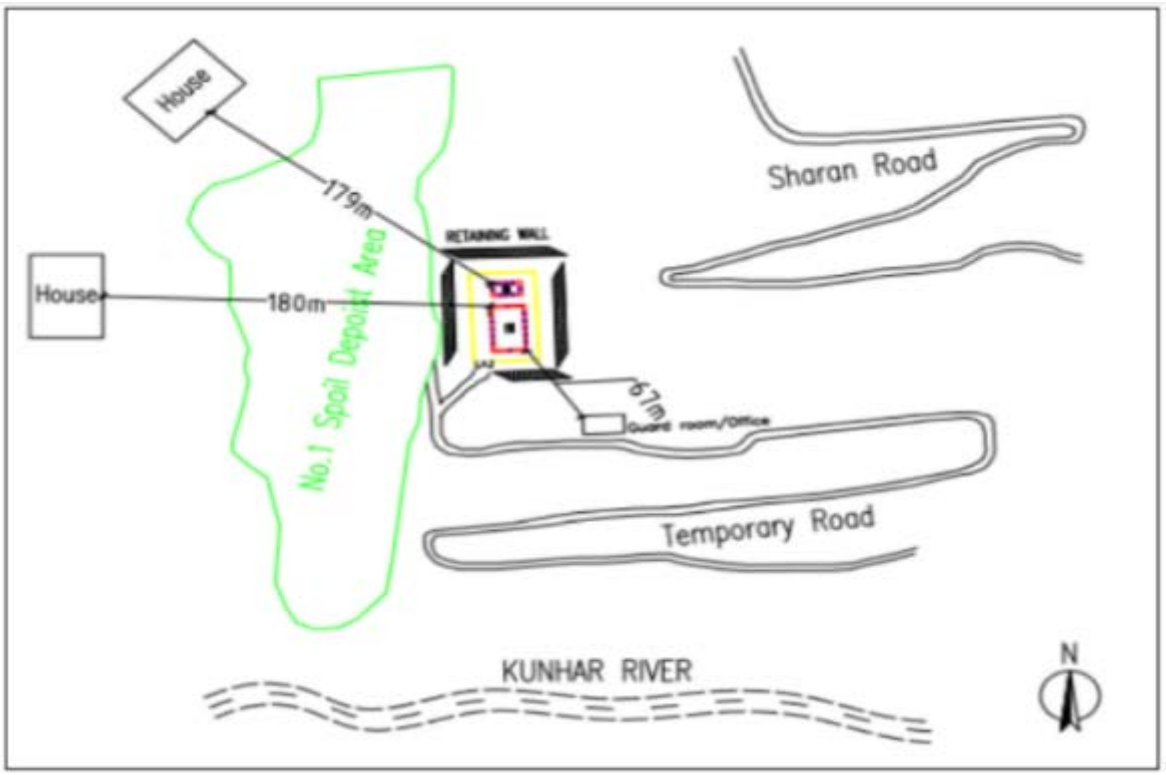
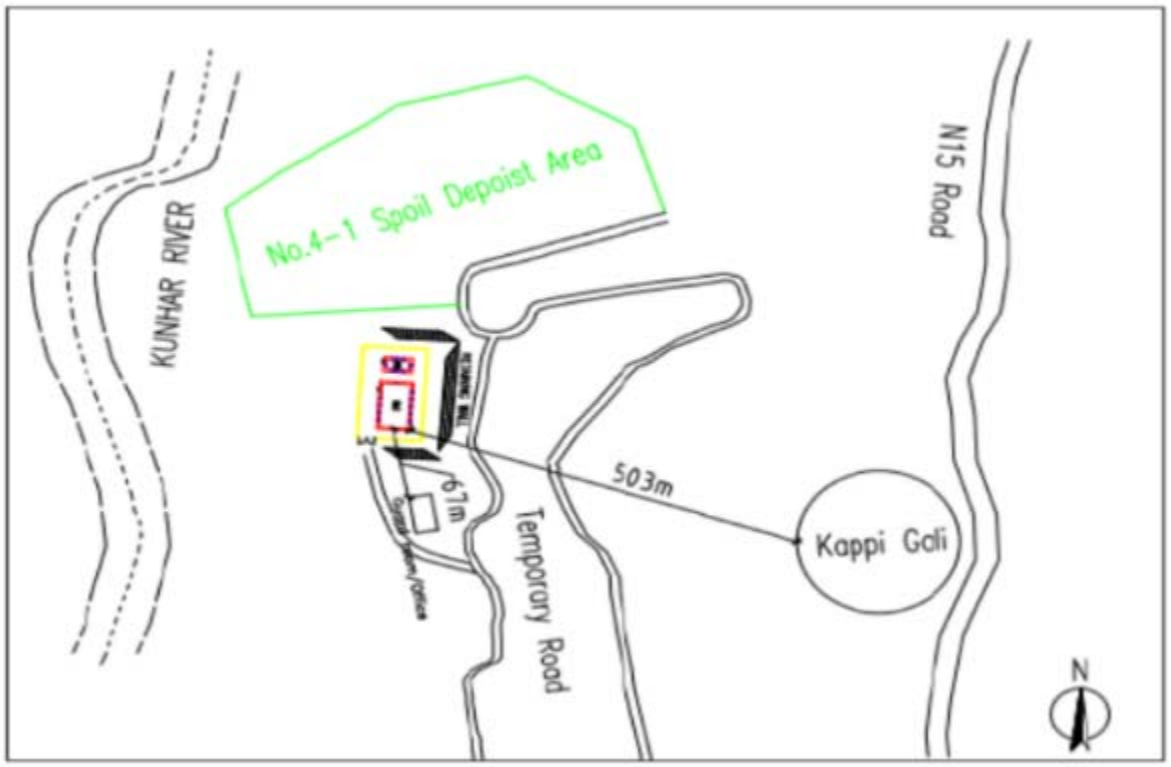


Figure 4-8: Magazine Camp Layout Plan in Adit-3 (Kholia Area)

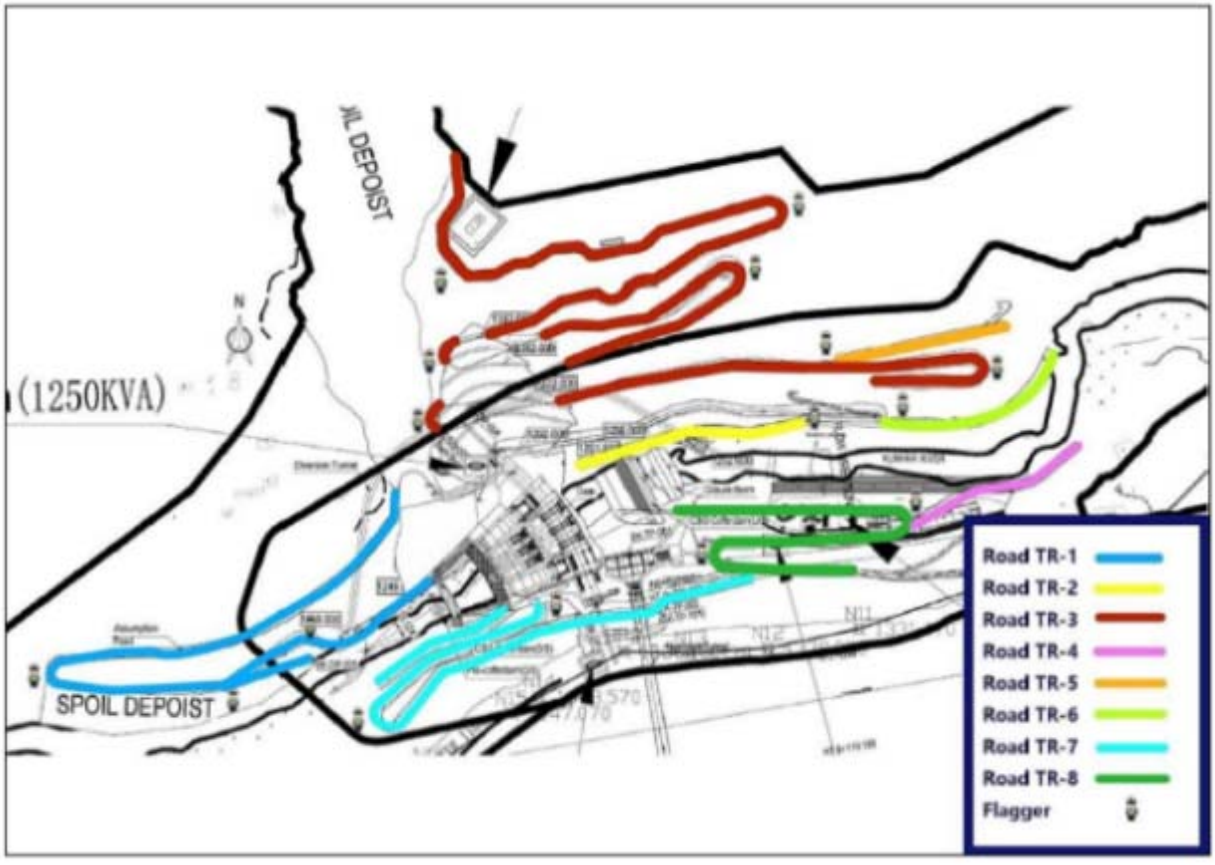


4.2 Project Temporary Access Roads (TR)

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. EPC contractor has completed major works on TRs leading to ADIT-01, Adit-02, Adit-03 and Powerhouse however allied works such as road widening, slope stabilization, provision of drainage system and construction of retaining walls remain in progress at the end of reporting period. The 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

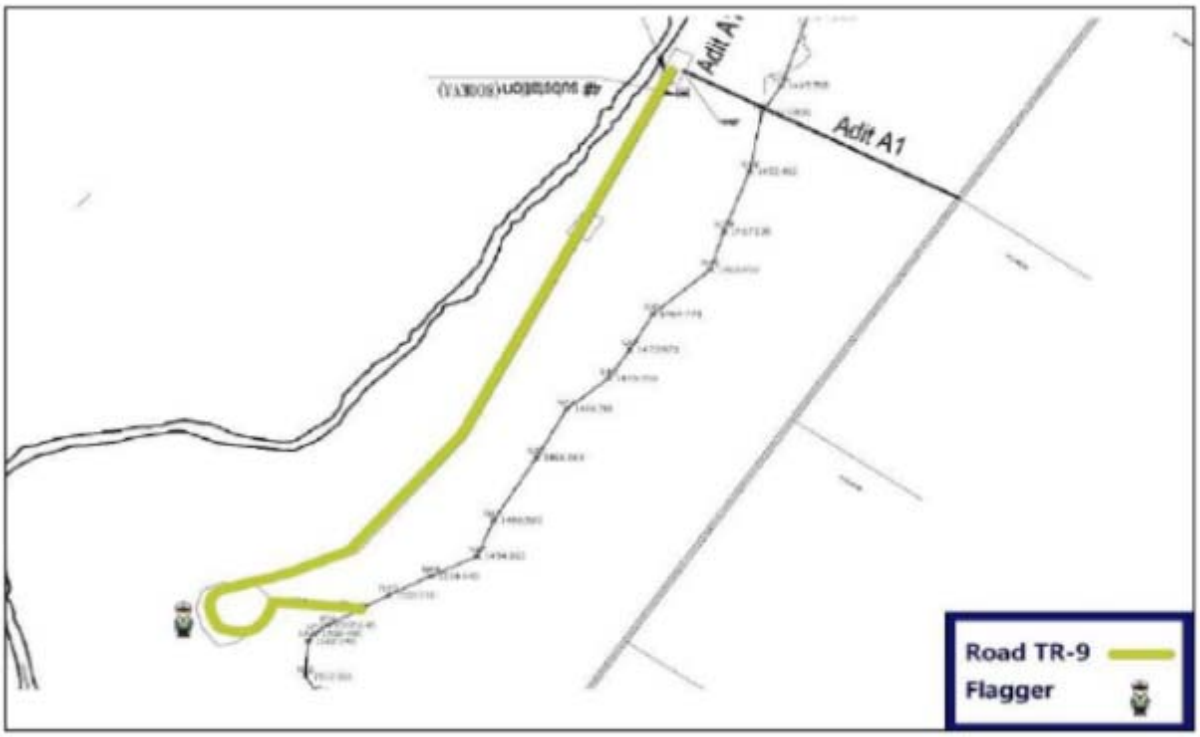


Figure 4-11: Layout of Temporary Access Roads to Adit-2

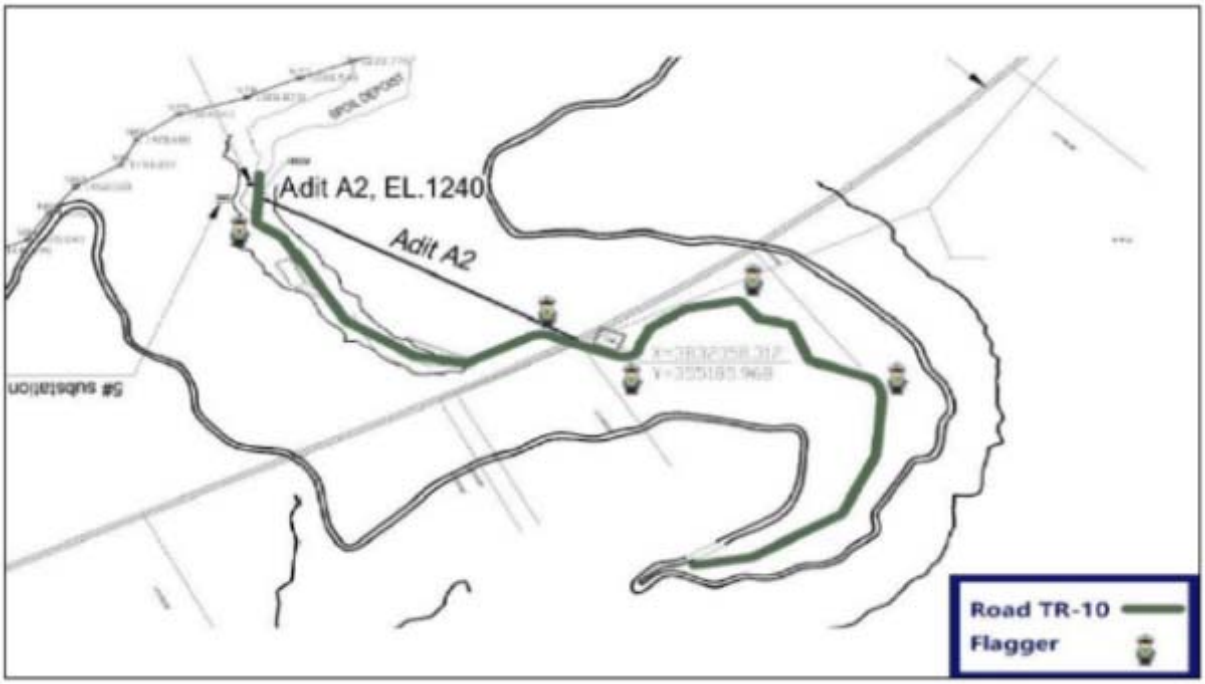
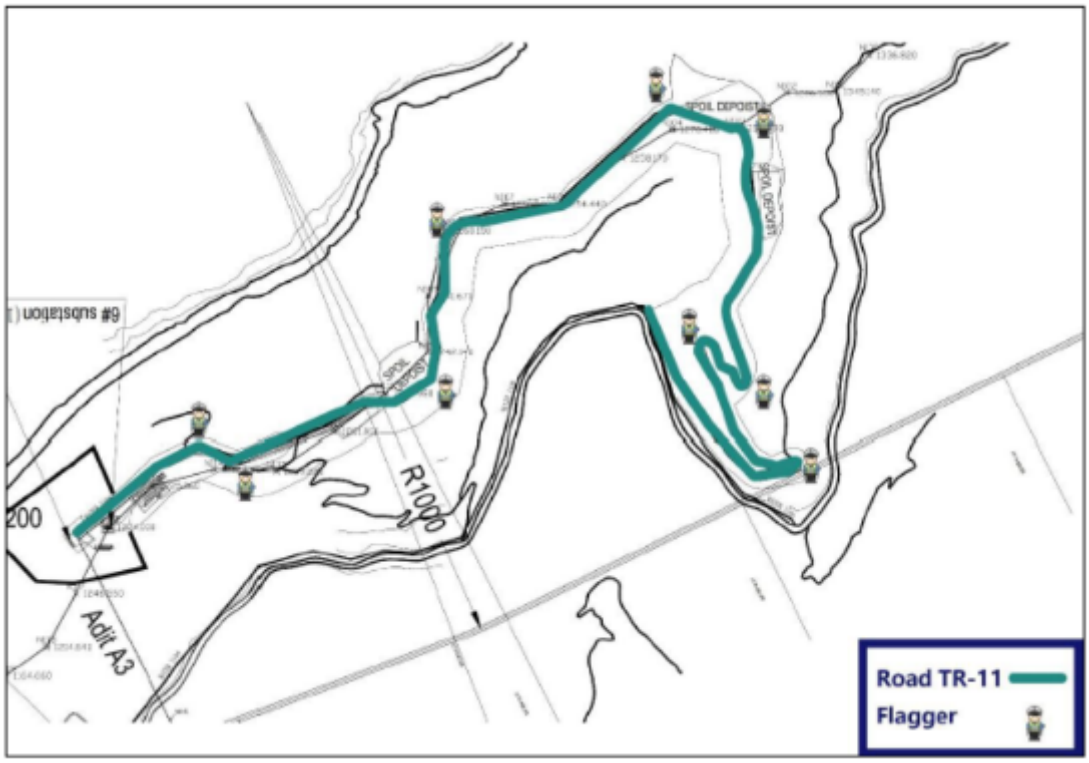
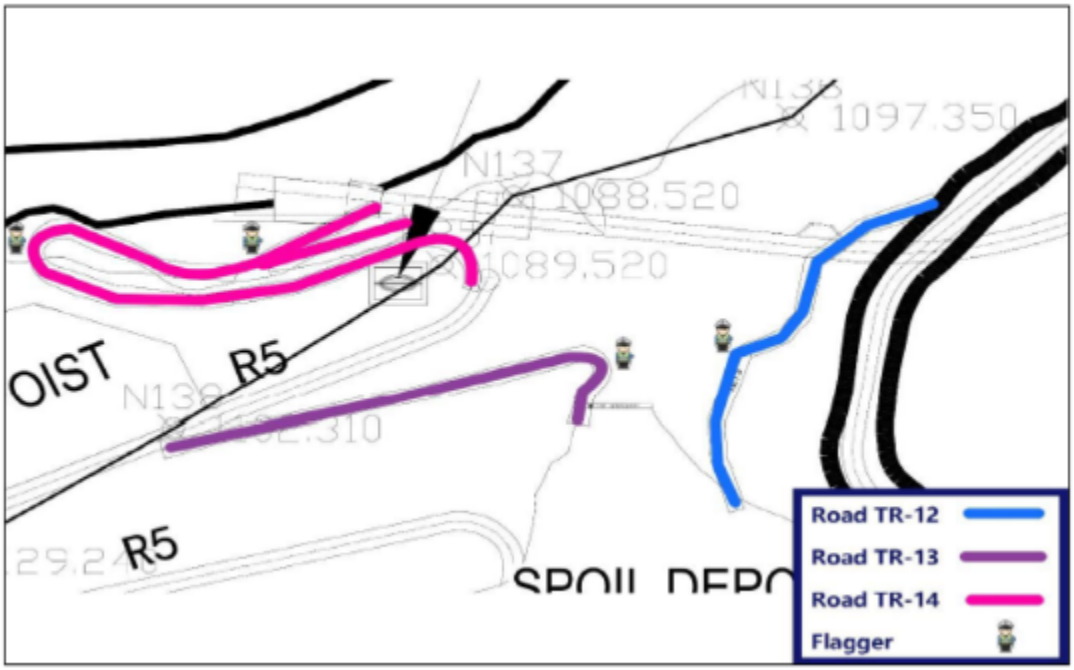


Figure 4-12: Layout of Temporary Access Roads to Adit-3



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 Kanal for Thobi camp
    - site camp in Mouza Ghanol 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)
    - magazine camp A3 in Kholian
    - 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
    - camp at Sangar village on main Naran road measuring area of 1 Kanal and 6 Marla
    - camp at mohalla Mandi Sangar village measuring area of 3.39 Kanals

4.4 Quarry Areas

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

4.5 Waste Disposal Areas

79. Construction waste generated from construction activities is being reused as backfill. Tunneling waste generated at portal site of Adits is temporarily stored at site and being used as fill material for raising platform of protection works.

80. During reporting semester, Project Management Consultant (PMC) granted approval for A2 & A3 muck disposal sites in November 2024. The approved detailed design report contains impact assessment of muck disposal sites and additional measure for protection works and to minimize environmental impact. Construction of temporary access roads to muck disposal sites and preparation of method statement for muck disposal operation remained in progress till Dec, 2024.

81. EPC contractor entered in agreement with KDA to manage domestic waste of BHPP. In this regards KDA has placed waste containers at camp and construction sites which will be hauled to KDA approved sites when filled.

82. EPC Contractor signed a contract with a certified firm namely ARAR (Assisting Remarkable Accomplishment Results) for disposal of medical waste. Under obligations of the contract, the EPC Contractor transports medical waste to the Kohat tehsil office from where ARAR collects the waste and transports it to Peshawar for final disposal at the government of KP approved disposal site.

83. EPC contractor is in process of engaging approved vendor for disposal of hazardous waste such as used oil, oil rags and used batteries etc. In this regard, 3R Green services has been identified as hazardous waste contractor, however formal contract was not signed as of Dec, 2024.

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

84. 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

85. Overall responsibility for environmental management and monitoring rest with the Project Director (PD), PIU BHPP. 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

86. Hiring of Director Environment and Social and Assistant Director Environment at PIU is still in progress.

5.2 Project Management Consultants

87. 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, environment officer 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.

88. 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 cannot be completed in previous semester however PMC has

hired full time environmental officer to look after the on-site environmental safeguard matters. The environment officer is on board since 12 December, 2024.

89. The PMC is responsible for day-to-day monitoring of the EMP and SSEMP on behalf of 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

90. 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, and 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.

91. 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

92. During reporting semester EPC contractor has hired 01 QHSE director, 02 HSE managers, 01 environmental engineer, 01 environmental manager, 17 HSE officer and 01 HSE assistant 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

93. 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.

94. EEM Inception report and 1st, 2nd and 3rd External Environmental Monitoring Reports have been approved and disclosed on ADB website. External environmental monitoring visit was conducted on 19-20 February, 2025 for project facilities and findings are discussed in this 4th EEM report covering period July-Dec, 2024.

