Environmental and Social Monitoring Report

Project Number: 44914-014
Quarterly Report (April-June 2016)
June 2016

Pakistan: Patrind Hydropower Project

Prepared by Star Hydro Power Limited for the Asian Development Bank.

STAR HYDROPOWER LIMITED

147 MW PATRIND HYDRO POWER PROJECT

ENVIRONMENTAL & SOCIAL MONITORING REPORT

(APRIL-JUNE 2016)

STAR HYDRO
K-water Global

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A COMPANY OF KOREA WATER RESOURCES CORPORATION

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Acronyms

ADB	Asian Development Bank
AJK-EPA	Azad Jammu & Kashmir Environmental Protection Agency
KPK	Khyber Pakhtunkhwa
CDP	Community Development Plan
EH&S	Environmental Health & Safety
EPCC	Engineering Procurement Contracts Contractor
EIA	Environmental Impact Assessment
EMP	Environmental Management Plan
GRC	Grievance Redress Committee
IEE	Initial Environmental Examination
IDB	Islamic Development Bank
IFC	International Finance Corporation
ILO	International Labor Organization
KEXIM	Export Import Bank of Korea
NEQS	National Environmental Quality Standards
NTP	Notice To Proceed
PAPs	Project Affected Persons
PS	Performance Standard
RAP	Resettlement Action Plan
SHPL	Star Hydropower Limited

Introduction

i. Background

The Patrind Hydropower Project is run of river project located on the boundary of Khyber-Pakhtunkhwa and Azad Jammu & Kashmir. The purpose of the Project is to provide zero-emissions renewable electricity to the grid and also provide local and global environmental benefits as well as strong local socioeconomic benefits. The project has the total capacity of 147 MW. The project is being financed by multilaterals like IFC, ADB, IDB and KEXIM.

ii. Objectives:

The purpose of this Quarterly Environmental & Social Performance Report is to describe EPC contractor's compliance with the environmental and social performance requirements of IFC/ADB (including implementation of the Environmental Management Plan) and to assess any corrective actions implemented/proposed. This includes:

- A description of all significant health, safety, environmental and social activities and events that occurred during the reporting period.
- Provision of additional information about activities (i.e., status of permits or other approvals, ongoing public consultation etc.).
- Quantitative performance monitoring data summaries in comparison to appropriate ADB and IFC policies, guidelines and national requirements.
- An explanation of any cases of non-compliance with lender's guidelines or applicable regulatory limits that have occurred, identifying the cause and the corresponding corrective measures planned or underway to prevent future occurrences.
- Resettlement Action Plan activities and progress on the implementation of project within the Sustainable Development Strategy Framework

a. Project Name and Summary Information

i. Project/Business Name

Patrind Hydropower Project

ii. Status of Construction

The Notice to Proceed (NTP) for main works was issued by the Company to EPC Contractor on December 26, 2012. However the preliminary works under Preliminary Contract were initiated in October 2010 and were dovetailed in to the main contract. As of June 2016 the physical progress achieved is 94.62%.

iii. Location of project

Village Patrind, District Muzaffarabad, Azad Jammu and Kashmir

iv. Nature

Run of river Hydropower Project.

v. Scale/size

147 MW

vi. Date of construction/operation commencement

Preliminary works commencement: September 2011
Main works start after issuance of NTP: December 2012

vii. Name, designation and signature of person responsible for preparing/reviewing the report

Prepared By:	Syed Atif Ali Shah	Reviewed By:	Kyung Whan Lee
Designation:	**Manager HSE**	**Designation:**	**Deputy Chief Executive Officer**

Approved By: Waqar Ahmad Khan
Designation: **Chief Executive Officer**

b. Relevant Environmental Permits or Compliance Certificates

a) Summary of permit conditions and media covered:

As per NOC Issued by AJK-EPA, SHPL/EPC is bound to:

Condition	Status of compliance
Ensure compliance to NEQS and undertake mitigation measures suggested in the EIA report & EMP. Constitute Environmental/Post EIA Monitoring Committee and submit monitoring reports on quarterly basis and provide the copy of this approval and EIA report to the contractor for information and compliance activities.	Environmental Monitoring Unit has been established and mobilized on site after the issuance of Notice to Proceed to the EPC Contractor. Quarterly E&S Monitoring reports are being submitted to the EPA AJ&K. Post EIA monitoring was undertaken by EPA during last year. Approval and EIA report is part of EPC contract.
Compensate PAPs for loss of agricultural land, crops, property, and usage right etc. in accordance with the rates that agreed upon and adopt appropriate mechanism for RAP grievance redress. Employ local peoples for all unskilled jobs and implement CDP sooner than later. Ensure all public utilities such as water supply pipes, power phone line be not disturbed by the execution of the project.	Owners have been compensated for the loss of agricultural land, trees and property as per the market rates/replacement cost. For unskilled jobs local workers from affected communities (Alda, Patrind, Tarcheela, Boi, Sarati Shoran and Deedal) are being employed and for skilled jobs locals are being hired on priority basis as per the requirement and the qualification. During civil works special care is being taken not to disturb any of the public utilities.
Ensure occupational and community health and safety backed by a comprehensive emergency response plan. Adopt controlled techniques in accordance with Pakistan explosive act and also make sure the safety & security of wild animals and their habitats at the project site and in its environs with the prior consultation and adhering to the guidelines of forestry and wild life departments strictly.	Emergency response procedures are in implementation. Provision of PPEs, education sessions, availability of medical facilities, installation of sign boards and close supervision by EPCC & OE HSE staff are ongoing activities to ensure Occupational health and safety on project sites. Blasting activities are carried out in accordance with Pakistan Explosive Act. Monitoring of Fish fauna and flora has been undertaken during quarter.
For compliance of regulation 13, 14, 17 & 18 of IEE/ EIA regulations 2000 which enunciate the conditions for approval. Confirmation of compliance, entry, inspection and monitoring of the proposed project. The site to install the asphalt plant and other machinery would be selected in consultation with the agency (AJK- EPA). The findings of quality analysis on regular basis should positively be shared. Also, the spoil should be dumped at pre identified location.	Quality monitoring reports are being sent to EPA-AJK. Spoil is being dumped on approved sites. Installation of batching plant has been undertaken with consultation of EPA-AJK.

Communicate any change in the approved project to AJK-EPA and that would be commenced after obtaining the approval. The approval shall stand null and void if the conditions mentioned herein before are not fully complied with. It does not absolve the proponent of the duty to obtain any other approval or clearance that may be required and can be withdrawn at any time with any prior notice if deem necessary in the public interest.	For the changes in the design of the weir site layout and Addendum to the EIA report was submitted to both the EPAs i.e. EPA AJ&K and KP covering the changes to be made in the design which was subsequently approved by both the EPAs on November 19, 2014.

Most of the conditions are common in both approvals with few exception of following issued by EPA KPK:

Condition	Status of compliance
Water in the pond created by construction of Patrind weir should be maintained at EI765m.amsl.Safety zone/adequate engineering measures should be provided to overcome fears of the residents regarding effects of pond to their houses. The level difference of 2 meter from765m.amsl to 767m will act safety zone so the owner of the land and housing structures falling within the zone should be compensated as per laid down procedure of compensation of the government.	The operation level of the Project is at 765 masl. The Company acquired the land at the level of 767 masl as per the condition of the EPA. The additional 2 meters shall act as safety zone and the owners were compensated as per the procedure.
The project management should contribute towards the repair of the road to be used during construction and operation activities of the project. The trees supposed to be submerged should be counted in the presence of all stake holders i.e. owners land collectors /patwari representing revenue department representative of EPA and forest/agriculture department. After the determination of exact number type and ownership of the trees be finalized and paid as per laid down procedure of the government	The owners have been compensated for the trees supposed to be acquired due to the land acquisition. The trees were counted in the presence of all stake holders i.e. owners land collectors /patwari representing revenue department representative of EPA and forest/agriculture department. Uneven section of project access road passing through Sarati village has been repaired with graders. Damaged portion, will be repaired if any. The maintenance of the access roads near the project area is part of Social uplift plan
Minimum flow of 2 cumecs in the downstream of weir in Kunhar River should be kept and provision for 10% extra of this amount of water for emergency in downstream should also be kept in plan. No extension would be permitted in the future in existing hydropower project without prior approval of the EPA /government of Khyber Pakhtunkhwa	Shall be applicable during the operation phase of the Project
Separate NOC is required for batching/crushing Plant	NOC was obtained from EPA KPK for installation of two batching plants near the weir site

b) Relevant Government Agencies

As the Project is located on the boundary of Khyber Pakhtunkhwa and Azad Jammu & Kashmir, Star Hydro Power Limited (the "Company") had to seek approval of Environmental Impact Assessment (EIA) from following two Environmental Protection Agencies (EPAs).

i. EPA Azad Jammu and Kashmir
ii. EPA Khyber Pakhtunkhwa

c) Issuance dates and duration of validity

Issuing Authority	Issuance Date	Duration of Validity
EPA-AJK	10-08-2010	3 years
EPA-KPK	14-04-2011	Project construction phase

d) Renewal Requirements:

As per AJK-EPA review of IEE and EIA Regulations, 2009 "Once the Environmental Approval is accorded in favor of the proponent, shall be valid for the period of 3-years from the date of issuance. However, if construction is commenced during the 3 years period, the approval shall stand extended "automatically" for a further period of 3-years from the date of expiry of initially issued Approval".

c. Incidents of Violations or Non-Compliance

HSE compliance monitoring has been undertaken as per usual during the reporting quarter. To ensure implementation of recommended procedures regular liaison was maintained with the EPC contractor and OE and subsequently with the site construction teams and sub-contractors. Efforts were made to ensure remedial and corrective actions highlighted by the Company and OE to mitigate HSE issues.