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/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	Job Title	Name	Contact Details
ADB	Principal Environmental Specialist (Country Environment Focal)	Nurlan Djenchuraev	ndjenchuraev@adb.org
	Environmental Specialist – regional technical assistance consultant	Abdul Hadi	ahadi.consultant@adb.org
PIU	Deputy Director HSE and Gender	Ibtesaam Zaima	ibtesaamz@gmail.com
PMC	Environmental Expert	Assad Ali Khan	dtlbalakothpp@yahoo.com
	Health and Safety Monitor	Fawad Ali Shah	
	Environment officer	Najm-u-Saqib	
EPC Contractor	Qi Xiu Feng	H & S Manager	cggcgrcjvbk@gmail.com
	Li Yong	QHSE Director	
	Irshad Saeed	Environmental Manager	
	Zul Qarnain	HSE Manager	

Organization	Job Title	Name	Contact Details
	Wang He	QHSE Officer	
	Wang Chaowei	QHSE Officer	
	Syed Babar Ali	HSE Officer	
	Zaigham Shah	HSE Officer	
	Saeedul Haq	HSE Officer	
	Momin Khan	HSE Officer	
	Syed Hassan Shah	HSE Officer	
	Rashid Hussain	HSE Officer	
	Muhammad Ajmal	HSE Officer	
	Syed Ahsan Ali	HSE Officer	
	Syed Ubaidullah	HSE Officer	
	Ali Haider Shah	HSE Officer	
	Naeem Yousaf	HSE Officer	
	Tayyab Ur Rehman	HSE Officer	
	Zeeshan Siddique	HSE Officer	
	Zeeshan Ahmed	HSE Officer	
	Saddam Hussain	HSE Officer	
	Shahmeer	Assistant HSE Officer	

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 were 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. With respect to updating EIA report, virtual meetings of the PMC and PIU were held with the safeguard team of the ADB in February, 2024 wherein gaps identified in the biodiversity section of the updated EIA report were discussed. ADB instructed to hire fisheries and biodiversity experts to review and update the biodiversity section of the EIA report with emphasis on critically endangered species of Kashmir Hillstream loach. Subsequently experts were hired by PMC and survey was conducted from May 10-16, 2024, wherein the latest information/data collected and accordingly EIA was updated. PMC has submitted updated EIA for ADB/AIIB review in August 2024 on which comments received on October 31, 2024. After incorporation of ADB/AIIB comments, PMC re-submitted the revised EIA report to PIU on December 25, 2024 for further submission to ADB/AIIB for review and clearence.

99. In the previous EEM reports, 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 EEM reports
- 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
- Incident/accident record
- public consultation record
- 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. During reporting period, Under Basin wide BAP, PIU has recommended to hold activities until a consensus is developed with the prospective financiers of BAP. Previously matter remained under discussion with ADB safeguard team and no larger consultation with financiers (i.e. Projects within Jehlum basin) was held by the PEDO owing to the fact those projects are not included in Indicative Generation Capacity Expansion Plan (IGCEP) by the KP government.

6.3.2 Project Specific BAP

108. During the previous semester, 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.**

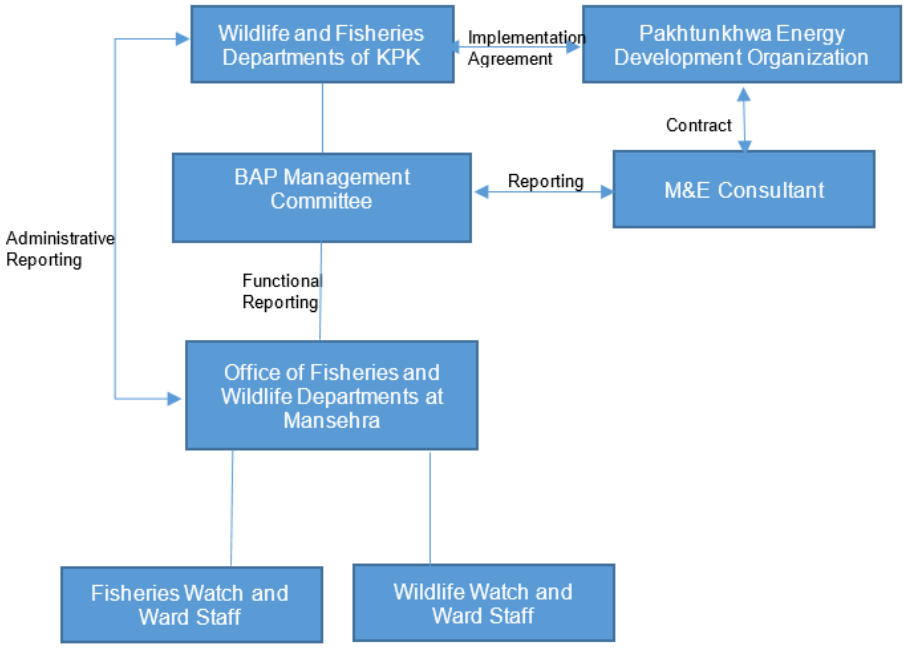
109. Under the Project specific BAP in the Area of Management, contracts with the Fisheries and Wildlife departments of the KP province will be signed upon the ADB/AIIB concurrence to the updated EIA report.

110. For the implementation of project specific BAP, field office of wildlife department has been identified within SDFO office building which was found feasible for project specific BAP implementation/interventions subject to construction of 02 additional rooms.

111. The Fisheries department identified office for BAP interventions was found feasible as it is located on the N-15 road and is adjacent to the operational hatchery of the department near Jared village.

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

Figure 6-1: Revised BAP Arrangements for Balakot HPP



113. 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 KP. 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

114. 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 various modalities, i.e. offices, human resources, payment modalities etc. in consultation with the Fisheries and Wildlife Departments of the government of KPK.	Q2, 2025	In process, KP Wildlife and Fisheries have nominated focal persons for BAP implementation. PIU and PMC has approved SDFO Wildlife office at Balakot city and Jared fish hatchery as field offices to implement BAP arrangements.
2	Sign Contract	Q2, 2025	Subject to approval of updated EIA.
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	Q2, 2025	-

6.3.3 Establishment of Fish Hatchery

115. 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, Director General (DG) of the Fisheries Department submitted a proposal for the upgradation of existing Shino-Jared fish hatchery in Balakot instead of establishing the new hatchery in November, 2024. The proposal remained under discussion with fisheries head quarter and PIU till the end of reporting period.

6.4 Quarry Area Management

116. 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.

117. At present no quarry areas are being developed. Quarry materials are being purchased from approved sites such as Black Diamond, Ghuman, and Bhangian Kasi for coarse aggregates and Lawrencepur, Maira and Thakot for fine aggregates.

6.5 Waste Management

118. Waste management at different locations, especially camp sites, Adit portals, tunnels, dam site and power 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

119. 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)

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

6.8 Monitoring of Capacity Development Plan

121. 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 the field and during interviews with key informants.

6.9 Monitoring of Tree Plantation plan

122. 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

123. 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

124. 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

125. 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. PMC has submitted the revised EIA report to PIU on December 25, 2024 for further submission to ADB/AIIB for review and finalization.	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. PMC instructed EPC contractor to update SSEMP to include impacts and mitigation measures of selected A2 and A3 muck disposal sites by January, 2025.	Yes	SSEMP update is in progress.
EEM Reports	1st SAEMR (External) Jan-Jun, 2023 2nd SAEMR (External) July-Dec, 2023 3rd SAEMR (External) Jan-June, 2024	Yes	Complied with.

7.2 Compliance with National/Local Requirements

126. 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 for Medical Waste Disposal	Contract with ARAR services made and provided in (**Annexure B**).
6	Approval for Hazardous waste disposal	3R Green services is identified as hazardous waste contractor however contract was not signed as of Dec, 2024.

7.3 Resource Use

7.3.1.1 Water Consumption

127. Water for project activities is being obtained from locally available springs. Spring water is being obtained with piped connection to springs at dam site, power house sites, GRC and CGGC camps, Adit-2, Adit-3 and Adit-1, diversion tunnel, main tunnel area and surge tunnel. 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.

128. The cumulative water usage for the present reporting period amounts to approximately 11,723 cubic meters. The 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	1591304
2	August	1684800
3	September	1829100
4	October	2021240
5	November	2060110
6	December	2536898
Total		**11,723,452**

7.3.2 Fuel Consumption

129. Total fuel consumption recorded for the project during the monitoring period is 1,395,065 liters' diesel and 6,792 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 fuel dispenser and transported to the site. At CGGC camps fuel drums are stored on 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	156133	684	156817
2	August	150347	1335	151682
3	September	180067	1542	181609
4	October	286261	867.34	287128.3
5	November	256946	973.65	257919.7
6	December	365311	1391	366702
Total		**1,395,065**	**6792.99**	**1,401,858**

7.3.3 Construction Materials

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

Construction Material	Supply Source
Coarse aggregate	Black Dimond, Ghuman, and Bhangian Kasi
Fine aggregate	Lawrencepur, Maira and Thakot
Cement	Askari, Fauji
Reinforced steel	FF Steel, Amreli , Siraj, SJ and Pak steel

131. 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)
		(Ton)	(Bags)	(cft)	
1	July	63.9	14723	57473	53255
2	August	69.2	5793	72693	48778
3	September	85	21973	55287	32769
4	October	303.457	51018	100546	63792
5	November	132.451	46760	154554	109399
6	December	152.88	73714	279050	437514
Total		**806.888**	**213981**	**719603**	**745507**

7.3.4 Human Resources

132. During the reporting period, an average of 1439 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 in July to Dec 2024 which is approximately 62.3% the employment.

133. 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 897 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	1177	671
2	August	1200	711
3	September	1427	878
4	October	1495	982
5	November	1495	982
6	December	1841	1161
Average		**1439**	**897**

7.3.5 Equipment/Machinery

134. Machinery deployed at BHPP works are provided in **Table 7-7.** About 304 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	Machine	Model	Total No. Deployed	Deployment Month					
				Jul	Aug	Sep	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
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		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	1	1	1	1	1	1
39.	Air Compressor		1	1	1	1	1	1	1

S/No	Machine	Model	Total No. Deployed	Deployment Month					
				Jul	Aug	Sep	Oct	Nov	Dec
40.	Tractor		1	1	1	1	1	1	1
41.	Jeep		1	1	1	1	1	1	1
42.	Batching Plant	0.5m3	1	1	1	1	1	1	1
43.	Transit Mixer		1	1	1	1	1	1	1
44.	Weighing Bridge		1	1	1	1	1	1	1
45.	Dumper		1	1	1	1	1	1	1
46.	Loader	420	1	1	1	1	1	1	1
47.	Ventilator Fan		1	1	1	1	1	1	1
48.	Shotcrete Pump		1	1	1	1	1	1	1
49.	Hand mixing		1	1	1	1	1	1	1
50.	Air Compressor		1	1	1	1	1	1	1
51.	Frequency Inverter		1	1	1	1	1	1	1
52.	Dump truck		1	1	1	1	1	1	1
53.	Grader		1	1	1	1	1	1	1
54.	Water Bozer		1	1	1	1	1	1	1
55.	Double cabin	Toyota Vigo	1	1	1	1	1	1	1
56.	Double cabin	Toyota Hilux	1	1	1	1	1	1	1
57.	Crawl Excavators	PC200-8	1	1	1	1	1	1	1
58.	Dump Trucks	SCHMAN	7	7	7	7	7	7	7
59.	Excavator	Hitachi 200, Hitachi 220	2	2	2	2	2	2	2
60.	Excavator	CATN320D, Hyundai 210	2	2	2	2	2	2	2
61.	Excavator	Komatsu 200, Komatsu 100	2	2	2	2	2	2	2
62.	Loader	LW500	1	1	1	1	1	1	1
63.	Crawler bulldozer	SD22	2	2	2	2	2	2	2
64.	Side dump loader	WA380-6	1	1	1	1	1	1	1
65.	Jeep		1	1	1	1	1	1	1
66.	Loader	LW500FN, LW300FN	3	3	3	3	3	3	3
67.	Diesel generators	V550C2,HDG22	2	2	2	2	2	2	2
68.	Diesel generators	Perkins 121hp,1106A-	2	2	2	2	2	2	2
69.	Water tank	SCS5160GSS	2	2	2	2	2	2	2
70.	Concrete Mixture Machine		2	2	2	2	2	2	2
71.	Diesel tank	Foton Daimler,M600	1	1	1	1	1	1	1
72.	Water truck	DLQ5161GSSZ4	1	1	1	1	1	1	1
73.	Flatbed truck	FG1JKPB	1	1	1	1	1	1	1
74.	Concrete Mixture Machine		3	3	3	3	3	3	3
75.	GPS-RTK Survey System Brand	Nan fang S82	4	4	4	4	4	4	4
76.	Total station Brand	GPT-4002LN	1	1	1	1	1	1	1
77.	Digital Levelling Instruments	Trimble DINI03	1	1	1	1	1	1	1
78.	Pickup	4X4	4	4	4	4	4	4	4

S/No	Machine	Model	Total No. Deployed	Deployment Month					
				Jul	Aug	Sep	Oct	Nov	Dec
79.	Prado		3	3	3	3	3	3	3
80.	Car	MJ	1	1	1	1	1	1	1
81.	Road Roller	XS183JPD	1	1	1	1	1	1	1
82.	Air Compressors		2	2	2	2	2	2	2
83.	Crawler Drilling machine	T35	1	1	1	1	1	1	1
84.	Diesel Air	XRHS666CD,XAHS750	2	2	2	2	2	2	2
85.	Mobile truck crane 25ton	QY25K5-I	1	1	1	1	1	1	1
86.	Concrete Pump	HBT80.13.112RSD, HBT60.16.110SU	2	2	2	2	2	2	2
87.	Power Transformer	500,800KV,100,1200KV&12	5	5	5	5	5	5	5
88.	Single Arm Rock Drilling Rig	D7	1	1	1	1	1	1	1
89.	Binding Machine		1	1	1	1	1	1	1
90.	Shaper	BC6063	1	1	1	1	1	1	1
91.	Jib crane	BZD-2	2	2	2	2	2	2	2
92.	Digital Underground Scale	SCS-60	1	1	1	1	1	1	1
93.	Low voltage switch box	380V 1600A	2	2	2	2	2	2	2
94.	low voltage switch	UAN111-354-111	1	1	1	1	1	1	1
95.	Ordinary lathe	C6160C	1	1	1	1	1	1	1
96.	Vertical lifting table milling machine	ZX7045	1	1	1	1	1	1	1
97.	Shaper	BC6063	1	1	1	1	1	1	1
98.	Sewage pump	TS200-125-365	1	1	1	1	1	1	1
99.	Oil storage tank	5170 Gallon 19500L	1	1	1	1	1	1	1
100.	Lathe	CY6166B-3000	1	1	1	1	1	1	1
101.	Shaper	B6065	1	1	1	1	1	1	1
102.	Vertical lifting table milling machine	XQ6232W-B	1	1	1	1	1	1	1
103.	Radial drilling	Z5140A	1	1	1	1	1	1	1
104.	Single column press	YX41-100T	1	1	1	1	1	1	1
105.	Other hydraulic presses (pipe crimping machines)	XM91-C1	1	1	1	1	1	1	1
106.	Lathe		1	1	1	1	1	1	1
107.	Dump truck		1	1	1	1	1	1	1
108.	Excavator	210,323&323	3	3	3	3	3	3	3
109.	Mazda		1	1	1	1	1	1	1
110.	Pickup double cabin		1	1	1	1	1	1	1
111.	Lifter		1	1	1	1	1	1	1
112.	Batching Plant	1.0m3	1	1	1	1	1	1	1
113.	Ventilation Fan		1	1	1	1	1	1	1

S/No	Machine	Model	Total No. Deployed	Deployment Month					
				Jul	Aug	Sep	Oct	Nov	Dec
114.	Electric Air Compressor	XAMS850E	1	1	1	1	1	1	1
115.	Transit Mixer	ZZ1257N3641W	4	4	4	4	4	4	4
116.	Wheel Excavator	Doosan DX210W	1	1	1	1	1	1	1
117.	Wet Spray Trolley	TSR 2010	1	1	1	1	1	1	1
118.	Loader	LW300FN	1	1	1	1	1	1	1
119.	Robotic Arm Wet Spray Machine	Sika Alive 272	1	1	1	1	1	1	1
120.	Screw Air	XAS 186	1	1	1	1	1	1	1
121.	Large Axial Flow Fan	AVH140.90.4	1	1	1	1	1	1	1
122.	Dynamo	V550C2	1	1	1	1	1	1	1
123.	Dynamo	J110 kva	1	1	1	1	1	1	1
124.	Wet spray trolley	TSR2010	1	1	1	1	1	1	1
125.	Loader (robot arm)	LW300FN	1	1	1	1	1	1	1
126.	Robotic arm wet	Sika aliva702+Aliva302.1	1	1	1	1	1	1	1
127.	Robotic arm wet spray concrete pump	Sika aliva702+Aliva302.1	1	1	1	1	1	1	1
128.	Dump truck	SX3255DR384R	2	2	2	2	2	2	2
129.	Diesel generators	1106A-70TG1/UCI274F	1	1	1	1	1	1	1
130.	Diesel generators	SDMO MODEL J110KVA	1	1	1	1	1	1	1
131.	Dynamo	CUPP640(S)	2	2	2	2	2	2	2
132.	Electric air	XAMS850E	1	1	1	1	1	1	1
133.	Screw compressor	XAS186	1	1	1	1	1	1	1
134.	Electric air	XAMS850E	4	4	4	4	4	4	4
135.	Axial Fan	2*AVH125.90.4.8	1	1	1	1	1	1	1
136.	Three arm Trolley	BOOMER XL3D	1	1	1	1	1	1	1
137.	Geological drilling rig	XY-2	1	1	1	1	1	1	1
138.	Concrete Mixer truck	8M3	2	2	2	2	2	2	2
139.	Van Type	500 KVA	1	1	1	1	1	1	1
140.	Electric Air Compressor	$20m^3$	1	1	1	1	1	1	1
141.	Punching Machine	CCHJ70/50C	1	1	1	1	1	1	1
142.	Concrete Mixer Truck	FYG5253GJBC	2	2	2	2	2	2	2
143.	Concrete Mixer Truck	LZZ5BLNB3KD575216	1	1	1	1	1	1	1
144.	Truck Crane	XCT8L4	1	1	1	1	1	1	1
145.	Carter Excavator	CAT320	1	1	1	1	1	1	1
146.	Concrete Mixer Truck	ZZ5257GJBM3247C/LB2	1	1	1	1	1	1	1
147.	Wheeled Excavator	DX210W-9C,W-90	2	2	2	2	2	2	2
148.	Loader	LW300FN	2	2	2	2	2	2	2
149.	Robotic Arm Wet Spray Machine	Sika aliva702+Aliva302.1	1	1	1	1	1	1	1
150.	Mini truck	VIGO CHAMP GX TRD	2	2	2	2	2	2	2
151.	Power transformer	ETO800/11	1	1	1	1	1	1	1

S/No	Machine	Model	Total No. Deployed	Deployment Month					
				Jul	Aug	Sep	Oct	Nov	Dec
152.	Low voltage switch	380V 1000A	1	1	1	1	1	1	1
153.	Mobile homes (containers)		1	1	1	1	1	1	1
154.	Crawler single bucket excavator	PC-200,335	2	2	2	2	2	2	2
155.	Tank-type special vehicle	Foton Daimler, M600	1	1	1	1	1	1	1
156.	Cantilever jib crane	SQ8SK3Q	1	1	1	1	1	1	1
157.	Ordinary lathe	C6140C	1	1	1	1	1	1	1
158.	Forklift	CPSCD50	1	1	1	1	1	1	1
159.	Land Cruiser V8		1	1	1	1	1	1	1
160.	Small Crane	806	1	1	1	1	1	1	1
161.	Power transformers	YBP-11/0.4-315	2	2	2	2	2	2	2
162.	Dump truck	SX3255DR384R	3	3	3	3	3	3	3
163.	Automatic grouting recorder	GJY-VI	4	4	4	4	4	4	4
164.	Geological drilling	XY-2	2	2	2	2	2	2	2
165.	Bolt grouting	EVMP	7	7	7	7	7	7	7
166.	Grouting pumps	3SNS-A	1	1	1	1	1	1	1
167.	Grouting pumps	3SNS-A	1	1	1	1	1	1	1
168.	Double-walled mixing drum	YJ-200A	2	2	2	2	2	2	2
169.	Slurry storage barrels	YJ-1200	2	2	2	2	2	2	2
170.	Down-the-hole drilling rigs	KSZ100	2	2	2	2	2	2	2
171.	Diesel generators	KPG 275K VA L8	1	1	1	1	1	1	1
172.	Loader	LW300FN	2	2	2	2	2	2	2
173.	Dump truck	SX3255DR384R	2	2	2	2	2	2	2
174.	Wheeled excavators	DOOSAN DX210W-9C	1	1	1	1	1	1	1
175.	Side dump loader	WA380-6	1	1	1	1	1	1	1
176.	Hydraulic drilling rigs	FT35	1	1	1	1	1	1	1
177.	Power transformers	YBP-11/0.4-315	1	1	1	1	1	1	1
178.	Transit Mixture	636, 625,6981,6982,6983,6942	6	6	6	6	6	6	6
179.	Transit Mixture	69,416,952	2	2	2	2	2	2	2
180.	Vigo	ABV-865	1	1	1	1	1	1	1
181.	Batching Plant at main access tunnel Powerhouse		1	0	0	1	1	1	1

7.3.6 Waste Generated

135. 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 and dam sites. These containers are emptied on a periodic basis and record is being maintained. NOC for waste disposal by KDA is provided as **Annexure B.**

136. Construction waste i.e. waste from tunneling and excavated material is being used as road fill material and upraising of platforms of protection works. Rock debris from blasting and tunnel construction at diversion and main tunnel is being used as protection works of retaining walls along the streams. PIU and PMC instructed EPC contractor to consult KP irrigation and environment department for use of material as protection works/retaining walls of streams and obtain necessary approval/NOC. During reporting semester, Project Management Consultant (PMC) granted approval for A2 & A3 muck disposal sites in November 2024. The approved detailed design report contains impact assessment of muck disposal sites and additional measure for protection works and to minimize environmental impact. EPC contractor has started work on temporary roads to access muck disposal sites.

137. Medical waste is being temporarily stored in waste containers and then it will be handed over to M/S ARAR services Pvt. Limited for final disposal.

138. Hazardous waste is being temporarily stored at camps and EPC contractor was in process of engaging certified hazardous waste contractor 3R green services for disposal of waste however no formal agreement was made till the end of reporting period.

139. 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)	58.7 kg	Collected in the KDA supplied waste container and then transported to the approved waste disposal site.
2	Used tires (Nos)	43	Stored in junk yard (to be auctioned)
3	Used wooden sheets (Kg)	0	Not produced yet
4	Used engine oil (litres)	218	Stored in barrels. SOP for used oil storage shall be revised.
5	Biodegradable waste (vegetables, food etc.) (Kg)	485	Stored in container provided by KDA at camp site and KDA will dispose at their designated site. EPC contractor has obtained NOC from KDA.
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 has granted

S/No	Type of Waste	Volume of waste generated	Disposal
			approval of A2 and A3 muck disposal sites for which work on temporary access road has been started.
7	Medical waste (Kg)	3.75	Temporarily stored at camp and will handed over to M/S ARAAR for final disposal.
8	Contaminated sorbents	1.5	Temporarily stored at camp and will handed over to M/S ARAAR for final disposal.

7.4 Batching Plant Management

140. BHPP Contractors has installed six batching plants as per the approved layout plans given in the SSEMP. Details on batching plant locations, installation status and capacities is provided below.

Batching plant location	Capacity m^3/hr	Installation status
Batching Plant at Adit-1	25	100%
Batching Plant at Adit-2	25	100%
Batching Plant at Adit-3	60	100%
Batching Plant at employer colony	25	100%
Batching Plant at main access tunnel	90	100%
Batching Plant at dam site	90	100%

141. Construction materials are stored adjacent to the batching plants. No crush plant was installed at the site during the reporting semester.

142. The batching plants operate under the direct supervision of CGGC or GRC 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.

143. It is suggested that EPC contractor shall prepare environmental due diligence reports of established batching plants at dam site and main access tunnel and submit to PMC for review and approval. PMC shall submit the completed report to PIU/ADB for their concurrence.

7.5 Muck Disposal Sites

PMC has approved muck disposal site for Adit 3 in Ghanool and Adit-2 and Adit-1 site for which work on temporary access roads to sites and method statement remained in progress. During reporting period, EPC contractor proposed a site for surge tunnel muck disposal for which PIU and PMC has visited the site on Dec 26, 2024 for necessary due diligence. The process is yet not completed and findings will be discussed in coming semester SAEMR. Pictures of approved A3 and A2 muck disposal sites and newly identified site for surge tunnel are shown below.

A3 muck disposal site

The upper and lower reaches of A3 muck disposal site

A1 and A2 muck disposal site

A1 and A2 muck disposal (Site-1)

Proposed site for surge tunnel

Proposed muck disposal site for surge tunnel

144. Environmental assessment of proposed sites is carried out and findings are discussed in design report of muck disposal sites. Baseline assessment, alternative analysis and stakeholder consultation is carried out by EPC contractor. PMC has approved A3 and A2 (Site 1) for establishment of muck disposal site after necessary due diligence process.

145. Layouts of selected muck disposal sites are provided as **Annexure E.**

146. The environmental considerations that will be adopted for muck disposal site are:

- Two surface drains; one along either bank of the disposal limits, are proposed to be constructed for disposal of rainfall runoff entering from the upper catchment.

- The drain sizes are proposed considering extreme conditions i.e.; 100 year return period discharges.
- Additional tree plantation other than compensatory plantation will be carried out at muck disposal sites.
- Coarser material will be dumped at the toe of the slopes to prevent erosion by the surface runoff.
- All the finish surfaces shall be protected by bio-engineering measures to safeguard against erosion and other environmental factors.
- The benches / berms shall slope towards the nearest surface drain in accordance with the geometric requirements.
- Monitoring and maintenance of the drains shall be ensured on regular basis during project construction period especially after each major flood event.
- Environmental Management Plan shall be executed in true spirit avoiding any adverse impact and unrest in the local population.
- Land acquisition and resettlement activities shall be executed in accordance with the Land Acquisition and Resettlement Plan (LARP) approved for the project.

7.6 Borrow Areas

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

7.7 Communication and Documentation

7.7.1 EMP Compliance Monitoring Reports

148. 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. EPC contractor is submitting monthly environmental reports to PMC detailing progress on environmental safeguards. 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
Monthly	C–ES	PMC–ES	PMC
Quarterly	C–ES	PMC–ES	PMC
Quarterly	PMC-ES	PIU- Deputy Director (Environment)	PMC, PIU
Semi Annual	PMC–ES	PIU–Deputy Director (Environment), ADB	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

7.7.2 Environmental Training/Meetings and Drills

149. 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 with extended support of BHPP management.

150. For the construction workers, the EPC Contractor conducted periodic training sessions and held regular toolbox talks on safety issues with practical demonstrations of response to any emergency.

151. EPC contractor has conducted 3rd party external OHS training dated 27-28 Nov, 2024. The two-day training was imparted by professionals of the Rescue 1122 of District Mansehra. The training was participated by relevant staff from PIU, PMC, and the EPC Contractor's HSE staff and supervisors from work sites, workshops, batching plants, etc.

152. EPC contractor also arrange training on blasting, operation of heavy machinery, and equipment at the site on 16 Nov, 2024 which was imparted by the trainers from Muzaffarabad Poly Technical Institute Azad Kashmir. Training pictures are provided below.

	
3rd Party Rescue 1122 training	3rd party OHS training by Muzaffarabad Poly Technical Institute

153. Toolbox Talks and HSE training attendance sheet is attached as Annexure C.

154. Limited training sessions in compliance with 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 such as waste management, incident/accident reporting, oil spill management and environmental monitoring. PIU, PMC, and contractor essential staff shall participate in such training sessions. PMC is advised to instruct the EPC contractor for preparation and implementation of environmental training plan. Periodic drills shall also be carried out to ensure effectiveness of training sessions/toolbox talks and improved SSEMP and HSE compliance.

7.7.3 Grievance Redress Mechanism

155. Under BHPP, GRM is effective and functional at EPC contractor level (internal) and PIU level. Environmental 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.**

156. 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. During reporting month six complaints received by the BHPP which were resolved promptly.

157. During the reporting period, one grievances were registered against the environmental safeguard aspect of the works under BHPP details of which are provided below.

158. During the reporting period, the Assistant Commissioner of Balakot forwarded a local resident's complaint to the PIU via letter No. 1809-10/BHPP/A (B), dated 26/08/2024, for early resolution under the law. The complaint is related to the damage to land and trees due to earthworks at Sangar A2 site. The forwarded application is attached in the report as **Annexure I.** PIU and PMC has taken up the complaint following GRM procedure and response will be discussed in coming SAEMR.

159. For registration of complaints, complaint registers are available at field offices and at sites wherein complainant can register complaint(s).

160. Upon receipt of complaint, EPC contractor follows the specified procedure to address the complaint and resolve the issue within prescribed time frame.

7.7.4 Tree Plantation Plan

161. Tree plantation of BHPP was prepared and accordingly approved by ADB in April, 2024. About 14,568 trees will be uprooted during construction of the project facilities. However, the 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

162. 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 and after several meetings and deliberations matter was resolved.

163. 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 has been prepared and implemented. Every tree removed will be compensated with the planting of five seedlings to ensure at least two mature trees.

164. Tree plantation plan and its implementation arrangements has been approved by ADB in April, 2024 however plantation will be initiated once sites (access roads, muck disposal sites, slopes, etc.) are made available for plantation The tree plantation plan is expected to commence in Q2 2025.

7.7.5 Traffic Management Plan

165. Since BHPP traffic is limited to only pool vehicles and construction material lorries which use N-15 as per need basis. Construction material is not transferred on daily basis and such transfer commenced during night hours. Heavy earth moving machinery and equipment has once shifted at project locations and parked at construction sites in the valley. No traffic congestion observed and reported on N-15 due to project activities during monitoring period.

166. 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.

167. To facilitate traffic on the road diversions, flagmen were deployed during traffic management operations. A hard barrication is installed at N-15 to cordon off main dam site. 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 and temporary access roads 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.

168. Keeping in view the nature of project construction activities, no significant traffic issue observed and reported on the N-35 and other public roads. Construction material is transported in closed or properly covered vehicles such that there is no chance of leakage / spreading during haulage.

7.7.6 Public Consultation Plan

169. Public consultation is a continuous process during the project execution. The 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.

170. During the reporting semester consultation with community for muck disposal sites (Adit 2 and Adit 3) and downstream surge tunnel site is carried out and detailed process of developing muck disposal sites is discussed and briefed to them.

171. 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.

7.7.7 Photographic Records

172. Photographic records have been maintained to date.

- project activities and non-compliances.
- good practices
- training and emergency drills.

173. Photographic records of sites prior to starting work should be 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.

7.7.8 Incident/Accident Reporting

174. 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.

175. 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.

176. PMC will ensure that EPC contractor has adopted incident/accident reporting procedure and training is provided to understand and monitor the notification/reporting mechanism.

177. During the reporting semester, a total of 16 accidents occurred out of which 12 accident occurred in the month of December which shows that contractor OHS staff is under capacity in managing OHS hazards and implementing mitigation measures.

178. One major accident occurred dated December 5, 2024 during drilling of rock bolt, fixing of wire mesh and performing support work at Adit-3 due to crown collapse. As a result, collapsed debris measuring 0.714 m^3 fell on the 03 labor workers and working platform. The workers get seriously injured however rescued for first aid and further treatment in Balakot Tehsil Hospital, Mansehra District Hospital and Ayub Medical Complex. Mr. Naqash (got injuries to his head and legs) died next day of accident, while Mr. Ilyas (got Injuries on his nose and head) and Mr. Mazhar Hussain (got minor abrasion on his head) were discharged after necessary treatment.

179. PMC and contractor HSE team visited the site, conducted initial and detailed investigation and shared the report with PEDO/ADB. The root causes include poor scaling of crown, violation of HSE procedure/instructions and miscomittment of the site management at Adit-3. The Incident investigation report suggested implementation of corrective actions such as a thorough review of current methods/procedures, replacement of outdated machinery/equipment, increase in scaling frequency, use of standard PPEs and continuous HSE supervision to avoid recurrence of such accidents.

180.

7.8 Socio-Economic Issues

7.8.1 Environmental and Social Complaint Register

181. 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. A total of six complaints received to BHPP which were promptly resolved except one complaint related to damage to land and trees, detail of which are provided in section 7.7.3. Copy of complaints received from July-Dec, 2024 are provided as **Annexure I.**

7.8.2 Economic Opportunities for Locals

182. 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, 897 locals out of 1439 total manpower has been hired for BHPP construction sites.

7.9 Environmental Safeguard Compliance Status

183. 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 sought. 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/No	EMP Requirements		Key Performance Indicators	Status of EMP Compliance	EMP Compliance Level
	Impact	Mitigation Measures			
Design and Pre-Construction Phase					
1	Terrestrial habitat loss caused by construction related activities	Minimize disturbance to, or movement of, soil and vegetation Minimize project footprint. Retain as much natural vegetation as possible. Locate construction facilities based on a knowledge of the soil. slope and vegetation cover of the area to avoid disturbance to the natural environment	Measures included in design documents	Camp and temporary access roads are selected in such way that vegetation damage is avoided. Camps are established with minimum land requirements. EPC contractor has established three dedicated camps form Adit 1, Adit 2 and Adit 3 and GRC living camp at Sanghar. Construction of Chinese camp at paras and new living camp at tailrace area has been completed. EEM visited the camp and necessary environmental measures has been implemented. CGGC camps are multi story steel structures in which rooms, offices and residential cabins are structured. Vegetation clearance is minimized. No off tracking is practiced as area is hilly terrain.	Complied
2	Decline in abundance and diversity of	Locate vehicle yards away from open soils and top soil stockyard	Measures included in	Vehicle yards are located within camp sites.	Complied

S/No	EMP Requirements		Key Performance Indicators	Status of EMP Compliance	EMP Compliance Level
	Impact	Mitigation Measures			
	terrestrial flora and fauna caused by construction related activities	Maximize use of locally-sourced aggregate and borrow material	design documents	Quarry material is being purchased from approved sites such as Black Dimond, Ghuman, and Bhangian Kasi for coarse aggregates and Lawrencepur, Maira and Thakot for fine aggregates. No borrow area/quarry sites developed during reporting semester. No off tracking of vehicles reported. Only designated routes/tracks are being used.	
		Minimize contact of non-local aggregate and borrow material with native soil.			
		Minimize disturbance to, or movement of, soil and vegetation.			
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 design documents	Pre-condition assessment is part of blasting method statement provided in project SSEMP.	Complied
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 has been completed. Hydro-census report on springs has been submitted in July, 2024.	Not Complied
5	Use of local water resources for construction activities may reduce the water availability for the	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, Adit-2 and Adit 3 location and Dam and power house site. For drinking purpose mineral water is being	Complied

S/No	EMP Requirements		Key Performance Indicators	Status of EMP Compliance	EMP Compliance Level
	Impact	Mitigation Measures			
	local communities.		Water sourcing and abstraction plan	used for Chinese mess while spring water is used for Pakistani mess. Sprinkling water is also transported through bowsers to the site. Analysis reports are in compliance to National Drinking Water Quality Standards.	
		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		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.	Not complied
		Enter into a formal agreement with the owner for the water source (or government if it is a public source)		EPC contractor has made agreement with owners of spring waters.	Complied
6	Increase in ambient noise levels due to	Visual alarms in preferred to audible alarms.	Measures included in	No extensive alarms are being used.	Complied

S/No	EMP Requirements		Key Performance Indicators	Status of EMP Compliance	EMP Compliance Level
	Impact	**Mitigation Measures**			
	operation of construction equipment, movement of construction traffic and blasting may create nuisance for nearby communities and visiting tourists.		design documents		
		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	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. In this regard, PMC has approved EPC contractor identified sites for Adit 2 and Adit 3. Work on temporary access road and method statement of muck	Partially complied

S/No	EMP Requirements		Key Performance Indicators	Status of EMP Compliance	EMP Compliance Level
	Impact	Mitigation Measures			
				disposal operation remained in progress during reporting period. PMC also started due diligence of newly identified site for muck disposal of upstream surge tunnel area.	
		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 proposed developments	Develop and implement a site Rehabilitation and Landscaping Plan	Measures included in design documents	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			
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 remained in progress. All TRs are identified	Partially Complied

S/No	EMP Requirements		Key Performance Indicators	Status of EMP Compliance	EMP Compliance Level
	Impact	Mitigation Measures			
				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 approximately 50-65% work has been completed. Access roads are being constructed as per alignment.	
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 public traffic congestion observed and reported.	Complied

S/No	EMP Requirements		Key Performance Indicators	Status of EMP Compliance	EMP Compliance Level
	Impact	Mitigation Measures			
				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. 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. TR-4 will be converted to permanent road and it will provide access to power house. All temporary and permanent roads are designed keeping in view future traffic requirements and sufficient crossing pass are provided.	
		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

S/No	EMP Requirements		Key Performance Indicators	Status of EMP Compliance	EMP Compliance Level
	Impact	Mitigation Measures			
		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
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 not occurred as construction activity remain limited to dam site away from graves.	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	Complied

S/No	EMP Requirements		Key Performance Indicators	Status of EMP Compliance	EMP Compliance Level
	Impact	Mitigation Measures			
				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.	
Construction Phase					
1	Construction impacts	SSEMP exhibiting areas to be cleared, vegetated areas to be protected or fenced, slopes to be stabilized and solid waste disposal locations.	SSEMP prepared before initiation of works	Project SSEMP has been prepared and approved by Employer on December 30, 2023. ADB provided concurrence on issuance of the SSEMP to contractors for necessary implementation and compliance. During reporting semester revision of SSEMP to include impacts of muck disposal sites remained in progress by the EPC contractor.	Complied
2	Improvement of the river ecosystem through implementation of the BAP	Implement BAP	• BAP is prepared and implemented	EPC contractor is taking work related measures to minimize impact on river ecosystem.	Partially Complied

S/No	EMP Requirements		Key Performance Indicators	Status of EMP Compliance	EMP Compliance Level
	Impact	**Mitigation Measures**			
	Loss of riverine ecosystem due to inundation by reservoir Degradation of the river ecosystem in the low flow segment downstream of the Project dam Degradation of the River Ecosystem Downstream of the Tailrace Terrestrial habitat loss caused by construction related activities.		• Allocated resources are budgeted • Role and responsibilities are clearly defined	PIU PEDO and KP Wildlife and Fisheries department is in process of implementation of project specific BAP for which focal persons has been nominated however contracts with departments are not signed. PIU/PMC has visited the KP Wildlife and Fisheries department identified sites for establishment of field offices and approved below sites. • Fisheries office adjacent to the Jared hatchery. • Within the SDFO Wildlife office Balakot City. 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.	

S/No	EMP Requirements		Key Performance Indicators	Status of EMP Compliance	EMP Compliance Level
	Impact	Mitigation Measures			
				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. For basin wide BAP implementation, PIU recommended ADB to hold the implementation until consensus developed between the prospective financers of Jelum Basin.	
3	Terrestrial habitat loss caused by construction related activities.	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.	SSEMPs prepared before initiation of construction	No sensitive wildlife observed and reported. Solid waste management plan is part of SSEMP.	Complied

S/No	EMP Requirements		Key Performance Indicators	Status of EMP Compliance	EMP Compliance Level
	Impact	Mitigation Measures			
			Visual confirmation of replantation		
		Solid waste should only be disposed of at designated sites and a Waste Management Plan developed and implemented.		Solid waste is being disposed of through KDA.	
		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.	Waste Management Plan	No environmental training plan on wildlife awareness and identifying species and animal hazards is available with EPC contractor.	
		Encourage personnel to report sightings of wildlife of conservation importance or incidents of poaching to PEDO.	Environmental Training Plan	No wildlife sighting is observed and reported.	
		Minimize disturbance to, or movement of, soil and vegetation		Soil damage and vegetation disturbance is minimized.	
		Prevent soil damage and erosion			
		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		Not applicable at this stage.	
		Train and raise awareness regarding AIS among Project staff and contractors			

S/No	EMP Requirements		Key Performance Indicators	Status of EMP Compliance	EMP Compliance Level
	Impact	Mitigation Measures			
		Retain as much natural vegetation as possible.			
		Dispose solid waste only at designated sites, and develop and implement a waste management plan.	Solid waste disposal site identified Agreement/ NOC from KDA • Agreement with landowners for quarrying and borrow areas	At present construction waste generated from tunneling activity at Adit 1, Adit 2 and Adit 3, Main access tunnel, diversion tunnel and surge tunnel is being stored at site and being used as fill material for rising of platform of protection works. Disposal of muck along the streams near the tunnels was observed during EEM visit for which PMC advised to investigate the matter and instruct contractor to stop this practice. Necessary penalty shall be imposed in this regard. During reporting semester, EPC contractor started work on temporary access of A2 and A3 muck disposal sites which were approved by PMC after necessary due diligence.	Not Complied

S/No	EMP Requirements		Key Performance Indicators	Status of EMP Compliance	EMP Compliance Level
	Impact	Mitigation Measures			
				EPC contractor has obtained KDA NOC for waste disposal. KDA has placed waste containers at GRC and CGGC camp for waste collection and waste is being transported on a periodic basis. EPC contractor has identified 3R green services as hazardous waste contractor however contract has not been signed during reporting period. Limited color coded waste bins are provided in GRC and CGGC 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.	Complied
		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 are being purchased from approved sites such as Black Dimond, Ghuman, and Bhangian Kasi for coarse aggregates and Lawrencepur, Maira and Thakot for fine aggregates.	Complied

S/No	EMP Requirements		Key Performance Indicators	Status of EMP Compliance	EMP Compliance Level
	Impact	Mitigation Measures			
4	Decline in abundance and diversity of terrestrial flora and fauna caused by construction related activities.	Large flood lights should not be installed outside 50 m of the project fence.	Environmental Training Plan Training Schedule Evidence of trainings and attendance lists Provision of required regulations in contract documents. Evidence of tree planting to required levels and yearly survival records.	No flood lights outside 50 m of project fence are installed.	Complied
		Direct lights towards project facilities, and not natural habitats.		Lights are directed toward project facilities instead of natural habitats.	
		Incorporate regulations for project staff and contractors to avoid illegal poaching in contract documents		All type of poaching is restricted in the contract documents. No compliant on poaching received during reporting semester.	
		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.	Complied
		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			

S/No	EMP Requirements		Key Performance Indicators	Status of EMP Compliance	EMP Compliance Level
	Impact	Mitigation Measures			
		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			
		The Contractor shall prepare an Environmental Training Plan for all construction workers: The Plan shall address the following items: • 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	Environmental Training Plan Training Schedule Evidence of trainings and attendance lists	EPC contractor is conducting regular tool box talks on HSE and SSEMP. EPC contractor is advised to conduct dedicated trainings on oil spill management and waste management.	Complied

S/No	EMP Requirements		Key Performance Indicators	Status of EMP Compliance	EMP Compliance Level
	Impact	Mitigation Measures			
		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			
		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,	Complied

S/No	EMP Requirements		Key Performance Indicators	Status of EMP Compliance	EMP Compliance Level
	Impact	Mitigation Measures			
				Zamanabad, Kholian, Kappi Gali site A and Kapi Gali site B. Tree planation activity will be carried out in consultation with DFO Mansehra. Tree plantation plan is approved by ADB in April, 2024 and issued to contractor however plantation cannot be initiated as selected sites are not prepared. Plantation activity is expected to commence in Q1 2025.	
5	Increase in ambient and ground level concentration of air pollutants from construction activities and vehicular movement may cause health impacts to the community.	Develop and implement an air pollution control plan 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	SSEMP documents prepared before initiating of construction Air pollution control plan	SSEMP is prepared by EPC contractor and approved by the PIU. Concurrence on the same is also obtained from ADB. Pollution prevention plan is part of SSEMP. There is need to maintain vehicle and equipment maintenance logs.	Complied

S/No	EMP Requirements		Key Performance Indicators	Status of EMP Compliance	EMP Compliance Level
	Impact	Mitigation Measures			
		Fugitive and exhaust emissions from transport vehicles: • 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. • 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.	Continuous observation for non-compliance Vehicle and equipment maintenance logs	Fugitive dust emissions are avoided by covering loose material with tarpaulin sheets/PE sheets. Periodic sprinkling on access roads and camps is carried out to suppress any dust generation. Periodic sprinkling on TRs shall be carried out to suppers dust. Wheel washing is done only at designated lined surfaces. There is a need to follow speed limit of 30 km/hour for light transport vehicle and 20 km/hour for heavy transport vehicle. Appropriate maintenance of vehicles and machinery is being carried out. Stack emissions monitoring of generators shall be conducted.	Complied

S/No	EMP Requirements		Key Performance Indicators	Status of EMP Compliance	EMP Compliance Level
	Impact	Mitigation Measures			
		• 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 • 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.	Blasting and explosives control plan document Blasting timetable available in nearby villages	Blasting management plan is being implemented. Blast design is being submitted and signed by the EPC contractor construction department and safety department.	Complied

S/No	EMP Requirements		Key Performance Indicators	Status of EMP Compliance	EMP Compliance Level
	Impact	Mitigation Measures			
			Results of preconstruction survey Availability of GRM	Blasting is being carried out after necessary geological mapping and stabilization activities. Project GRM is available and functional. There is need to conduct gas test in the tunnels to monitor LELs of various gases. Provisions shall be added in the contractor instructions.	
		Fugitive dust emissions from quarry areas ♦ 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.	SSEMP documents prepared before initiation of construction	No quarry areas are developed during reporting semester. Quarry material is being purchased from locally available resources.	Complied

S/No	EMP Requirements		Key Performance Indicators	Status of EMP Compliance	EMP Compliance Level
	Impact	Mitigation Measures			
		• 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.	Air pollution and control Plan Continuous observation For non-compliance Vehicle and equipment maintenance logs		
		Fugitive dust emissions from concrete batching plants • 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. • 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.	SSEMP documents prepared before initiation of construction Air Pollution and Control Plan Continuous observation for non-compliance Vehicle and equipment	EPC contractors has installed six batching plants at Adit 1, Adit 2, Adit-3 and in residential colony, dam site and main access tunnel as per the layout plan given in the SSEMP. There is a need to install wind sacks at the batching sites. Batching wash water is being treated in sedimentation ponds however it was observed that wash water is being released without proper retention time in the pond.	Partially Complied

S/No	EMP Requirements		Key Performance Indicators	Status of EMP Compliance	EMP Compliance Level
	Impact	Mitigation Measures			
		• 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.	maintenance logs	Weighing and mixing are being performed in closed environment. Batching sites are located in valley depressions and surrounded with mountains. Batching sites are located on land which is not flood prone and away from settlements. Batching vent is vertical, located at top of silo with height above 3 m from ground. Batching wash water settling tanks are available at batching sites. EPC contractor is advised to avoid disposal into nearby streams. Batching plants are equipped with dust filters.	

S/No	EMP Requirements		Key Performance Indicators	Status of EMP Compliance	EMP Compliance Level
	Impact	Mitigation Measures			
				There is need to ensure periodic water sprinkling in batching areas stock yards to suppress dust.	
		Fugitive dust emissions from aggregate production and handling system ♦ 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.	SSEMP documents prepared before initiation of construction Air pollution and control plan Continuous observation for non-compliance Vehicle and equipment maintenance logs	No fugitive dust emissions generated from aggregate production and handling system. Wind stacks shall be installed at batching sites.	Complied
		Wind-blown dust from exposed surfaces such as bare land and waste dumping sites ♦ Cover all exposed surfaces, particularly those close and up-wind of settlements. ♦ All grading operations on a project should be suspended		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/No	EMP Requirements		Key Performance Indicators	Status of EMP Compliance	EMP Compliance Level
	Impact	Mitigation Measures			
		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			
		Wind-blown dust from stockpiles of dusty materials such as sand and other minerals • 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		Stock piles located at constructions sites are covered with plastic. 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. There is need to conduct sprinkling or wetting of stock piles if exposed to air.	Complied.

S/No	EMP Requirements		Key Performance Indicators	Status of EMP Compliance	EMP Compliance Level
	Impact	Mitigation Measures			
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 timetable available in nearby villages Results of preconstruction survey Availability of GRM	Blasting management plan is being implemented.	Complied
		♦ Conduct a pre-construction survey of structures at risk of vibration impacts on households. o In the initial stages, the blasting induced vibration shall be measured as a function of maximum instantaneous charge and distance from the blasting site. This data shall be then used to refine the Blasting Induced Vibration Risk Zones based on the adopted criteria. 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		Blast design is being submitted and signed by the EPC contractor construction department and safety department Pre- construction survey for blasting operation is being carried out by EPC contractor. Based on the results vibration risk zones are being refined for implementation of mitigation measures. No blasting shall be carried until pre-conditions survey report submitted by PMC and verified by PIU BHPP. Continuous community consultation need to be ensured during blasting operation.	Complied

S/No	EMP Requirements		Key Performance Indicators	Status of EMP Compliance	EMP Compliance Level
	Impact	Mitigation Measures			
		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 structures. The survey will cover the following aspects: ➢ 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. ➢		Community relocation plan shall be prepared, approved and executed before start of blasting operation (as and where applicable).	
		♦ 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		Not applicable at this stage.	

S/No	EMP Requirements		Key Performance Indicators	Status of EMP Compliance	EMP Compliance Level
	Impact	Mitigation Measures			
		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.			
		♦ 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.	

S/No	EMP Requirements		Key Performance Indicators	Status of EMP Compliance	EMP Compliance Level
	Impact	Mitigation Measures			
		♦ 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: 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 o monitor changes in the vibration levels due to possible changes in the rock formation and take appropriate corrective actions.		Not applicable at this stage.	
7	Blasting may pose a health hazard due to flying debris.	Provide a minimum buffer of 500 m between the settlements and point of blasting. 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. Ensure that the holes are correctly collared with respect to the back-break/inclination of the face and	Blasting and Explosives Control Plan document Blasting timetable available in nearby villages Results of preconstructio n survey	Blasting management plan is prepared and being implemented. Drilling of blast holes, collaring and adjustment of frond row burden shall be carried out in systematic way to reduce flying debris. No blasting shall be carried out until pre-conditions survey report	Partially Complied

S/No	EMP Requirements		Key Performance Indicators	Status of EMP Compliance	EMP Compliance Level
	Impact	Mitigation Measures			
		digging alongside the initiation face is well controlled.	Availability of GRM	submitted by PMC and verified by PIU BHPP.	
		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		Workers in Tunnels shall be provided with N95 or P3 masks.	
		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 premature venting of explosion gases through the stemming column.		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. Use of PPEs shall be ensured.	
		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.		EPC contractor has submitted the spring survey report in July, 2024 and compliance is being ensured.	
		Carefully connect the delay devices in the holes/rows, and check the initiation sequence before firing to avoid initiating blast holes out of sequence.			

S/No	EMP Requirements		Key Performance Indicators	Status of EMP Compliance	EMP Compliance Level
	Impact	Mitigation Measures			
		Blasts designed on a face length to width ratio in the range of 3 to 4 produces minimum fly rock.			
8	Alterations of natural passage of springs due to blasting for tunnels may disrupt the water supply for mountain spring users.	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. Monitor flow for located springs and maintain records. Support the community in developing alternate water supply schemes through local NGOs Ensure the availability of water to the communities, and access to the water resources is not adversely affected.	Map of identified springs Safe yield calculation and monitoring Agreement with land owner Community consultation record	EPC contractor is using spring water through piped network in the GRC camp, CGCC camp, Adits, main access tunnel, diversion tunnel, surge tunnel and main dam site. For drinking purpose both mineral and spring water is being used. Sprinkling water is also spring water which is transported through bowsers to the sites. EPC contractor has submitted the spring survey report in July, 2024 and compliance is being ensured. Survey report shall cover calculation of safe yield and monitoring reports. Survey findings shall be verified by PMC. Agreement with spring owners shall be submitted to PMC.	Partially Complied
9	Use of local water resources for	Develop water sourcing and abstraction plan			Partially Complied

S/No	EMP Requirements		Key Performance Indicators	Status of EMP Compliance	EMP Compliance Level
	Impact	**Mitigation Measures**			
	construction activities may reduce the water availability for the local communities.		Agreements documents for water use. Water sourcing and abstraction plan Water use record documents	PMC shall approve the sources of water abstraction in consultation with local communities. Water yield monitoring shall be carried out for approved sources. Access to the community to water sources will be ensured once sources are approved by PMC and agreement is made with the owners. No damage or blockage of waterways and channels observed during reporting period. Record of water usage is being maintained and reported by EPC contractor. Mitigation measures related to use of local water sources are part of SSEMP.	
		Source water for construction from authorized abstraction sources agreed among the local communities, local government and EPC contractor.			
		Develop and implement water conservation techniques by the EPC contractor.			
		Keep access of the community to water sources clear so that the community's ability to meet its water requirements are not compromised.			
		Exercise care while moving heavy machinery to avoid damage or blockage of natural waterways and channels.			
		Maintain records of water usage in all Project activities.			
		Incorporate the above measures in the SSEMP			

S/No	EMP Requirements		Key Performance Indicators	Status of EMP Compliance	EMP Compliance Level
	Impact	Mitigation Measures			
10	Discharge from construction activities can potentially result in the contamination of soil, groundwater and surface water.	Develop and implement a water quality management plan		Pollution prevention plan is part of SSEMP and being implemented.	Complied
		Prepare and implement a spill prevention and response plan and inducted to the staff for any incident of spill.	Water quality management plan documents	There are no waste drums placed at main access tunnel, diversion tunnel and colony area.	Not complied
		Provide and use spill prevention trays at refueling locations.	Spill prevention and response plan	Fuel drums are placed without secondary containment at dam site, main access tunnel and diversion tunnel.	
		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.	Improper storage of used oil in open drums observed at dam site, main access tunnel and diversion tunnel.	
		Build separate impervious pits (with concrete walls and proper shed) at the construction sites for temporary handling and storage of contaminated soil and water if encountered during construction such as sludge from OWS.		Cutting spoil is disposed of into streams at diversion tunnel and main access tunnel.	
		Keep all fuel storage tanks and lubricating oil drums in secondary containment impervious pits with impervious shed walls.	Record of spills and remedial actions taken		
		Avoid on-site maintenance of construction vehicles and equipment, as far as possible.	Provision of spill kits at sites	Tunnel waste water is being disposed of into river without treatment at diversion tunnel.	

S/No	EMP Requirements		Key Performance Indicators	Status of EMP Compliance	EMP Compliance Level
	Impact	Mitigation Measures			
		Regularly inspect construction vehicles and equipment to detect leakages.		Septic tank was found very near to the water body and its pipes were damaged and non-functional at Adit-1.	
		Store fuels and lubricants in covered and dyked areas, underlain with impervious lining.			
		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.		Generator at Adit-1, surge tunnel and main access tunnel is placed without proper secondary containment.	
		Remove contaminated soil from the site and dispose them in a manner to ensure protection of water sources.			
		Construct the bottom of any soak pit or septic tank at least 100 m away from springs and water bores.		No Tunneling waste stabilization ponds are constructed at main access tunnel, surge tunnel and diversion tunnel. EPC contractor is disposing tunnel waste without treatment in river and streams resulting in environmental nuisance. PMC is advised to look into the matter, formulate a committee to investigate the root cause of this practice and enforce strict action/penalties in this regard.	
		Maintain records of spills and volume of removed contaminated soil.			
		Maintain record of remedial measures taken.			
		Use silt traps to prevent contamination of river and streams.			
		Incorporate the above measures in the Construction Site EMP		Spoil is temporarily placed near the streams at diversion, head	

S/No	EMP Requirements		Key Performance Indicators	Status of EMP Compliance	EMP Compliance Level
	Impact	Mitigation Measures			
				race and main access tunnel which can spill. Tunneling waste is being stored at sites. 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. Tunnel waste at main access tunnel and surge tunnel is being used as protection works for retaining wall at river. Surplus waste will be disposed of at identified muck disposal sites. Engines are placed without secondary containments. Fuel storage at BHPP sites are not marked and not stored in proper secondary containment.	

S/No	EMP Requirements		Key Performance Indicators	Status of EMP Compliance	EMP Compliance Level
	Impact	Mitigation Measures			
				EPC contractor has not yet provided spill kits in all sites. Washing yard facility has not been constructed yet. Vehicle maintenance is practiced at the construction sites. Poor housekeeping observed at main access tunnel, dam site and surge tunnel-power house area. EPC contractor is advised to main good housekeeping at sites. All Scrap material shall be removed from sites. Septic tanks are constructed at CGGC and GRC camps and found effective and functional. Oil spill drills shall be planned and conducted.	

S/No	EMP Requirements		Key Performance Indicators	Status of EMP Compliance	EMP Compliance Level
	Impact	**Mitigation Measures**			
				PMC is advised to arrange dedicated training on oil spills and their management. Used tires were scattered around the workshop area, which should shift in to its designated store or discard immediately.	
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.	Develop a noise and vibration control plan **Noise generated in construction sites from construction activities.** ♦ 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 also occur as the result of inadequate lubrication. ♦ Regularly maintain equipment under use, tuned, and provided with mufflers to minimize noise levels.	Noise and vibration control plan Maintenance record of equipment	Noise and vibration Impacts and measures are discussed in SSEMP. Mitigation measures related to noise impacts at construction sites are being implemented. Noise level monitoring near sensitive receptors is being carried out. There is need to construct proper generator enclosures for Adit tunnels, surge tunnel, diversion and main access tunnel.	Substantially Complied

S/No	EMP Requirements		Key Performance Indicators	Status of EMP Compliance	EMP Compliance Level
	Impact	**Mitigation Measures**			
		• 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.	Records of community meetings regarding noise. Noise level monitoring in nearby communities		
		Construction noise from traffic • Fit and maintain appropriate mufflers on earth-moving and other vehicles on the site. • Fit mobile plants such as excavators, front-end loaders and other diesel-engine equipment with residential class mufflers and other silencing equipment, as applicable.		Earth moving vehicles are operating away from traffic roads. There is need to install mufflers on excavators, front end loaders, diesel operated generators.	Complied

S/No	EMP Requirements		Key Performance Indicators	Status of EMP Compliance	EMP Compliance Level
	Impact	Mitigation Measures			
		• 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		TRs are being constructed with good gradient to suppress noise generation. Erection of purpose built acoustic barriers is not required as SRs are located away however machinery operating hours are restricted to daylight operations.	
		Construction noise from on-site plant operations and equipment • 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. • 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.		Generators are placed at designated locations near the camps and Adits. There is a need to develop proper enclosures for generators to reduce noise. Design of acoustic enclosure needs to be submitted to PMC for approval. Ear plugs are provided to the workers. Use of PPEs at the sites has been improved.	Partially Complied

S/No	EMP Requirements		Key Performance Indicators	Status of EMP Compliance	EMP Compliance Level
	Impact	Mitigation Measures			
		• 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 performing noisy tasks; and shutting down noisy equipment when not needed.		Training on noise hazards and mitigations shall be planned by PMC. Noise emission monitoring of generators shall be carried out.	

S/No	EMP Requirements		Key Performance Indicators	Status of EMP Compliance	EMP Compliance Level
	Impact	Mitigation Measures			
		• Use earplugs to reduce workers' exposure to high noise levels.			
		Noise generated from the blasting in quarry areas. • 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
		Noise emissions from concrete batching • Locate noisy equipment away from potential sources of conflict. • Locate noisy equipment behind sound barriers or sound absorbers – for example, gravel stockpiles or constructed barriers.		Batching plants are fitted with rubber pads to reduce noise. Batching sites are located away from sensitive receptors.	Partially Complied

S/No	EMP Requirements		Key Performance Indicators	Status of EMP Compliance	EMP Compliance Level
	Impact	Mitigation Measures			
		♦ Install silencing devices to all pressure operated equipment		Batching operation is only carried out for limited time keeping in view the construction requirements. Provision and use of PPEs is being ensured at batching plant site. PMC shall ensure that ear plugs and ear muffs are provided to workers closely working at motors and Pumps of batching plant. EDDR of newly installed batching plants at dam site and surge tunnel-power house shall be carried out.	
12	Contamination of soil as a result of accidental release of solvents, oils and lubricants can degrades soil fertility and agricultural productivity.	Prepare a spill prevention and response plan and induct staff for any incident of spill. 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. Install grease traps on the site, wherever needed, to prevent flow of oily water.	Spill Prevention and Response Plan document Visual verification of conformance	Pollution prevention plan is part of SSEMP and being implemented. There is a need of periodic inspection of fuel storage areas, tanks and vehicles to check leaks/spills.	Partially Complied

S/No	EMP Requirements		Key Performance Indicators	Status of EMP Compliance	EMP Compliance Level
	Impact	Mitigation Measures			
		Make spill cleaning kit (shovels, plastic bags and absorbent materials) available near fuel and oil storage areas.		Spill cleaning kits are not available at the site.	
		Carry cleanup kits in all fuel trucks.		Used tires were scattered around the workshop area at diversion tunnel, which may be shifted to its designated store or discard immediately.	
		Allow fueling only over impermeable surfaces. Store other hazmat and use them over impermeable surfaces.		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.	
		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 it is established that the distance will not result in contamination of groundwater.		Drip trays shall be arranged for refueling purpose. Refueling shall be carried out on impermeable surfaces i.e. concrete pad with drains. 184. 185. Septic tanks are located away from surface water	

S/No	EMP Requirements		Key Performance Indicators	Status of EMP Compliance	EMP Compliance Level
	Impact	Mitigation Measures			
				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.	Complied
		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 186.	
		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			

S/No	EMP Requirements		Key Performance Indicators	Status of EMP Compliance	EMP Compliance Level
	Impact	Mitigation Measures			
		infestation; and maintain soil organic matter levels, soil structure, and microbial activity.			
		Put clear signposts on topsoil stockpiles for easy identification, and to avoid any inadvertent losses.			
		Monitor declared plants on the stockpiles, and implement control programs as required.			
		Treat the topsoil with temporary soil stabilization and erosion control measures.			
		During removal of topsoil stockpile for restoration of project affected areas, preferably remove the soil in layersn (less than 0.5 m thick) under a gradual process.			
		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.			
		Select local species for plantation to restore the biodiversity of the area in consultation with Forest Department after completion of respective activities.			

S/No	EMP Requirements		Key Performance Indicators	Status of EMP Compliance	EMP Compliance Level
	Impact	**Mitigation Measures**			
14	Failure of spoil dumping sites resulting in increased erosion and sediment load entering river	Design dumping sites to prevent flood for 20 years.			
		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			
		Develop a spoil disposal plan that includes the following measures: ♦ 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). ♦ Reinstate topsoil (in case it was stripped before construction activities). ♦ Revegetate sites with suitable native plant species.	Spoil disposal plan On-site inspection of spoil disposal sites to ensure that mitigations are applied	Muck disposal and management plan is provided in the SSEMP. EPC contractor is in process of developing muck disposal sites for Adit 3 in Ghanool and Adit-1/ Adit-2 which were approved by PMC. Contractor is in process of constructing temporary access road to sites and method statement for muck disposal operations.	Not complied

S/No	EMP Requirements		Key Performance Indicators	Status of EMP Compliance	EMP Compliance Level
	Impact	Mitigation Measures			
		• Drain spoil piles to prevent the concentration of flow and to prevent rill and gully erosion. • Separate organic material (e.g., roots, stumps) from the dirt fill and store then separately. Place them 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.		EPC contractor has identified a site of muck disposal of upstream surge tunnel at power house area for which PMC due diligence remained in progress. EPC contractor is using muck of downstream surge tunnel for retaining wall works at river without prior permission of irrigation and EPA department. There is need to consult the departments and obtain necessary approvals. Spoil generated from tunneling activity is temporarily stored at site. Stored spoil is used as road fill material, levelling of roads, slope stabilization and protection works for retaining walls. Surplus spoil shall be disposed of at approved developed muck disposal sites. To control erosion and destabilization protection measures such as reinstating of top soil, drainage of spoil piles,	

S/No	EMP Requirements		Key Performance Indicators	Status of EMP Compliance	EMP Compliance Level
	Impact	Mitigation Measures			
		• Cover the compacted surfaces with a 6-inch layer of organic or fine-grained soil, if feasible. • 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-		diversion of rain water and revegetation shall be carried out while developing spoil disposal areas.	

S/No	EMP Requirements		Key Performance Indicators	Status of EMP Compliance	EMP Compliance Level
	Impact	Mitigation Measures			
		vegetation (using fast-growing species and different functional groups of plants for keeping soil in place) of slopes to minimize erosion. ♦ 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			

S/No	EMP Requirements		Key Performance Indicators	Status of EMP Compliance	EMP Compliance Level
	Impact	Mitigation Measures			
		corridors, ordinary high-water areas, and high-risk zones such as 100-year floodplain and unstable slopes. ♦ 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. Back fill to original levels. Reshape to match with surrounding topography. Reinstate vegetation around construction sites.	Cover used to disguise equipment 187. Landscape and rehabilitation plan	Tree management plan has been approved and issued to contractor however tree plantation cannot be commenced due to non-availability of selected plantation sites. Tree plantation is expected in Q2 2025. Landscape and rehabilitation plan shall be developed and implemented once construction activities are completed.	Partially complied.

S/No	EMP Requirements		Key Performance Indicators	Status of EMP Compliance	EMP Compliance Level
	Impact	Mitigation Measures			
16	Permanent impact in aesthetics due to proposed developments.	Develop and implement a site rehabilitation and landscaping Plan. Use colors that better integrate with the landscape. Disguise elements with vegetation where possible. Retain as much natural vegetation as possible.	Cover used to disguise equipment Landscape and rehabilitation plan	Not applicable at this stage	
17	Increase in traffic volume will deteriorate the air quality.	Keep speeds slow (30 km/hr) on unsealed roads. Sprinkle water on unsealed roads that are used for construction traffic. Retain as much natural vegetation as possible to reduce the impact of smoke due to vehicles. Completely cover vehicles going on the spoil routes and passing through the communities to avoid dust emissions Strictly implement speed limits and defensive driving policies. Promptly and properly repair and maintain roads that are subject to damage by project activities.	Traffic management plan Speed limit for light vehicles: 30 km/hour on unsealed road. Speed limit for heavy machinery: 15 km/hour on unsealed road	Traffic management plan is in place and part of SSEMP. Driver are trained with respect to speed limits, covering of spoil disposal during transfer, road safety and community sensitization. Periodic sprinkling is being carried out at access roads to suppress dust.	Complied

S/No	EMP Requirements		Key Performance Indicators	Status of EMP Compliance	EMP Compliance Level
	Impact	Mitigation Measures			
			.		
19	Increased risk to community safety due to increased traffic volume during the construction phase near communities.	Develop and implement a Traffic Management Plan.	Traffic Management Plan	Traffic management plan is prepared and part of SSEMP.	Complied
		Identify suitable times to transport equipment.		Flagmen are provided by EPC contractors at access roads. At present no major traffic related issues observed and reported.	
		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		There is a need to train drivers to ensure compliance with speed limits, covering of spoil disposal during transfer, road safety and community sensitization.	
		Keep speeds slow (30 km/hour) where there is traffic exchange between roads.		Material and machinery movement is avoided during peak school/public business hours.	
		Make roundabouts for the congestion points.		Compliance to speed limits need to be ensured.	
		Designate traffic wardens at roads on the transport route to manage traffic during school hours.		Use of motorbikes by the worker in hilly areas shall be discouraged to approach project works.	
		Construction traffic will not travel during school starting and ending hours on designated road segments in front of schools on the transport route.			
		Strictly implement speed limits and defensive driving policies.			
		Maintain vehicles especially brakes.			

S/No	EMP Requirements		Key Performance Indicators	Status of EMP Compliance	EMP Compliance Level
	Impact	Mitigation Measures			
				In case of use of motorbikes, workers shall observe speed limits and wear helmets.	
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	Two damages to property reported in GRM during reporting semester on which PMC and EPC contractor has taken action and issues has been resolved.	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.	**Enhancement measures**: ♦ 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. **Good practice measures**: ♦ 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.	Number and ratio of local employees to non-local employees	EPC contractor has employed good ratio of local employees. About 897 employed out of 1439 are locals. No local employment conflicts reported during reporting semester.	Complied

S/No	EMP Requirements		Key Performance Indicators	Status of EMP Compliance	EMP Compliance Level
	Impact	Mitigation Measures			
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.	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. Assist local people having practical skills but lacking qualifications to obtain their certificates and thus increase their employment opportunities. Support initiatives promoting a culture of learning in local communities. Develop and implement training program for vulnerable groups to encourage their participation in economic opportunities created by the Project. Assist employees and local communities to improve basic personal financial life skills through training and awareness campaigns, respectively. Consider further training programs to prepare retrenched workers to seek employment in sectors not related to dam construction.	Vocational training program including annual schedule. Budget allocation for trainings. Documentary evidence including photographs and attendance lists of trainings.	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' vocational training to the selected candidates in the institutes. First six-month vocational training program for 18 students (7 males and 11 female) from the project-affected community was completed in October 2024. A total of 10 such training sessions are planned during the currency of the contract i.e. till December 2027. Training plan is prepared and part of SSEMP and being implemented by EPC contractor.	Complied

S/No	EMP Requirements		Key Performance Indicators	Status of EMP Compliance	EMP Compliance Level
	Impact	Mitigation Measures			
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 however contracts will be signed once update EIA will be approved and disclosed by ADB. PIU/PMC has visited the KP Wildlife and Fisheries department identified sites for establishment of field offices and approved below sites. • Fisheries office adjacent to the Jared hatchery. • Within the SDFO Wildlife office Balakot City. Offices will be established once project updated EIA is approved and funds are mobilized.	Partially complied
24	Loss of income from sand and gravel	Sediment mining and management guidelines are prepared, and will be	Hot spots for sediment	Not applicable at this stage.	

S/No	EMP Requirements		Key Performance Indicators	Status of EMP Compliance	EMP Compliance Level
	Impact	Mitigation Measures			
	mining due to change in sediment deposition pattern after dam construction.	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.	mining are identified		
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. Support NGOs specializing in development of infrastructure to assist local government.	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 norms and community sensitization. No GRM dissemination observed at work sites e.g. main dam site, Adits, diversion tunnel, surge tunnel, main access tunnel, housing colony and contractor camps.	Partially Complied
26	Disputes over distribution of project employment within and between study	Implement PEDO stakeholder engagement plan include the following:	Stakeholder engagement plan	Stakeholder engagement plan is prepared and implemented.	Complied

S/No	EMP Requirements		Key Performance Indicators	Status of EMP Compliance	EMP Compliance Level
	Impact	Mitigation Measures			
	area inhabitants and the in-migrants resulting in social unrest.	♦ 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.	Minutes of community and stakeholder consultations Provision in budget for activities.	Minutes of such consultations are being recorded and maintained. Regular communication with local community is being maintained. GRM is available, functional and effective.	
27	Potential social unrest in the study area due to conflicting socio-cultural norms amongst the inhabitants and in-migrants.	Plaster graves with mud or cement. If relocation of the graveyard cannot be avoided, it shall be managed through the local religious authorities.	Photographic evidence	There are 10-12 graves located in Paras village near dam site. The affected community and the district administration agreed in shifting the graves. Compensation assessment committee has been notified. At present construction work is limited to dam site and graves are not impacted.	Complied

S/No	EMP Requirements		Key Performance Indicators	Status of EMP Compliance	EMP Compliance Level
	Impact	Mitigation Measures			
28	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. 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. OHS risks such as biological hazards	Ensure Job safety analysis is carried out for the construction works. Design machines to eliminate trap hazards and ensure that extremities are kept under normal operating conditions. Implement Log Out Tag Out procedure Periodically maintain and service equipment and machinery Allow job rotation of workers where exposure is high Conduct periodic medical checkup of workers which are exposed to high noise, vibration or equipment temperature Periodically inspection of all electrical cords, cables and hand power tools Restrict access to high voltage area Use of proper PPEs to avoid Eye and Welding hazards Special hot work and fire prevention precautions and Standard Operating Procedures (SOPs)	OHS Plan Document Provision of PPEs OHS Inspection and Monitoring Checklist OHS training program Procedures for working in confined spaces, working alone or isolated or work at height developed	OHS plan is part of SSEMP and is being implemented. An accident occurred at Headrace tunnel due to collapse of crown dated December 5, 2024. As a result, three workers got injured resulting in one fatality while other two labour were stable till the end of the reporting period. There is need to conduct job safety analysis for critical jobs. OHS inspection and monitoring checklist is available. Electrical cables and hoses were not managed on sites. Workers were found operating the welding machine without wearing proper face shields at downstream surge tunnel. The ladder of the working platform was not properly installed at main	Not complied

S/No	EMP Requirements		Key Performance Indicators	Status of EMP Compliance	EMP Compliance Level
	Impact	Mitigation Measures			
	including communicable diseases, infectious diseases, dengue larva, COVID-19 etc. may occur during execution of project activities.	Installation of proper scaffoldings and its periodic inspection to ensure stability Trained and licensee operators will be hired Designated storage of hazardous material and chemicals Availability of Material Safety Data Sheets Placement of Hazard communication boards Corrosive oxidizing and reactive chemicals will be segregated from flammable materials and from other chemicals of incompatible class Handling of hazardous materials and chemicals by trained workers Procedures for working in confined spaces, working alone or isolated or work at height		access tunnel which is a safety risk. Confined space attendant was not deputed on the access of the tunnels to maintain the confined space entry log sheets. Reverse alarm of heavy machinery is not provided. The ladder of the working platform was not properly installed at main access tunnel. PPEs are provided to workers however strict compliance on use of PPEs need to ensure. There is need to conduct gas test in the tunnels to monitor LELs of various gases. Silica dust monitoring shall be carried out in the tunnels.	

S/No	EMP Requirements		Key Performance Indicators	Status of EMP Compliance	EMP Compliance Level
	Impact	Mitigation Measures			
				Fuel drums are stored without secondary containment at 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. Permit to Work procedure for critical jobs such as working in confined spaces, working isolated and working has been adopted by the EPC contractor. MSDS are available for hazardous materials. There is need to increase hazard communication boards at sites.	

S/No	EMP Requirements		Key Performance Indicators	Status of EMP Compliance	EMP Compliance Level
	Impact	Mitigation Measures			
				There is need to increase security staff at dam site. Haphazard dumping of used material in the camps shall be avoided to reduce OHS risks. Use of motorbikes by the worker in hilly areas shall be discouraged to approach project works. In case of use of motorbikes, workers shall observe speed limits and wear helmets.	

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. PMC has submitted updated EIA for ADB/AIIB review in August 2024 on which comments received on October 31, 2024. After incorporation of ADB/AIIB comments, PMC re-submitted the revised EIA report to PIU on December 25, 2024 for further submission to ADB/AIIB for review and finalization.
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 on-going process. 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;	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.

Sr. No	KP EPA NOC Conditions	NOC Conditions Compliance Status
	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;	
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 share with the Agency before commencing construction activity;	Spring survey has been 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.
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 BAP arrangements is in progress and project specific BAP is being implemented and monitored by the PIU, PMCSC and Regulators. BAP management committee will be formulated to review the arrangements. In this regard focal persons have been nominated for wildlife and fisheries department however no formal contract is signed till end or reporting period.
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 at dam site and reservoir area 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 are planned 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	All the affected existing Houses, Bridges, BHU, School, Dispensaries, Electric Poles, Mosque and

Sr. No	KP EPA NOC Conditions	NOC Conditions Compliance Status
	and other structures shall be relocated and compensated to other appropriate area before starting construction	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 community 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 of the area/local committee by mutual agreement;	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 Paras which will be shifted. Compensation process has been completed, however graves are not yet shifted.
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	Not applicable at this stage.

Sr. No	KP EPA NOC Conditions	NOC Conditions Compliance Status
	of base load high protection operation mode.	
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.	Previously produced muck is being used as road fill materials and raising platform for tunnel protection works. During reporting semester, Project Management Consultant (PMC) granted approval for A2 & A3 muck disposal sites in November 2024. The approved detailed design report contains impact assessment of muck disposal sites and additional measure for protection works and to minimize environmental impact. EPC contractor is in process of constructing temporary access at these sites. A report on muck disposal sites shall 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. PIU/PMC has approved the SDFO office, Balakot and Fisheries Hatchery at Jared for field office to implement BAP.
20	Safety zone/adequate engineering measures should be provided to overcome fears of the residents regarding the project activities to their houses;	Safety zones with respect to blasting activities are being identified and detailed in pre-blasting survey. Blasting activities will be communicated to nearby villages to overcome fears of the residents regarding project activities to their houses. 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,	Primary baseline data at project identified sites are being collected on quarterly basis. Environmental

Sr. No	KP EPA NOC Conditions	NOC Conditions Compliance Status
	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.	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 is being constructed on left bank of Kunhar river which will serve as sediment bypass tunnel and low level spillway.
25	Road/highway submerged/damaged due to project activity should be reconstructed/repaired/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 NHA 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 Explosive Act should be adopted in sliding and perspective sliding prone areas;	Controlled blasting is being practiced. Blasting management plan is prepared and part of SSEMP. Provisions of explosive acts are complied. Magazine 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.

Sr. No	KP EPA NOC Conditions	NOC Conditions Compliance Status
		Community level gardening and farming is also part of project CSR through engaging local community. First six-month vocational training program for 18 students (7 males and 11 female) from the project-affected community has been completed in October 2024.
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 897 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 June 16, 2021, shall be implemented to ensure survival of aquatic life. Furthermore, a Fish Hatchery shall be established in consultation with Fishery Department;	Provision of fish ladder is not feasible, and condition is withdrawn by KP EPA.
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	A comprehensive tree plantation plan in consultation with forest department is in progress, and has been submitted to PIU/ADB for review and approval. ADB provided consent on implementation of tree plantation plan in April, 2024. Plantation is expected to be commenced in Q2, 2025 when site are cleared and prepared for plantation.

Sr. No	KP EPA NOC Conditions	NOC Conditions Compliance Status
	Forest Department and a forester along with other supporting staff shall be hired.	
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 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.

7.10 Environmental non-compliances

188. 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.

189. 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 7-1: Photographs of EEM's Visits to Project Sites

<table>
<tr><td>  </td><td>  </td></tr>
<tr><td>Meeting with PIU and PMC team</td><td>Visit to main access tunnel</td></tr>
<tr><td>  </td><td>  </td></tr>
<tr><td>Review of environmental records dam site</td><td>Visit to diversion tunnel dam site</td></tr>
</table>

	
Visit to Chinese camp Paras	Visit to downstream surge tunnel

7.10.1 Details of Environmental Non-Compliances

190. A total of 46 environmental non-compliances of EMP/SSEMMP/BAP were recorded during monitoring period. About 12 non-compliances were minor, 30 moderate and 04 major non-compliances. Major non-compliances are; waste stabilization ponds are not constructed for tunnels, delay in establishment of muck disposal sites, improper dumping of muck cuttings near streams and septic tank constructed near stream at Adit-1. CAP to close out observed non-compliances is provided in this EEM report.

191. 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.

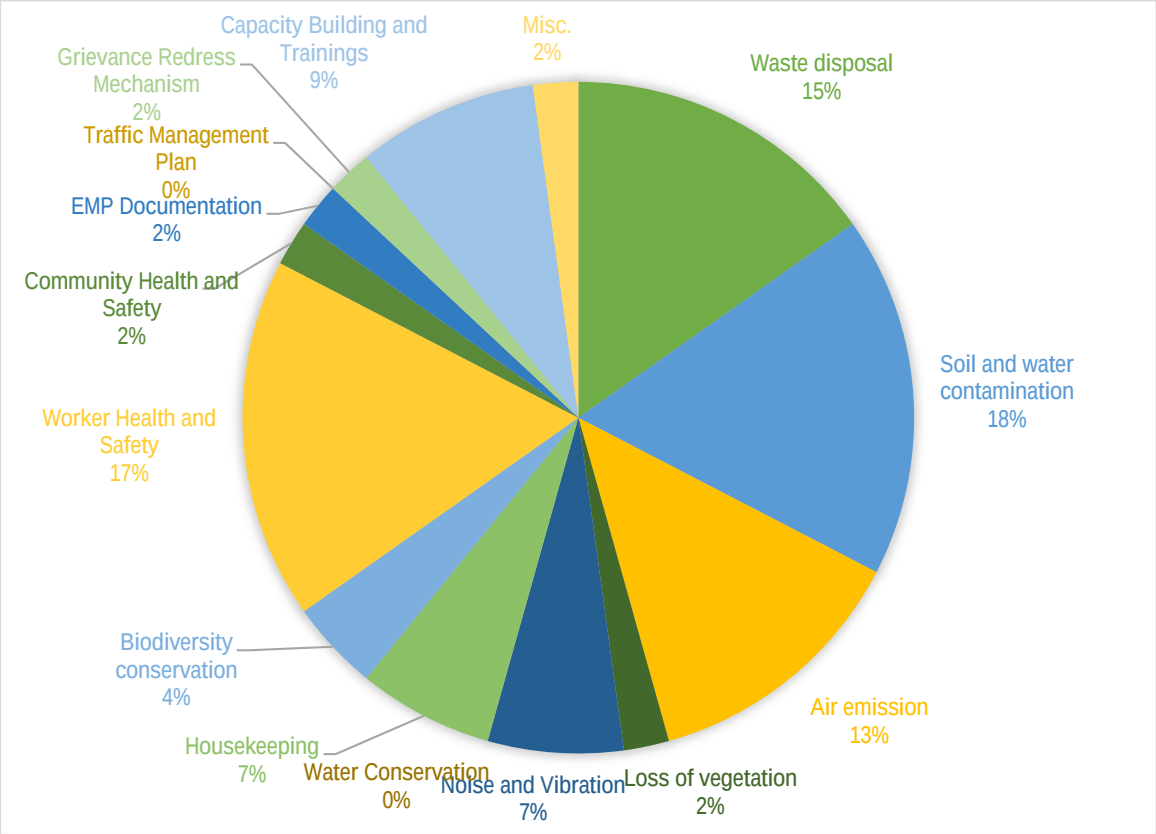
Table 7-13: Category wise breakdown of non-compliances

Category	Number	Detail of non-compliances
Waste disposal	07	• Waste stabilization pond are not constructed for diversion tunnel, main access tunnel and surge tunnel. • EPC contractor shall expedite the development of muck disposal site on priority to dispose muck. • Color coded waste drums are not provided at construction sites. • Tunnel waste water is being disposed of into river without treatment at diversion tunnel. • Improper dumping of muck cuttings in project area stream observed which is violation of SSEMP/EMP. PMC shall investigate the matter and ensure that EPC contractor has stopped this practice.

Category	Number	Detail of non-compliances
		• Electric cables were thrown un attended at dam site and surge tunnel. • Poor waste management observed at main access tunnel, surge tunnel and diversion tunnel. No waste drums are provided to collect and store waste.
Soil and water contamination	08	• Oil spills observed at main access tunnel and dam site. • Batching plant waste water is being disposed of without retention in stabilization ponds. • EPC contractor has not provided spill kits at all sites. • Used oil and diesel drums are stored with poor containment at main dam site and main access tunnel. • Septic tank was constructed adjacent to stream at Adit 1. • Fuel storage at all sites is not marked and without secondary containment. • Machinery maintenance and oil change is being done without drip trays or containments. • EPC contractor shall stop dumping of muck cuttings and tunnel waste water in streams and river.
Air emission	06	• Stack emissions monitoring of generators shall be conducted. • 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. • Improper stack heights of generators placed at Adit-1 and Adit-3. • Periodic sprinkling on paved temporary roads shall be ensured.
Loss of vegetation	01	• There is need to expedite implementation of tree plantation plan.
Noise and Vibration	03	• There is need to construct proper enclosures for generators. • There is need to install mufflers on excavators, front end loaders, diesel operated generators. • Noise emission monitoring of generators shall be conducted.
Water Conservation	00	• No non-compliance observed in this category.
Housekeeping	03	• No waste drums are placed at construction sites. • Poor housekeeping observed at main dam site, diversion tunnel and surge tunnel. • Used tyres were scattered around the workshop area, which should shift in to its designated store or discard immediately.
Biodiversity conservation	02	• Revised arrangements for project specific BAP implementation by the KP government remains halted. Contract with wildlife and fisheries department cannot be signed which is subject to approval of updated EIA from ADB.

Category	Number	Detail of non-compliances
		• There is need to expedite the process of establishing field offices at SDFO Balakot and Jared fish hatchery to implement BAP arrangements.
Worker Health and Safety	08	• An accident occurred at Headrace tunnel due to collapse of crown dated December 5, 2024. As a result, three workers got injured resulting in one fatality while other two labour were stable till the end of the reporting period. • Confined space attendant was not present at diversion tunnel, main access tunnel, surge tunnel and Adits. • The ladder of the working platform was not properly installed at main access tunnel. • Reverse alarms shall be provided to heavy machinery. • There is a need to increase hazard communication boards at sites. • There is need to maintain 3rd party inspections of construction machinery and allied gears. • First aid kits shall be maintained at all construction sites. • Haphazard material dumping observed at construction sites.
Community Health and Safety	01	• Use of motorbikes by the local workers from community in hilly areas shall be discouraged to approach project works. If unavoidable, bikers shall observe speed limits and wear helmets.
EMP Documentation	01	• There is need to expedite the hiring of hazardous waste contractor.
Traffic Management Plan	00	• No non-compliance reported in this category.
Grievance Redress Mechanism	01	• No GRM dissemination observed at work sites e.g. Main dam site, Adits, main access tunnel, diversion tunnel, surge tunnel, permanent roads, TRs and staff colony.
Capacity Building and Trainings	04	• There is need to conduct dedicated trainings on oil spill management and good housekeeping practices. • 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. • EPC contractor shall appoint dedicated environmental officers at construction sites.
Misc.	01	• Climate risk and vulnerability study needs to be carried out.
Total	**46**	

Figure 7-2: Category wise breakdown of Non-compliances



7.10.2 Photographs of Environmental Safeguard Activities and Non-compliances

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

Figure 7-3: Photographs of Environmental Non-Compliances

	
No sedimentation tank constructed at diversion tunnel	Diesel drums without secondary containment at dam site

	
Diesel storage at main access tunnel without containment	Working platform with improper ladder at main access tunnel
	
No sedimentation tank constructed at downstream incline surge tunnel	Welder are not using helmet during welding job
	
The thimbles of the welding machine observed damaged	Used tires were scattered around the workshop area at dame site

	
Poor housekeeping at dam site	Batching plant wash water is drained out directly without retention in settling tank
	
Dust generation from micro-piling	No support work provide at diversion tunnel

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

Significance Category	Number of Non-compliances July-Dec, 2024
Minor	12
Moderate	30
Major	04

7.10.3 Status of ongoing issues

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

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

194. 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	Waste stabilization pond are not constructed for diversion tunnel, main access tunnel and surge tunnel.	Appropriate Waste stabilization pond shall be constructed at diversion tunnel, main access tunnel and surge tunnel. PMC shall look into the matter and necessary action shall be taken on priority.	EPC Contractor	PMC/PIU	April, 2025
2	There is need to expedite the identification and establishment of muck disposal sites.	EPC contractor shall expedite the development of approved muck disposal sites of A3 and A2. 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, 2025
3	Color coded waste bins are not provided at BHPP construction sites.	EPC contractor shall arrange color coded waste drums for all the BHPP sites. Almost all the sites were found without dedicated waste collection drums.	EPC Contractor	PMC/PIU	April, 2025
4	Tunnel waste water is being disposed of into river without treatment at diversion tunnel.	Disposal of tunnel waste water into Kunhar river at diversion tunnel without treatment shall be immediately stopped. Necessary stabilization ponds shall be constructed and PIU/PMC shall look into the matter and take strict action against the contractor.	EPC Contractor	PMC/PIU	April, 2025

Sr. No	Details of Environmental. Non-compliances	Required Actions	Responsibility		Timeline
			Execution	Supervision/ Monitoring	
5	Improper dumping of muck cuttings in project area stream observed which is violation of SSEMP/EMP.PMC shall investigate the matter and ensure that EPC contractor has stopped this practice.	Dumping of cutting spoils near the streams shall be prohibited and, in such events, necessary penalties shall be imposed. EPC contractor shall not use banks of streams 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, 2025
6	Electric cables were thrown un attended at dam site and surge tunnel.	All materials which is of no use shall be moved from the sites and camps.	EPC Contractor	PMC/PIU	April, 2025
7	Poor waste management observed at main access tunnel, surge tunnel and diversion tunnel. No waste drums are provided to collect and store waste.	Waste management plan shall be implemented in true letter and spirit. Waste drums shall be provided all the construction sites. Dedicated housekeeping trips shall be arranged for the sites.	EPC Contractor	PMC/PIU	April, 2025
8	Oil spills observed at main access tunnel and dam site.	EPC contractor shall follow spill management plan and shall train workers/drivers to avoid spills. All spills from work area, parking areas and batching plants shall be cleaned. Oil rags shall not be thrown away and disposed of into hazardous waste containers.	EPC Contractor	PMC/PIU	April, 2025
9	Batching plant waste water is being disposed of without retention in stabilization ponds.	Retention time shall be provided to the waste water in the constructed settling tanks.	EPC Contractor	PMC/PIU	April, 2025
10	EPC contractor has not provided spill kits at all sites.	Oil spill kits shall be provided at all sites. Oil spill team shall be nominated and oil spill drill shall be conducted.	EPC Contractor	PMC/PIU	June, 2025
11	Used oil and diesel drums are stored with poor containment at main dam site and main access tunnel.	Used oil shall not be stored in open drums. Diesel drums shall be stored on at least PE sheets or on concrete pads.	EPC Contractor	PMC/PIU	April, 2025

Sr. No	Details of Environmental. Non-compliances	Required Actions	Responsibility		Timeline
			Execution	Supervision/ Monitoring	
12	Septic tank was constructed adjacent to stream at Adit-1.	Septic tank shall be constructed away from streams. EPC contractor shall ensure that no spill occurred from septic tank.	EPC Contractor	PMC/PIU	April, 2025
13	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, 2025
14	Machinery maintenance and oil change is being done without drip trays or containments.	EPC contractor shall develop SOP for machinery maintenance and oil change. No maintenance shall be practiced without drip trays/containment.	EPC Contractor	PMC/PIU	April, 2025
15	EPC contractor shall stop dumping of muck cuttings and tunnel waste water in streams and river.	Dumping of muck cutting on the banks of streams and roads shall be prohibited. Tunneling waste water shall not be discharges without treatment in waste stabilization ponds.	EPC Contractor	PMC/PIU	April, 2025
16	Stack emissions monitoring of generators shall be carried out.	There is need to conduct stack emission analysis of generators.	EPC Contractor	PMC/PIU	June, 2025
17	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, 2025
18	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, 2025
19	Silica dust monitoring is not carried out in the tunnels.	Silica dust monitoring within the tunnels shall be carried out. Requirements shall be added in	EPC Contractor	PMC/PIU	April, 2025

Sr. No	Details of Environmental. Non-compliances	Required Actions	Responsibility		Timeline
			Execution	Supervision/ Monitoring	
	Necessary budget shall be allocated.	instrumental monitoring plan of the project and necessary budget shall be allocated.			
20	Improper stack heights of generators placed at Adit-1 and Adit-3.	EPC contractor is inducted to install proper stack height of generators placed at Adit-1 and Adit-3.	EPC Contractor	PMC/PIU	April, 2025
21	Periodic sprinkling on paved temporary roads shall be ensured.	Periodic sprinkling is required at the temporary roads and batching plant site. Dust collection sacks shall be used at the exhaust of batching plant. Wetting of aggregates shall be done. Water sprinkling shall be done during micro-pilling job to suppress dust.	EPC Contractor	PMC/PIU	April, 2025
22	There is need to expedite implementation of tree plantation plan.	Tree plantation plan has been approved by ADB and early implementation will ensure that necessary plantation arrangements has been made by PIU.	EPC Contractor	PMC/PIU	April, 2025
23	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 these are still not completely enclose to serve the purpose.	EPC Contractor	PMC/PIU	April, 2025
24	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, 2025
25	There is need to conduct noise emission monitoring of generators.	Noise emission monitoring of generators shall be carried out.	EPC Contractor	PMC/PIU	April, 2025
26	Spring water intrusion and spills observed in the portals which need to be fixed and avoided.	All type of water intrusion and spills in the portal shall be avoided.	EPC Contractor	PMC/PIU	April, 2025

Sr. No	Details of Environmental. Non-compliances	Required Actions	Responsibility		Timeline
			Execution	Supervision/ Monitoring	
27	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, 2025
28	Poor housekeeping observed at Adits, main dam site and diversion tunnel.	EPC contractor shall hire dedicated housekeeping staff at each contractor site. Housekeeping shall be done on daily basis and litter shall be removed from sites.	EPC Contractor	PMC/PIU	April, 2025
29	Used tyres were scattered around the workshop area at dam site.	All type of used material or scrap shall be temporarily disposed of at designated places and removed from the sites immediately.	EPC Contractor	PMC/PIU	April, 2025
30	Revised arrangements for project specific BAP implementation by the KP government remains halted. Contract with wildlife and fisheries department cannot be signed which is subject to approval of updated EIA from ADB.	PIU PEDO and PMC shall expedite the approval of updated EIA by ADB and formal agreement with KP wildlife and fisheries department shall be made to implement revised BAP arrangements.	PMC/PIU	PIU/PEDO	June, 2025
31	There is need to expedite the process of establishing field offices at SDFO Balakot and Jared fish hatchery to implement BAP arrangements.	PIU BHPP shall ensure that field offices are well established without further delay to implement BAP arrangements.	PMC/PIU	PIU/PEDO	June, 2025
32	An accident occurred at Headrace tunnel due to collapse of crown dated December 5, 2024. As a result, three workers got injured resulting in one fatality while other two labour were stable till the end of the reporting period.	PIU and PMC shall look into the root causes of accident and implement corrective action plan in true letter and spirit. PIU/PMC shall ensure that due compensation has been paid to the deceased and injured labor.	EPC Contractor	PMC/PIU	April, 2025

Sr. No	Details of Environmental. Non-compliances	Required Actions	Responsibility		Timeline
			Execution	Supervision/ Monitoring	
33	Confined space attendant was not present at diversion tunnel, main access tunnel, surge tunnel and Adits.	PMC shall ensure the presence of confined space attendant at tunnels. A log containing details on workers entered in the tunnel shall be kept and maintained. Necessary induction shall be provided on daily basis about risks/hazards involved in tunnel works.	EPC Contractor	PMC/PIU	April, 2025
34	The ladder of the working platform was not properly installed at main access tunnel.	The ladder of the working platform shall well marked and properly installed.	EPC Contractor	PMC/PIU	April, 2025
35	Reverse alarm shall be provided to heavy machinery.	All type of heavy machinery shall be equipped with reverse alarm and operators shall be sensitized on use of reverse alarms.	EPC Contractor	PMC/PIU	April, 2025
36	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, 2025
37	There is need to maintain 3rd 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, 2025
38	First aid kits shall be maintained at all construction sites.	First aid kits shall be maintained at all construction sites	EPC Contractor	PMC/PIU	April, 2025
39	Haphazard material dumping observed at construction sites.	Haphazard material dumping shall be avoided. All scrap shall be removed from sites.	EPC Contractor	PMC/PIU	April, 2025
40	Use of motorbikes without helmet observed by local community workers.	Use of motorbikes by the local workers from community in hilly areas shall be discouraged to approach project works. If unavoidable, bikers shall observe speed limits and wear helmets.	EPC Contractor	PMC/PIU	April, 2025
41	Hiring of hazardous waste contractor has not been completed.	EPC contractor shall expedite the hiring of hazardous waste contractor.	EPC Contractor	PMC/PIU	June, 2025

Sr. No	Details of Environmental. Non-compliances	Required Actions	Responsibility		Timeline
			Execution	Supervision/ Monitoring	
42	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 Main dam site, Adits, permanent roads, TRs, staff colony, main access tunnel and surge tunnel.	EPC Contractor	PMC/PIU	April, 2025
43	There is need to conduct dedicated trainings on oil spill management and good housekeeping practices.	PMC and EPC contractor shall conduct dedicated trainings on oil spill management and good housekeeping practices. Record of such trainings shall be maintained.	EPC Contractor	PMC/PIU	April, 2025
44	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	June, 2025
45	There is need to appoint dedicated environmental officer by EPC contractor at all the sites.	Keeping in view the quantum of project works project has adequate staffing in HSE domain however limited positions for environmental staff. It is advised that similarly to OHS staff, dedicated environmental officer shall be deputed at each site to look after environmental safeguards.	EPC Contractor	PMC/PIU	June, 2025
46	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	June, 2025

8 Instrumental Monitoring Plan

195. 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.

196. 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 the month of Sep 2024 while 4th quarter monitoring in Dec, 2024.

197. 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

198. Environmental monitoring including ambient air quality (particulate matter 2.5micron size ($PM_{2.5}$) and particulate matter 10-micron size (PM_{10}), 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 2024.

199. 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/Guidelines	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 MP 5- Powerhouse MP-6 Upstream tailrace MP-7 GRC Camp MP-8 Staff colony	Quarterly (24 hours duration)
Dust	Dust control	Air quality standards by NEQS, WHO		Quarterly (24 hours duration)
Noise level	dB(A)	Noise pollution control NEQS, WHO		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 *coil form*, *faecal coliform* and *E. Coli*	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

200. Ambient particulate matter (PM_{10} and $PM_{2.5}$) and gases were monitored for twenty-four (24) hours at the pre-identified locations. In 3rd and 4th quarter of 2024, 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 are shown 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.

201. The PM_{10} concentration at most of the sampling points is in excess to the WHO guidelines but fall well below the NEQS. Higher PM_{10} concentrations were monitored at Adit 1, Adit 2 and Power house in 3rd quarter which gradually decreases in 4th quarter. There was no sharp difference observed in PM_{10} values at GRC camp and colony area during both quarters. Increase values of PM10 are attributed to earthworks and vehicle shuttling at BHPP sites. Water sprinkling and speed limit restriction are being followed to further lower the levels of PM_{10} in project area.

202. 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. Higher values are recorded at Adit 1, power house and colony area during 3rd quarter which slightly decreased during 4th quarter. The reason for high values is construction machinery movement on the unpaved access roads leading to these sites and earth works at power house area. EPC contractor is advised to pave the access roads on priority and regular sprinkling shall be carried out to further lower the levels of $PM_{2.5.}$

203. 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.

204. The results obtained for NO concentration shows that values are will within WHO and NEQS values in both 3rd and 4th quarter.

205. The obtained results for NO_2 concentration at all monitored location fall well within WHO and NEQS values in both 3rd and 4th quarter.

206. The obtained results for SO_2 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

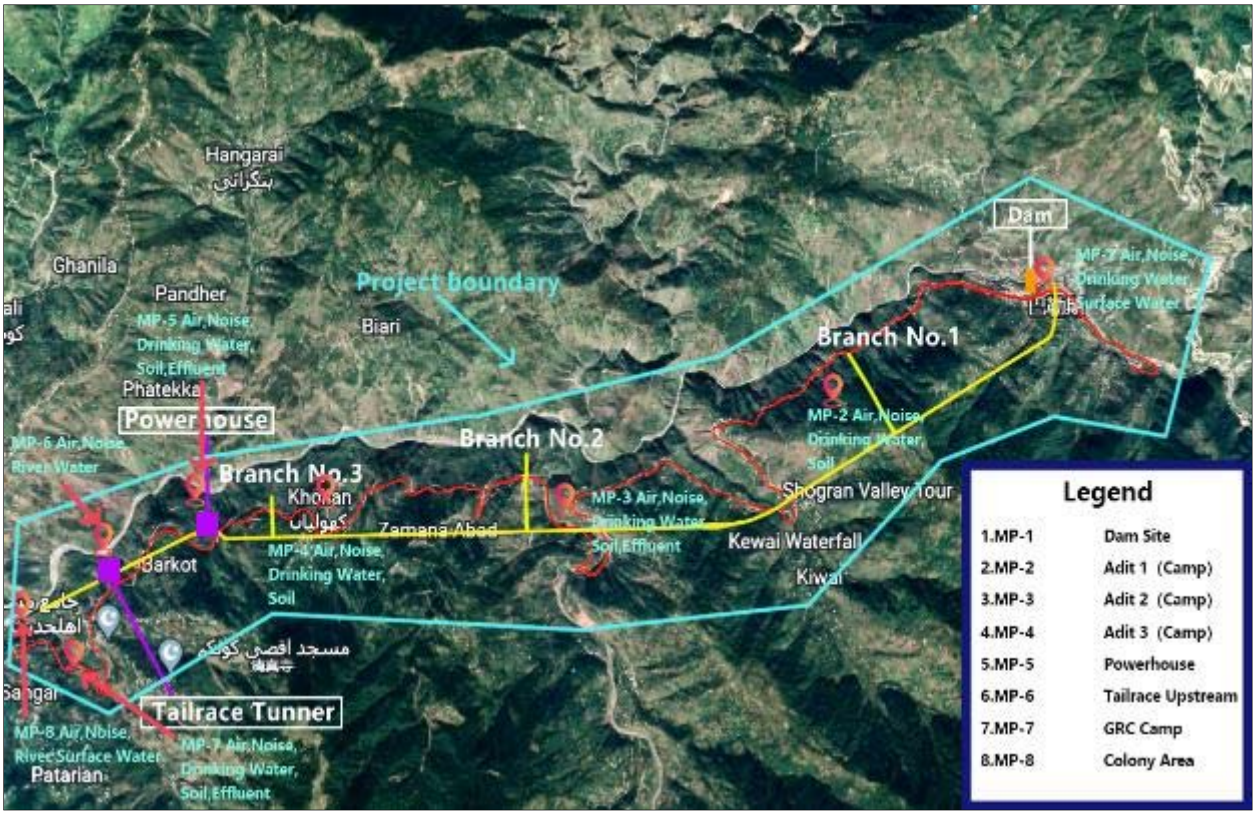
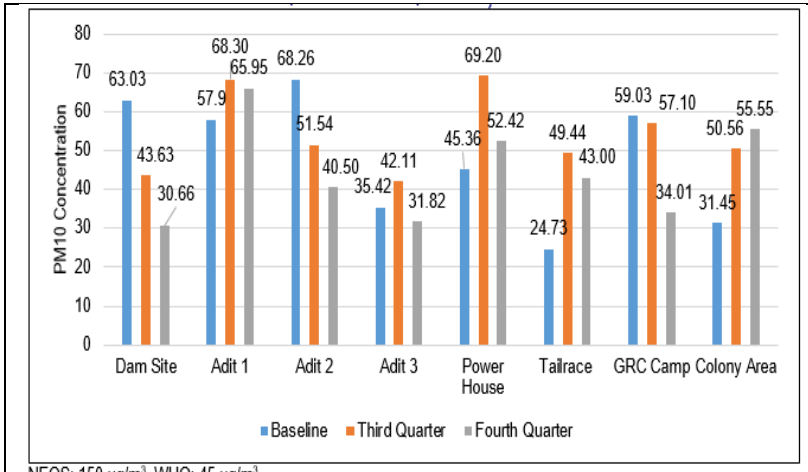
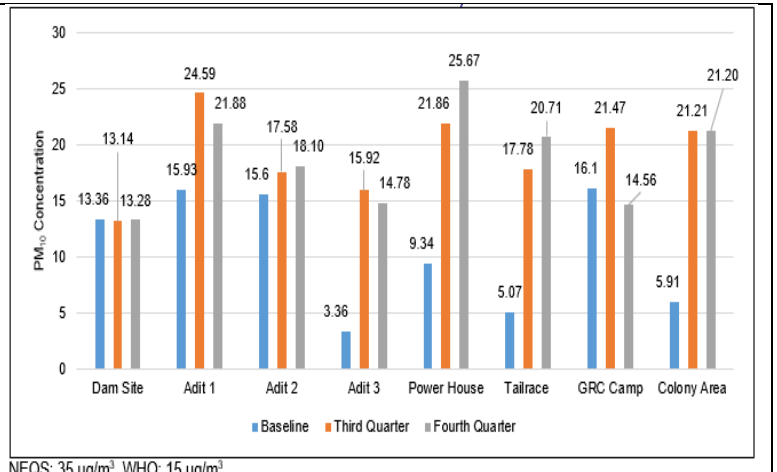


Figure 8-2: Ambient Air Quality Analysis BHPP



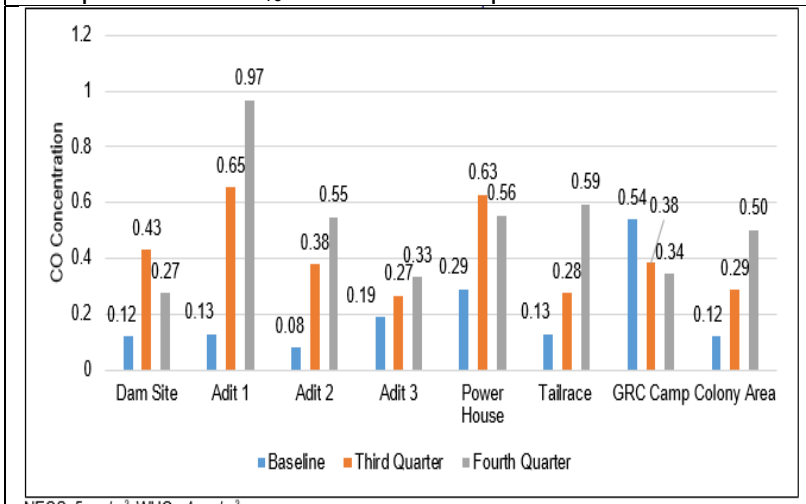
NEQS: 150 µg/m³, WHO: 45 µg/m³

Comparison of PM_{10} values in both quarters



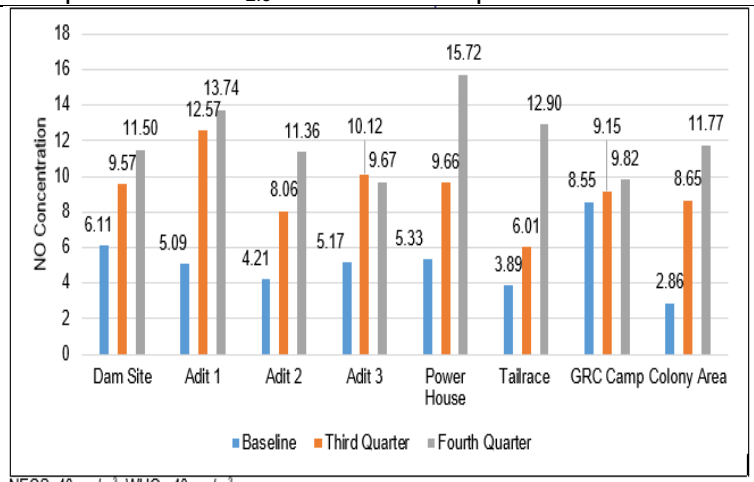
NEQS: 35 µg/m³, WHO: 15 µg/m³

Comparison of $PM_{2.5}$ values in both quarters



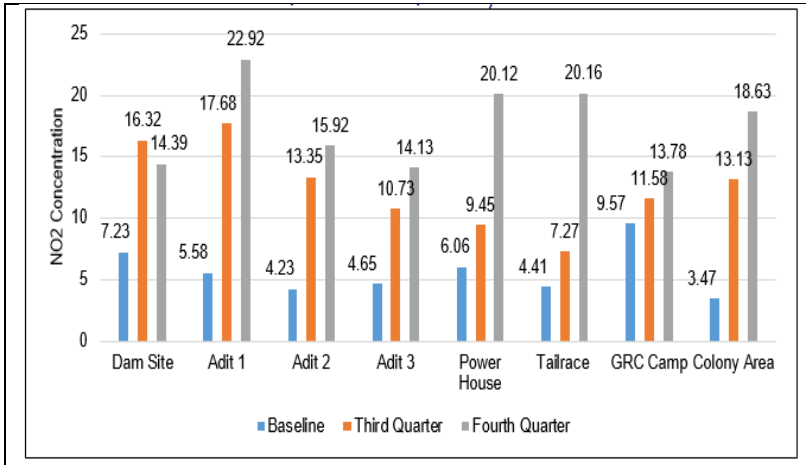
NEQS: 5 mg/m³, WHO: 4 mg/m³

Comparison between both quarters carbon monoxide (CO) (µg/m³)

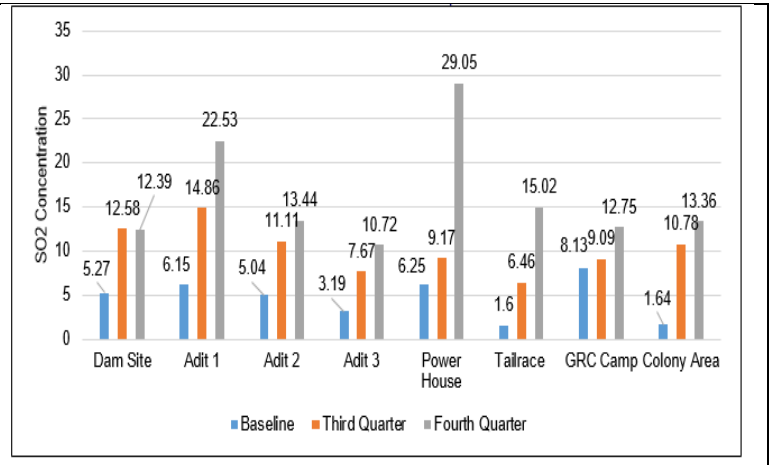


NEQS: 40 mg/m³, WHO: 40 mg/m³

Comparison between both quarters nitrogen oxide (NO) (µg/m³)



Comparison both quarters nitrogen dioxide (NO_2) (µg/m^3)



Comparison both quarters sulfur dioxide (SO_2) (µg/m^3)

8.2.2 Noise Monitoring

207. The 24-hour results for ambient noise level monitoring show that the recorded noise levels at all active construction sites exceeds the NEQS value of 55 decibels (dB) for residential area. It is mainly attributed with movement and operation of construction machinery.

208. Higher values are recorded at Adit 1, GRC camp and power house. Higher values are recoded as work was in full swing during reporting period including night shift work.

209. It is quite challenging for EPC contractor to comply with NEQS values for residential areas however values are well within NEQS for commercial area (65 db) and WHO guidelines (70 db).

8.2.3 Drinking Water Quality

210. 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

211. 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.

212. There was an increase in total suspended solids (TSS) values at sampled locations in 3rd quarter as compare to those of 4th quarter. This is attributed with snowmelt and runoff carries sediments which increase TSS and reduces surface water quality.

8.2.5 Soil Quality

213. Soil analysis was also carried out at the pre identified five locations which comprise of Dam Site, Adit-1, Adit-2, Adit-3, GRC camp and Powerhouse.

214. The monitored parameters remain unchanged, except increase in sand content at power house, Adit 1, Adit 2 and Adit 3.

215. 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	Third Quarter	Fourth Quarter	Baseline	Third Quarter	Fourth Quarter	Baseline	Third Quarter	Fourth Quarter	Baseline	Third Quarter	Fourth Quarter	Baseline	Third Quarter	Fourth Quarter
1	Soil Texture	Sand %	14	23	28	8	19	23	17	28	33	16	17	19	12	21	25
		Silt%	57	55	46	58	52	46	49	53	51	43	46	43	61	49	43
		Clay %	29	22	26	34	29	31	34	19	16	41	37	38	37	30	32
		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	7.7	8.3	8.1	7.6	8	7.9	7.9	8.2	8.2	7.9	8.3	8.2	8	8.1
3	Electrical Conductivity EC (μSm^{-1})		238	252	236	225	288	241	244	261	239	239	234	226	221	277	236
4	Phosphorus ($mgkg^{-1}$)		2.01	1.83	2.95	2.76	2.61	2.87	2.73	2.43	1.66	1.66	3.83	2.2	2.37	3	3.81
5	Sodium Absorption Ratio		4.07	3.47	3.47	3.18	3.04	3.33	3.29	3.08	3.58	3.58	3.61	4.18	4.2	3.97	3.64

9 Change Management Statement

216. 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.

217. Project EIA has been updated to incorporate impacts of minor design changes and revised BAP implementation arrangements. PMC has submitted updated EIA for ADB/AIIB review in August 2024 on which comments received on October 31, 2024. After incorporation of ADB/AIIB comments, PMC re-submitted the revised EIA report to PIU on December 25, 2024 for further submission to ADB/AIIB for review and clearance.

218. PMC instructed EPC contractor to update the project SSEMP and include the impacts and mitigation measures of muck disposal sites. SSEMP update remained in progress during the reporting period and it is expected that contractor will submit SSEMP in Q1, 2025.

10 Conclusion and Recommendations

219. 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 there is need to expedite the construction of waste stabilization ponds, development and construction of muck disposal sites and implementation of revised project specific BAP arrangements. Practice of open dumping of waste and cutting in the project area shall be prohibited and strict action is required by PMC/PIU. PMC and EPC contractor shall work closely to implement HSE protocols to avoid accidents. 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. Dedicated training on spill management, use of PPEs and waste management and HSE risks shall be imparted and record shall be kept.

220. A total of 46 environmental non-compliances of EMP/SSEMMP/BAP were recorded during monitoring period. About 12 non-compliances were minor, 30 moderate and 04 major non-compliances. Major non-compliances are; waste stabilization ponds are not constructed for tunnels, delay in establishment of muck disposal sites, improper dumping of muck cuttings near streams and septic tank constructed near stream at Adit-1. CAP to close out observed non-compliances is provided in this EEM report.

221. 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 the 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.

222. 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 the Fisheries and Wildlife department, implementation of tree plantation plan and establishment of fish hatchery. PIU/PMC shall work closely with the 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.

Dr:EIA Section 2011\Sector\Hydro Power Project\300MW Balakot HPP District Mansehra

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

SCHEDULE-VI
Decision on EIA

1. **Name, address of proponent:** The Project Director, Balakot HPP, PEDO, Plot No. 38-B2, PEDO House, Phase-V, Haytabad, Peshawar. Contact No. 091-9217463

2. **Description of project.** M/S 300 MW Balakot Hydropower Development Project located at 18.6km upstream of the town of Balakot, District Mansehra. The Dam will be a concrete gravity dam with a maximum height of 35m from the river bed and dam crest length of 130m. The top elevation will be 1292m above mean sea level (amsl). The dame 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.

06/07/2021

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;

a) The proponent shall adopt all precautionary and mitigation measures recommended in the EIA Report as well as replies of the proponent submitted to this Agency and any un-anticipated impacts arising during the Construction and Operation phase of the project.

b) Arrangement for compensation to the affectees, in case of loss of land, Crops, property, Schools, Water Springs, Water Supply Schemes, Hotels and Masjids will be finalized before the start of construction. Any money

Page **2** of **7**

09/7/2021

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 &

06/07/2021

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;

06/07/2021

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/repaired/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;

06/07/2021

Page 5 of 7

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

06/07/2021

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.

Page 7 of 7

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

No.EPA/ND/ATD/ 483
Dated: 26th May, 2022

To

Mr. Ghulam Rasool (Owner)

Ghulam Rasool construtions company

GRC Site camp Thobi village Kiwai Tehsil Balakot Disatrict Mansehra

Subject: **PLANT DESIGN PROCUREMENT AND CONSTRUTION OF BALAKOT HYDROPOWER PROJECT SUBMISSION OF LAYOUT PALN 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-II,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/ND/[illegible]/BHPP/ 686
Dated: 1st August, 2022

To

Mr. Ghulam Rasool & Company, Village Thubi,
Kiwai, Tehsil Balakot, Dsitrict Mansehra.

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, Dsitrict Mansehra 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)

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

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, Dsitrict Mansehra.
2.	**Description of project:**	The proposed crush plant namely GRC Crush Plant is proposed to be installed at Village Thobi, Kiwai, Tehsil Balakot, Dsitrict 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/GRC/ 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):

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/IEE/CP/GRC/686
Dated : 1st 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 **"OPERATON 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

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

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/BHHP/ 686

DIRECTOR (NORTH)
EPA, NORHTERN 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

To

Received No 55
Office of the DFO Wildlife
Mansehra
08-08-23

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 HHP, 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	mansehrawildlife@yahoo.com	Yes

Chief Conservator Wildlife
Khyber Pakhtunkhwa
Peshawar

No. 11 50-51 /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.

4/5/23

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 16/6/2021

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/Envt Vol-1 dated 21/05/2021 regarding issuance of NOC from the department.

After downloading your documents from Asian Development Bank website its troughout 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 Enviornment 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 aslo 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)

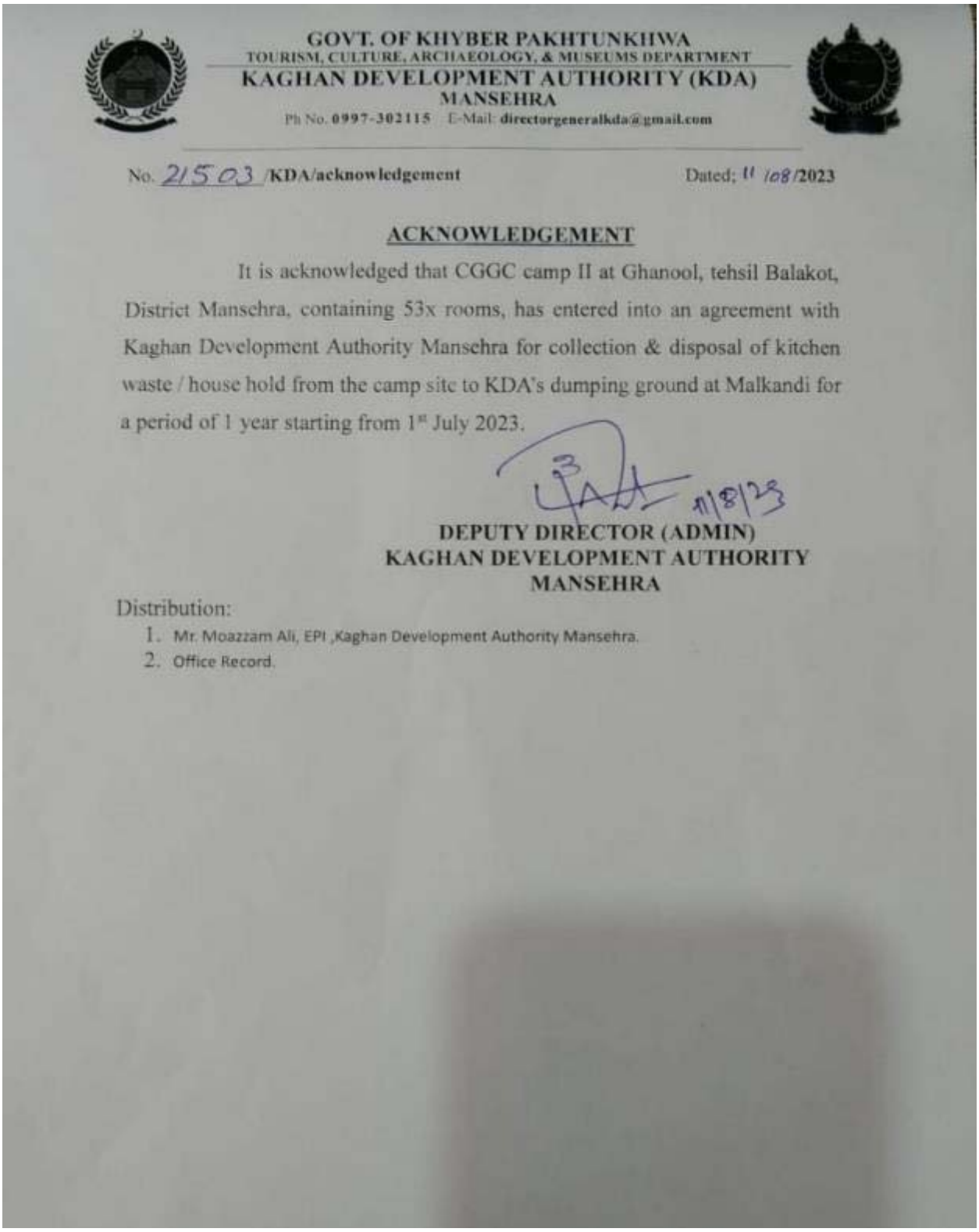
Endst: No: & Date even

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)

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.

11/8/23

DEPUTY DIRECTOR (ADMIN)
KAGHAN DEVELOPMENT AUTHORITY
MANSEHRA

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

Contract with ARAAR Services

100 Rupees

CONTRACT AGREEMENT

HAZARDOUS WASTE COLLECTION & INCINERATION SERVICES

Dated: 30 Day of April, 2024

Between

ARAR Services (Pvt) Ltd

And

China Gezhouba Group Corporation (CGGC) – Mansehra

This Service Contract "Hazardous Waste Collection & Incineration Services" (hereinafter called the "Contract") is made at Peshawar for which the services will be initiated on 30 day of April, 2024

Between

China Gezhouba Group Corporation (CGGC) , Balakot Hydropower Project A2 Camp (Ghanool), Mansehra KP (hereinafter called the "First Party") which expression shall include successors, legal representatives and permitted assigns) of the first party

And

M/S Arar Services (Pvt) Ltd., having its head office at 140-A Shadman-II Lahore, and branch office at, Plot # W-35-A, Road B-1 Hayatabad Industrial Estate - Peshawar, (hereinafter called the "Second Party"). This Service includes scope of services/terms of reference, general conditions of contract, special conditions of contract, and appendices.

WHEREAS;

(a) The First Party has requested the second party to provide certain services as defined in the contract (hereinafter called the "Hazardous Waste Collection & Incineration Services");

(b) The Second Party having the required professional skills, expertise and technical resources, has agreed to provide the collection & incineration services to the First Party on the terms and conditions set forth in this contract;

ATTESTED NOTARY PUBLIC Distt. Courts Peshawar

This Contract consists of the terms and conditions set forth in the sections captioned by numbered and article designations "**Articles**" which are incorporated and made part this Contract.

ARTICLE 1: SCOPE OF SERVICES

The Second Party shall perform the services of transportation and incineration of Hazardous Waste, collected from the designated area of First Party. The segregation and interim storage of the Hazardous Waste is the responsibility of First Party.

ARTICLE 2: OBLIGATIONS OF THE FIRST PARTY

2.1 The First Party is highly recommended to ensure, having the availability of all goods, consumables and allied items to ensure the effective and in-time collection in HDPE / LDPE bags, tagging and interim storage of waste at designated area.

2.2 The First Party shall be responsible to ensure the proper segregation of waste as per Hospital Waste Management Rules 2005 – EPA, KPK. The First party shall ensure to put the Infectious waste (used drips, gauze piece, cotton swabs, used bandages, IV Lines etc.) in YELLOW Bag. The First Party shall also ensure to put the Glass/Sharps Waste in separate Yellow Bag and syringes/blades in a YELLOW SHARP CONTAINER. The first party shall be responsible to get its staff properly trained for the segregation of Waste as per protocols set forth by Hospital Waste Management Rules 2005, by EPA-KPK Department.

2.3 The First Party is also highly recommended to ensure that every bag is being collected within 24 hours times of its placement or once got filled, and store in controlled temperature till the arrival of vehicle from second party, for collecting those bags.

2.4 In case, the First Party does not follow the above-mentioned protocols, or any protocol set forth by Hospital Waste Management Rules 2005, by EPA-KPK Department, the second party shall not be responsible for any kind of Hospital Waste Management Rules 2005, by EPA-KPK Department violation on the part of first party.

ARTICLE 3: OBLIGATIONS OF THE SECOND PARTY

3.1 The Second Party shall

(a) collect the properly segregated Hazardous Waste by the staff of FIRST Party, from the designated place of the First Party in its own purpose-built yellow vehicle.
(b) Transport the Hazardous Waste to the incineration site through safe and environmentally controlled mechanism
(c) Incineration of Hazardous Waste in incinerator according to Hospital Waste Management Rules 2005 EPA – KPK
(d) Disinfection and Shredding of glass waste.

3.2 The Second Party shall provide all the relevant data of the collection and disposal of Waste.

3.3 The Second Party shall provide the access of HWM Software to the First Party for online viewing of waste collected and incinerated, if required by the first party against the monthly subscription charges.

ARTICLE 4: MECHANISM

4.1 The vehicle of the Second Party shall visit the First Party designated area as per agreed schedule between the parties.

ARTICLE 11: DISPUTE RESOLUTION

Any dispute arising in connection with this Agreement shall be settled by the Parties amicably within a period of 10 days from the service of notice, failing which the same shall be referred to Arbitration under the Arbitration Act, 1940, and a single Arbitrator shall be appointed with mutual consent of both parties. The venue of arbitration shall be Lahore or Peshawar. The decision of the Arbitrator shall be final and binding upon the Parties. The Arbitration proceedings shall be concluded within one month of such reference and the cost/fee etc. shall be borne by the party seeking arbitration.

ARTICLE 12: TERMINATION OF SERVICES

This Contract may be terminated by either Party as per provisions setup below.

Second Party shall be liable to proceed for the termination of contract, if any of the given below situation arises.

1. The payment is not being made on agreed payment schedule / within stipulated time period.
2. If the payment is being delayed by the First Party on regular basis.
3. If the first party concerned staff will not be cooperative and create hindrances in the execution of duties by second party.
4. If the first party shall not perform its duties as per defined scope of work,

First party shall be liable to proceed for the termination of contract, if any of the given below situation arises.

1. The services are not being performed by second party as per their defined scope of work in contract.

   Both parties shall be responsible to give a fifteen days prior notice before the termination of services.

IN WITNESS WHEREOF, the parties hereto have caused the contract to be executed on the day, month and year indicated above.

Signed on behalf of ARAR Services (PVT) Ltd.
Place:
Date:
Asif Aziz

Signed on behalf of China Gezhouba Group Corporation (CGGC):
Place:
Date:

Witnesses:

1.
2.

1.
2.

Annexure C

Attendance Sheet of HSE Trainings

Attendance Sheet

Annual HSE Training

BALAKOT HYDROPOWER PROJECT (300MW)

Annual OHS (Occupational Health and Safety)Training

PARTICIPANTS LIST

Through **Resuce1122**- District Mansehra

November 27 ,2024 *Venue:EPC Contractor Dam Camp*

Sr.#	Name of Participants	Designation	Department/ Organization	Signature
1.	Ali Haider Shah	HSE Manager	QHSE	Ali
2.	Rashid Hussain	HSE officer	QHSE	
3.	Tayyab ur Rehman	HSE. officer	QHSE	
4.	Syed Hassan Ali Shah	HSE: officer	QHSE	
5.	Saeed Ahmed	Former Batching Plant	Batching Plant	
6.	Syed Ihtisham	QC Officer	QHSE	
7.	Asif Fareed	Fire instructor	Rescue 1122	
8.	Syed Ali Fawad Shah	HSE EXPERT	PMC	
9.	Hammad Malik	Trainer	Rescue 1122	
10.	Irshad Saeed	Manager Environmental	CGGC	
11.	Dr- Hamid Yaseen khan	Doctor	CGGC	
12.	Shujait Ali	forman	CGGC	
13.	Syed Abid Shah	HSE	QHSE	
14.	Ahsan Ali	HSE	QHSE	
15.	A. Saboor	PH Forman	CGGC	
16.	Azhar Abbas	Work Shop forman	CGGC	
17.	Farhan Yaseen	Dam Site- Forman	CGGC	
18.	Saddam Hussain	Access Tunnel Power House	CGGC	

Four Season Hotel, Near PTCL Exchange, Shohal Najaf Khan, Kaghan Road Balakot, District Mansheha Khyber Pakhtunkhwa, Pakistan
Tel: +92-0997-360155

BALAKOT HYDROPOWER PROJECT (300MW)

Annual OHS (Occupational Health and Safety)Training

PARTICIPANTS LIST

Through Rescue1122- District Mansehra

November 28 ,2024 ***Venue:EPC Contractor Dam Site***

Sr.#	Name of Participants	Designation	Department/ Organization	Signature
1.	Hammad Malik	TWI	Rescue 1122	
2.	Bostan	DS	〃 〃	
3.	Haseeb	M.C	〃 〃	
4.	Arif Farced	Fire Instructor	〃 〃	
5.	SYED ALI FAHAD SHAH	H&S EXPERT	(H&S EXPERT) PMC	
6.	Saeed Ahmad	CGGC Formen	Batching Plant	
7.	Farhan Yaseen	CGGC Foreman	Dam site	
8.	Zeeshan Ahmed	HSE Officer	HSE	
9.	Saddam Hussain	H.S.E Officer	HSE	
10.	Syed Ubaidullah Shah	HSE officer	HSE	
11.	Ahsan Ali	HSE officer	QHSE	
12.	SAEED UL HAQ	HSE officer	QHSE	
13.	LIZHENMING	HSE officer	HSE	
14.	Irsad Saeed	Environmental manager	CGGC	
15.	Syed Ihtisham Ali	QHSE Officer	QHSE CGGC	
16.	Syed Ali Haider	HSE Officer	QHSE CGGC.	Ali
17.	Rashid Hussain	HSE officer	QHSE CGGC	
18.	Tayyab-ur-Rehman	HSE officer	QHSE - CGGC	

Four Season Hotel, Near PTCL Exchange, Shohal Najaf Khan, Kaghan Road Balakot, District Mansheha Khyber Pakhtunkhwa, Pakistan
Tel: +92-0997-360155

Attendance Sheet- Drilling and Blasting HSE Training

LIST OF PARTICIPANTS OF THIRD-PARTY TRAINING

By Kashmir Polytechnic Institute (KPI) Muzaffarabad AJK)

Training Title: Drilling & Blasting, Welding, Electrical safety and Forklifting safety operation

BALAKOT HYDRO POWER PROJECT (300MW)

HELD ON (Nov-16-2024)

S. NO	Name	Designation	Department	Signature	Mobile Number
1.	Syed Ali Fawad Shah	H & S Expert	HSE PMC		0332-6000410
2.	Liyong	QI ISE Expert	QHSE		0344-1789770
3.	Ali Haider Shah	HSE Officer	QHSE		0305-9525223
4.	Saeed Ul Haq	HSE Officer	QHSE		0348 8292024
5.	Wajahat	Driller and Blaster	Drilling and Blasting team		0342-2985255
6.	Kafayat khan	Driller and Blaster	Drilling and Blasting team		0341-8348142
7.	Toseef	Driller and Blaster	Drilling and Blasting team		0355-8115856
8.	M. Junaid	Driller and Blaster	Drilling and Blasting team		0343-9368703
9.	Misbah sheikh	Driller and Blaster	Drilling and Blasting team		0355 7154942
10.	Haseeb Bashir	Driller and Blaster	Drilling and Blasting team		0355-7069714
11.	Shujaat Hussain	Driller and Blaster	Drilling and Blasting team		0355-7113452
12.	M. Jameel Mughal	Driller and Blaster	Drilling and Blasting team		0341-8820848
13.	Shazib khan	Driller and Blaster	Drilling and Blasting team		0349-8100211
14.	M. Aahtaq	Driller and Blaster	Drilling and Blasting team		0311-1890176
15.	Sajjad mughal	Driller and Blaster	Drilling and Blasting team		0343-5477074
16.	Tassadaq Khan	Driller and Blaster	Drilling and Blasting team		0346-4038252
17.	Nazakat Hussain	Engineer/Instructor	Education		0344-8585001
18.	M. Ali	Engineer/Instructor	Education		03021115154
19.	Sohail khan	Driller	Drilling and Blasting team		03480-8468073
20.	Zulfiqar Ahmed	Electrician	Electrician team		0341-9161306
21.	Zulqarnain	Electrician	Electrician team		0347-5355319
22.	Wasim Akhtar	Electrician	Electrician team		0346-0650053
23.	Abdul Jabbar	Electrician	Electrician team		0345-5336104

LIST OF PARTICIPANTS OF THIRD-PARTY TRAINING

By Kashmir Polytechnic Institute (KPI) Muzaffarabad AJK)

Training Title: Drilling & Blasting, Welding, Electrical safety and Forklifting safety operation

BALAKOT HYDRO POWER PROJECT (300MW)

HELD ON (Nov-16-2024)

24.	Sajjad ur Rehman	Electrician	Electrician team		0327-5339009
25.	Fasil Manzoor	Electrician	Electrician team		0301-5999637
26.	Asad Hussain	Electrician	Electrician team		0347-9474487
27.	Zeeshan	Electrician	Electrician team		0347-9180081
28.	M. Rafaqat	Electrician	Electrician team		-
29.	Shafaqat Ali	HSE Officer	CGGC POWERHOUSE		0346-96525666
30.	Riaz Ahmed	Electrician	Electrician team		0344-45550239
31.	Hafeez Gul Rehman	Electrician	Electrician team		0349-6282257
32.	Yasir Nawaz	Electrician	Electrician team		0344-5954115
33.	Sajid Altaf	Electrician	Electrician team		0343-9416886
34.	Abdul Qavi	Electrician	Electrician team		0311-78361986
35.	Faisal Ure Rehman	Electrician	Electrician team		0342-5014003
36.	Sohail Afzal	Electrician	Electrician team		0340-9738320
37.	Amjad	Welder	Welding team		0344-4857607
38.	Waqas	Welder	Welding team		0343-1182746
39.	Usama	Welder	Welding team		0343-04414905
40.	M. Siraj	Welder	Welding team		0349-0088787
41.	Jabbar Ahmed	Welder	Welding team		03454528334
42.	Raja Shafaqat	Welder	Welding team		0340-9009439
43.	Noman Khan	Welder	Welding team		0347-3826543
44.	Shafaqat Rasheed	Welder	Welding team		0344-1413676
45.	Aqib	Welder	Welding team		-
46.	Abdullah Qureshi	Welder	Welding team		0349-5747266
47.	Amjad	Welder	Welding team		0343-9129290
48.	Waqas Ahmed	Electrician	Electrician team		0343-1182746

LIST OF PARTICIPANTS OF THIRD-PARTY TRAINING

By Kashmir Polytechnic Institute (KPI) Muzaffarabad AJK)

Training Title: Drilling & Blasting, Welding, Electrical safety and Forklifting safety operation

BALAKOT HYDRO POWER PROJECT (300MW)

HELD ON (Nov-16-2024)

49.	Mukhtar Ahmed	Electrician	Electrician team		0341-1081581
50.	Muhammad Atif	Electrician	Electrician team		-
51.	Danish Shabbir	Electrician	Electrician team		0345-4278908
52.	Amjad Hussain	Electrician	Electrician team		0345-5256253
53.	M. Ashfaq	Electrician	Electrician team		0355-8397288
54.	Riaz Ahmed	Electrician	Electrician team		-
55.	Yasir Nawaz Khan	Electrician	Electrician team		-
56.	Hafeez Ur Rehman	Electrician	Electrician team		-
57.	Muhammad Siraj	Welder	Welding team		-
58.	Usama	Welder	Welding team		0347-6111266
59.	Jabbar Ahmed	Welder	Welding team		0345-4528334
60.	Raja Shafqat	Welder	Welding team		0340-9009439
61.	Noman Khan	Welder	Welding team		0347-3826543
62.	Shafqat Rasheed	Welder	Welding team		0344-1413676
63.	Cao Meng	Driller and Blaster	Drilling and Blasting team	—	-
64.	Luo Gao Yin	Driller and Blaster	Drilling and Blasting team	—	-
65.	Jiang Xianliang	Driller and Blaster	Drilling and Blasting team	—	-
66.	Wang Yesheng	Driller and Blaster	Drilling and Blasting team	—	-
67.	Zhu hui Jun	Forklift operator	Forklifting operating team	—	0322 -9179387
68.	Feng Chaoukun	Driller and Blaster	Drilling and Blasting team	—	-
69.	Feng Shaozong	Driller and Blaster	Drilling and Blasting team	—	-
70.	Feng Xuewen	Driller and Blaster	Drilling and Blasting team	—	-
71.	Abdul Razzaq	Forklift operator	Forklifting operating team	—	0346-1202580
72.	Bilal Ahmed	Crane operator	Crane operating team		03432867182

LIST OF PARTICIPANTS OF THIRD-PARTY TRAINING

By Kashmir Polytechnic Institute (KPI) Muzaffarabad AJK)

Training Title: Drilling & Blasting, Welding, Electrical safety and Forklifting safety operation

BALAKOT HYDRO POWER PROJECT (300MW)

HELD ON (Nov-16-2024)

Training Delivered By;

Kashmir Polytechnic Institute (KPI) Muzaffarabad AJK)

PMC Representative:

Name: Mr. Syed Ali Fawad Shah

Designation: H&S Expert

Signature:

EPC Contractor Representative

Name: Mr. Liyong

Designation: QHSE Director

Signature:

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/HC 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

Notification

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 Patwari (Member)
3	Dam Site Community	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)

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

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.

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:

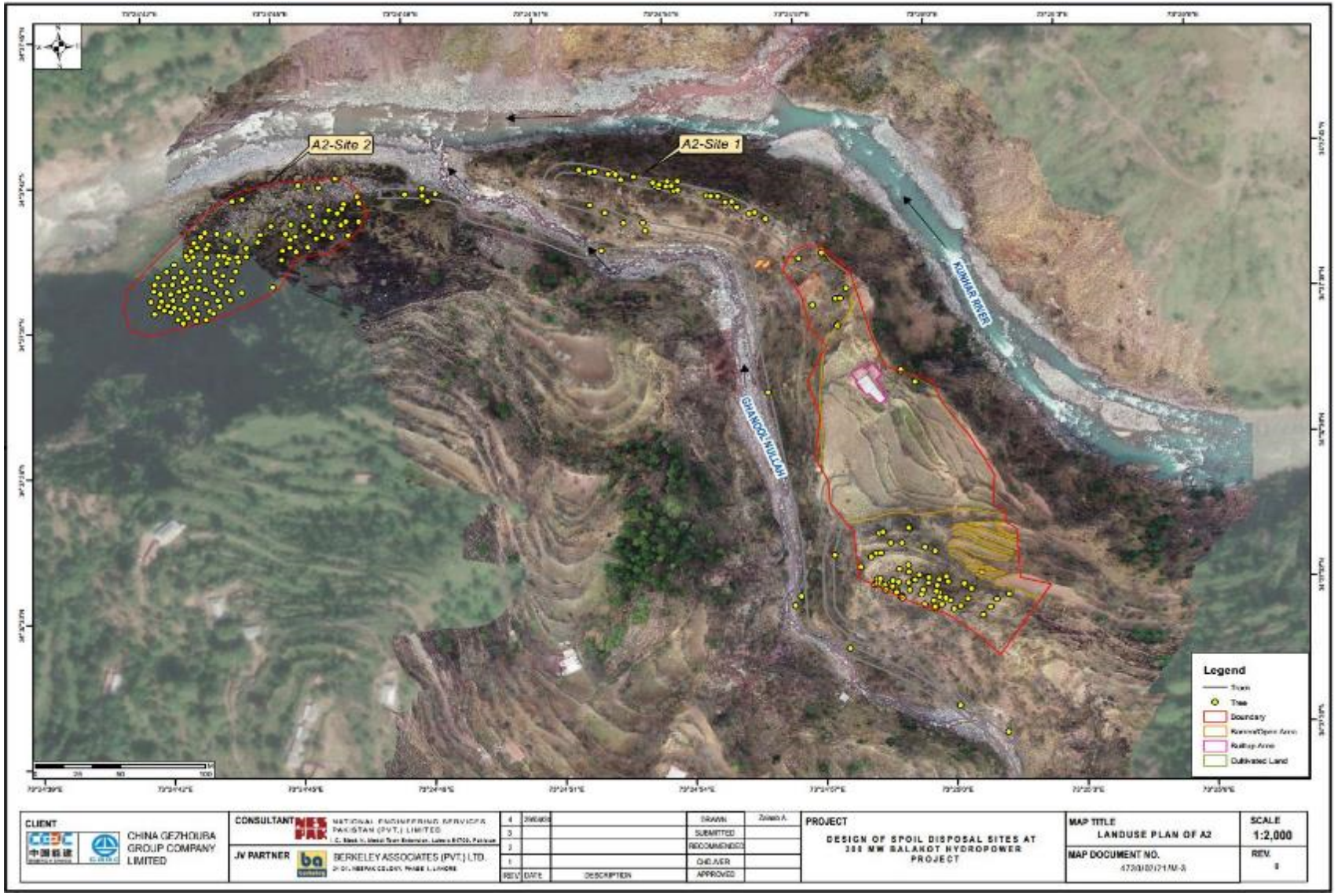
xvi. Number of complaints received and resolved by village GRC, Project GRC and nature of complaint;

xvii. The average time of it took to resolve the complaint; and

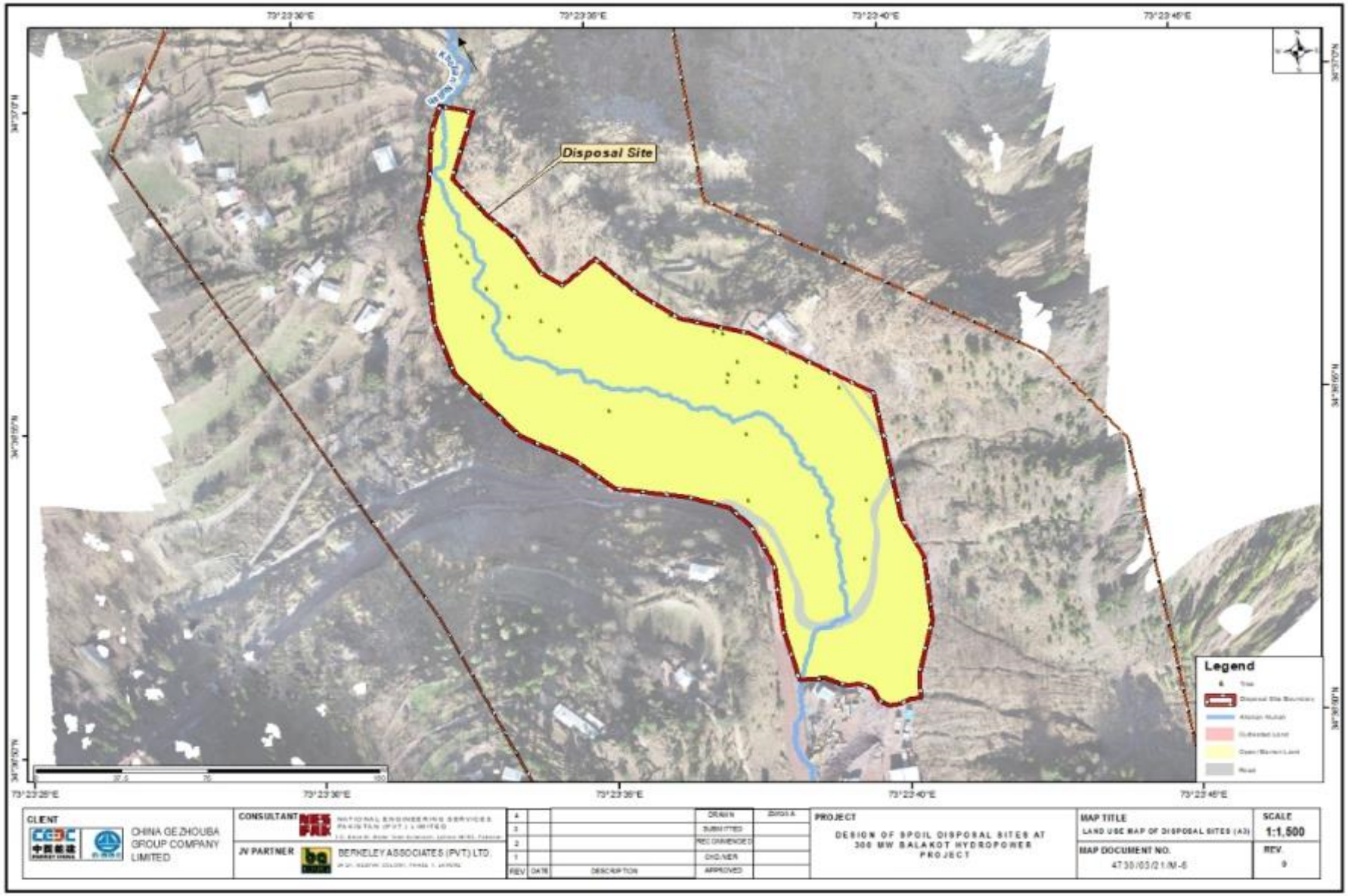
xviii. The fraction to complaints that were resolved at the village GRC level.

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

Annexure E
Layout of Muck Disposal Sites



Layout of A2 Muck Disposal site

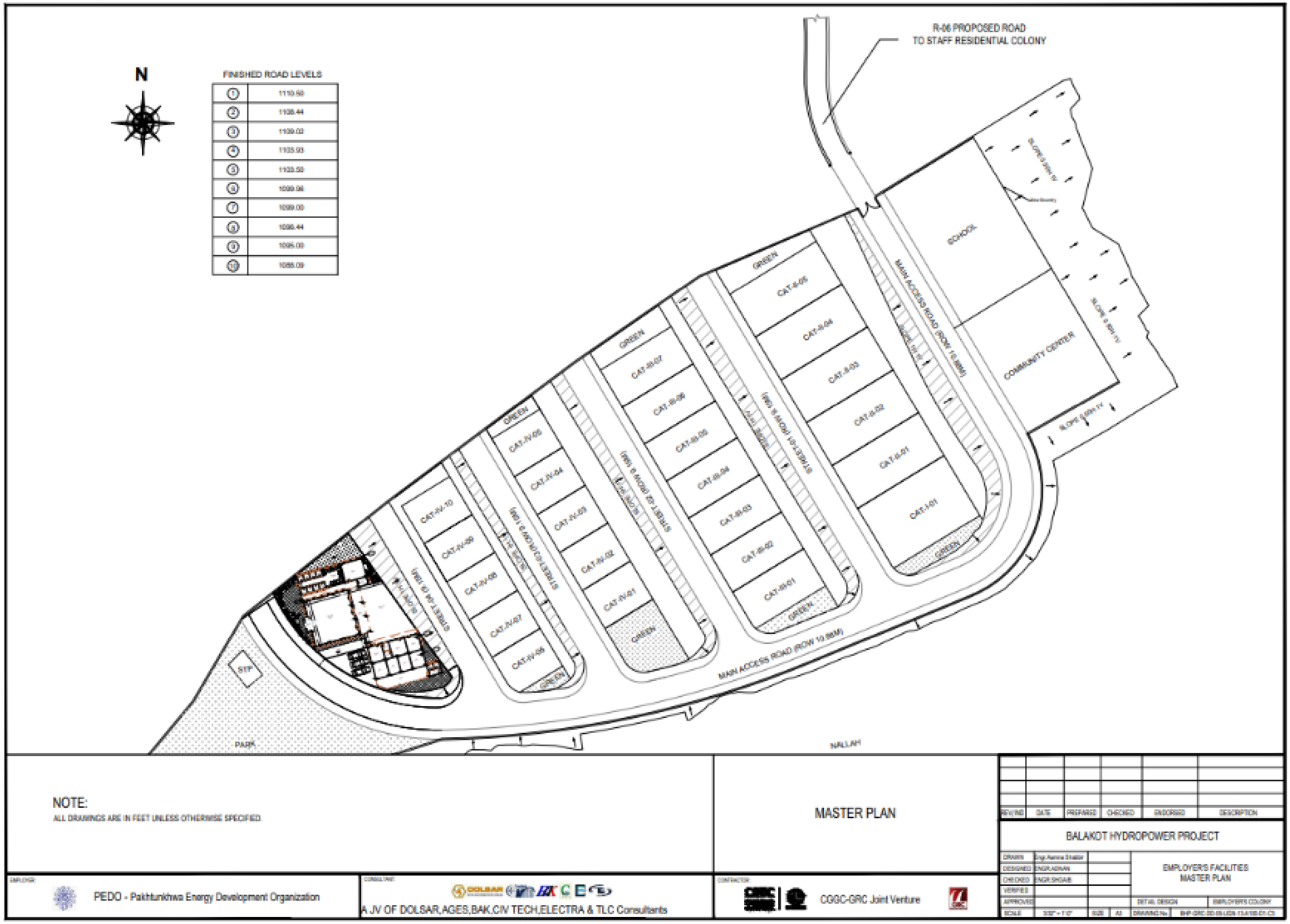


Layout of A3 Muck Disposal site

Layout of Upstream Surge Tunnel Disposal site

Annexure F

Layout Plan of Staff Residential Colony


N
FINISHED ROAD LEVELS
R-06 PROPOSED ROAD
TO STAFF RESIDENTIAL COLONY
SCHOOL
COMMUNITY CENTER
MAIN ACCESS ROAD (ROW 10.86M)
GREEN
CAT-II-05
CAT-II-04
CAT-II-03
CAT-II-02
CAT-II-01
CAT-I-01
CAT-III-07
CAT-III-06
CAT-III-05
CAT-III-04
CAT-III-03
CAT-III-02
CAT-III-01
CAT-IV-10
CAT-IV-09
CAT-IV-08
CAT-IV-07
CAT-IV-06
CAT-IV-05
CAT-IV-04
CAT-IV-03
CAT-IV-02
CAT-IV-01
STP
PARK
NALLAH
NOTE:
ALL DRAWINGS ARE IN FEET UNLESS OTHERWISE SPECIFIED.
MASTER PLAN
BALAKOT HYDROPOWER PROJECT
EMPLOYER'S FACILITIES
MASTER PLAN
PEDO - Pakhtunkhwa Energy Development Organization
A JV OF DOLSAR,AGES,BAK,CIV TECH,ELECTRA & TLC Consultants
CGGC-GRC Joint Venture

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 damp 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 willblock 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 oildrums 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: 1018/2452 Date: November 21, 2024

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

SUBJECT: NON- CONFORMANCE OBSERVATION RECORDS IN IMPLEMENTATION OF HEALTH AND SAFETY MEASURE AT SITE

Dear Sir,

With reference to the above cited subject, PMC has profound concerned on the nonstop violations of health and safety procedures. PMC has visited the site routinely and reported many persistent observations, which need to be rectified promptly. Site HSE non-conformance are enclosed herewith depictions, which can be download from a link given in enclosure. PMC has instructed the EPC contractor to take obligatory action against all non-conformances.

EPC Contractor should enhance their own HSE management system and report to PMC according to the SSEMP reporting procedure.

Health, safety & Environmental violations are thrilling, which are entirely excruciating and needs effective mitigation. EPC contractor has been committed to adhere with all HSE regulatory and statuary obligations.

Looking forward for your quick response.

With Regards,

Zafer DEMİRSELÇUK
Project Manager - Team Leader
Balakot Hydropower Project

CC:

- Project Director / PEDO, Balakot Hydropower Project
- Deputy Team Leader / PMC, Balakot Hydropower Project
- PMC JV Partners

Encl: HSE Non Conformance Observations (The HSE Non-Conformance Observations can be downloaded from below given link)

https://drive.google.com/file/d/1AdEbTC8feqTqG-aEgtDV_lu_WnEGuwKc/view?usp=sharing

BALAKOT HPP CONSULTANTS

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

Ref. No: 1018/2493 Date: December 2, 2024

Mr. Qing Meng,
Acting Authorized Representative,
CGGC-GRC JV.

SUBJECT: NON- CONFORMANCE OBSERVATION RECORDS IN IMPLEMENTATION OF HEALTH AND SAFETY MEASURE AT SITE

Dear Sir,

Reference to the above cited subject, PMC has routinely conversant to the EPC contractor for his Health and Safety performance which demonstrated the continuous violations. In the light of the current non-conformance report PMC, urges the EPC Contractor for swift response to rectify the health and safety issues. Constant replications of the past observations reflected the non-seriousness of the contractor or weakness of their HSE system in place. PMC need prompt action and realistic elucidation for the incessant violation of health and safety on site.

Non-Conformance observations records are enclosed for your information and further appropriate action.

With Regards,

Zafer DEMİRSELÇUK
Project Manager - Team Leader
Balakot Hydropower Project

CC:

- Project Director / PEDO, Balakot Hydropower Project
- Deputy Team Leader / PMC, Balakot Hydropower Project
- PMC JV Partners

Encl: Non-Conformance Observation Reports

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

Health Safety & Environment (HSE)
Non-Conformance Observations

Ref No: HSE/BHPP/406 Dated: Nov. 11, 2024

Location: Adit-2 and Its Access Route

S. No	Observations	Control	Action Time	Remarks
1.	1. Electrical cable was passing through the water and could cause electrocution. 2. Water was accumulated in the tunnel and made difficult and dangerous to move. 3. Poor or dim light was found in the tunnel and could cause any incident.	1. Keep all the electrical cable away from the water and moisture. 2. Use wooden stands to pass the electrical cables or trailing it through the wall of the tunnel by hanging. 3. Remove all the water from the tunnel and re-establish the active and effective drain system in the tunnel. 4. Give awareness to the workers about the electrical safety. 5. Provide sufficient light system in the tunnel. Bed light could cause any incident. 6. Maintain 80 Lux in the tunnel and 100 lux at the entrance.	Immediate	Open
2.	Waste bins were found in pathetic condition and unmaintained.	Clean the waste bins on daily basis or as per need.	Immediate	Open
3.	Chemical or mobile oil drums were kept on the side of the road.	1. Shift the chemical or mobile oil drums in to the designated store. 2. All the drums should keep on the secondary containment or on the dip tray.	Immediate	Open
4.	Soild waste was thrown around the waste skip.	1. Throw the solid waste in to the waste skip. 2. Give awareness to the janitors and the loader operator.	Immediate	Open

BALAKOT HPP CONSULTANTS

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

Health Safety & Environment (HSE)
Non-Conformance Observations

Ref No: HSE/BHPP/410 Dated: Nov. 11, 2024

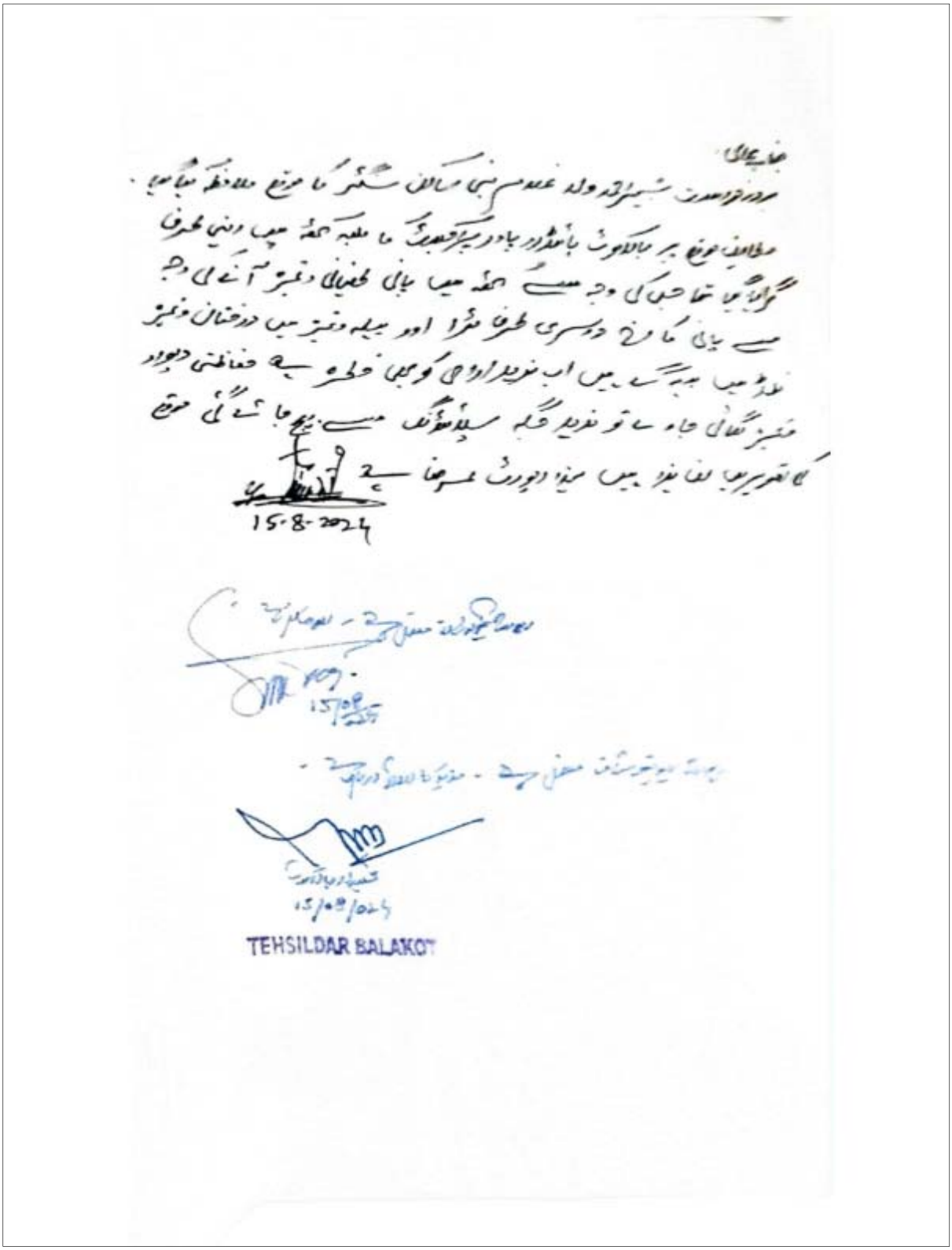
Location: Main Access Tunnel Powerhouse

S. No	Observations	Control	Action Time	Remarks
1.	Chemical or mobile oil drums were rolling on the road.	Remove all the rolling diesel or mobile oil drums from the road and keep in the designated store.	Immediate	Open
2.	A sub-standard welding goggle was using by a welder.	Provide the standardize welding goggles and face shield with inbuilt helmet to all welders and co-welders.	Immediate	Open
3.	Welding was performed at height without the barriers under the platform.	1. Put barriers under all work at height activities to protect the workers from falling objects. 2. Display sign board for providing caution to the workers.	Immediate	Open
4.	An electrician was working on the electrical DB without rubber gloves.	Provide rubber gloves to all electrician for electrical activities.	Immediate	Open
5.	Workers were busy on elevated platform without fall protection.	Provide awareness to all workers about fall from height. Provide fall protection to the workers during all work at height activities.	Immediate	Open
6.	A dumper driver was unsafely stand on the top body of the dumper without any purpose	Provide the awareness to the dumper driver for his unsafe act.	Immediate	Open

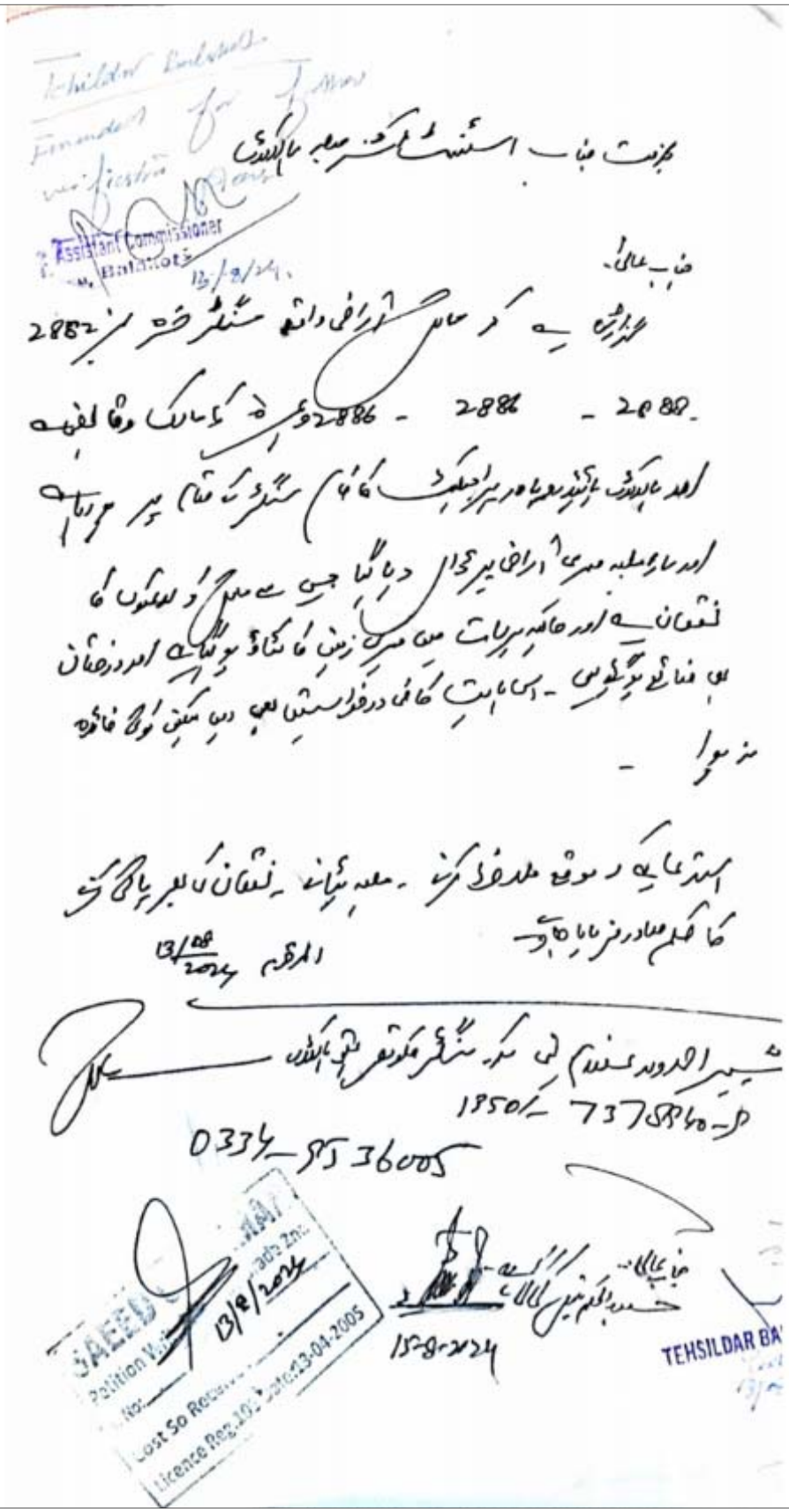
Annexure I

Copy of Complaint on Grievances/Damage compensation

Copies of the Environmental Complaint Received during the Reporting Period



TEHSILDAR BALAKOT



OFFICE OF THE ASSISTANT COMMISSIONER
BALAKOT

No. 1807-10 /BHPP/AC(B)
Dated. 26 / 08 /2024

1. The Project Director, PEDO, BHPP Project Balakot
2. The Project Manager, CGGC, BHPP, Sanghar A-2 site, Tehsil Balakot

bject:- **APPLICATION SUBMITTED BY MR. SHABIR AHMED S/O GHULAM NABI R/O SANGHAR TEHSIL BALAKOT & REGARDING REDRESSAL OF GRIEVENCES / COMPENSATION OF DAMAGES.**

A self-explanatory application submitted by Mr. Shabir Ahmed S/o Ghulam Nabi R/o anghar Tehsil Balakot regarding redressal of grievance / compensation of damages is enclosed erewith along with detail report of Revenue Field Staff, for further necessary action as per law, lease.

ASSISTANT COMMISSIONER
BALAKOT

No. 1811-12 /BHPP/AC(B)

Copy forwarded to:-

1. The Deputy Commissioner, Mansehra for information please.
2. The Mr. Shabir Ahmed S/o Ghulam Nabi R/o Sanghar for information with reference to his application.

ASSISTANT COMMISSIONER
BALAKOT

GRIEVANCES REGISTER OF BHP PROJECT

S. No	Date of Lodging Grievance	Name, Address and Contact Number of the Complainer	Nature of Complaint	Mode of Complaint Verbally, Telephonically or in writing	Action Taken	Remarks
09	04-03-24	Yasir Ali Hussaini, Paras	Nomination of 5 members of GRC due to Baha	Written + Verbal	During a meeting with GRC the members replied that the complaint concerns were addressed, issue be	With drawn
		"1st JULY	2024	ONWARDS"		
01	24-07-24	S. Nasir Hamad Shah	Structure Passage Blockage	Written	The contractor was immediately contacted to clear the Passage for easy loading of Material	Resolved.
02	01-10-24	S. Nasir Hamad Shah	Structure Demolition by the ccsac	Written	Contractor called for meeting, inquired on the act. Contractor committed that they will submit proper written reply.	
03	8/10/24	GRC Bela Sacha.	Requested for some more time after Adm. Notice period.	Written	More time provided	Closed/Resolved
04	8/10/24	Waris Shah, GRC B. sacha	Passage clearness by security personnel	Written	Passage cleared	closed/Resolved.
05	12/10/24	Ibrar Shah, Paras	Non-Provision of contractu. Business	Written Email from ADB	Called a meeting at PIU - The PIU team met with Contractor to adjust the people in businesses if any.	closed/Resolved.
06	13/12/24	Atiq & Brothers, Sanagar	Non-Provision of TSR & Complaint Compensation in Revenue records.	Written Email from ADB (Tito)	called them to PIU office & made them understand, one brother immediately employed by contractor.	Resolved.