Incidents of violations and non-compliances by EPCC and its sub-contractors were included in daily, weekly and monthly reports. To prevent incident and mitigate risks, during the quarter, close supervision by HSE team has been carried out. Following non conformities were highlighted by OE through correspondence and during formal or informal meetings. Remedial measures and corrective actions have been undertaken mitigation measures:

- In the month of April, the community sewage water was curving on the road creating foul smell that might lead to numerous diseases to the individual who are nearby. Corrective action was taken in this regard main hole was made in order to collect the sewage water at one point and then covered it with wood planks in order to avoid any fall in the main hole.

- In the month of May, in Kyung dong accommodation the main lines of sewage water blocked due to which all of the water was curving on the road and under containers creating foul smell. So corrective action was taken in this regard some professional from outside were hired to handle it. They suitably adjusted the lines and new line was also made in order to avoid such situation in future.

- In the month of June,2016 the sedimentation tanks besides river corner got filled with sludge and due to unavailability of equipment it was delayed which leads towards the over flowing of sludge from the tank, So quick corrective action was taken and removed the sludge from that tank and disposed in the disposal area.

Un-safe Act & Un-safe Conditions

To mitigate risks of accidents UA/UC Observation Card System was introduced to ensure maximum safety on site. To sensitize all staff/workers and to get information and feedback about site HSE issues, boxes holding UA/UC cards have been placed on prominent locations.

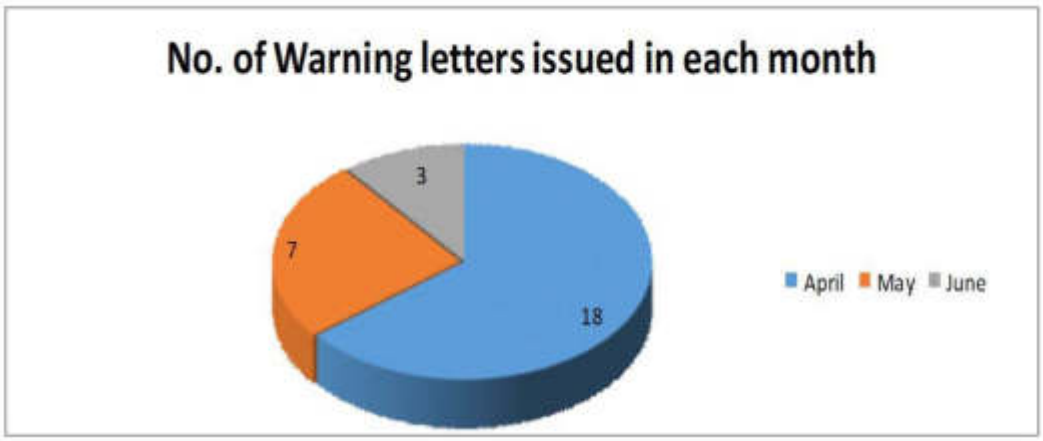
Warning Letters for Non-compliances

During reporting period, depending on nature and severity of violation warning letters have been issued. Verbal warning is given for the first time on minor violations. If any employee fails to abide by HSE policies after verbal warning a written warning letter is issued. 28 warning letters were issued for incident for violations of HSE procedures. List of warning letter is given in the table below. As per company's standard procedure after three warnings employee would not be able to continue his/her job. However, before removal it is important to ensure that individual has been informed / trained and provided with the necessary PPEs.

WARNING LETTERS

Sr.	Name	Date			Site	Company	Designation	Reasons
		DD	MM	YY				
1	Muhammad Anwar	21	04	2016	Power house Site	Daewoo E & C	Mech. Supervisor	PPEs Violation
2	Alam Zaib	22	04	2016	Power house Site	HES PAK	Labour	PPEs Violation
3	Fayyaz Ali Shah	22	04	2016	Power house Site	HES PAK	Labour	PPEs Violation
4	Muhammad Sadiq	22	04	2016	Power house Site	HES PAK	Labour	PPEs Violation
5	Abdul Hadi	22	04	2016	Power house Site	HES PAK	Labour	PPEs Violation
6	Akhter Munir	22	04	2016	Power house Site	HES PAK	Labour	PPEs Violation
7	Mir Khurram	15	04	2016	Weir Site	Sung Bo E & C	Steel Fixer	Unsafe Act
8	Zeeshan	15	04	2016	Weir Site	Sung Bo E & C	Steel Fixer	Unsafe Act
9	Ijaz	15	04	2016	Weir Site	Sung Bo E & C	Carpenter	Unsafe Act
10	Awais	15	04	2016	Weir Site	Sung Bo E & C	Carpenter	Unsafe Act
11	Noman Riaz	15	04	2016	Weir Site	Sung Bo E & C	Internee	Unsafe Act
12	Moheed	16	04	2016	Weir Site	Sung Bo E & C	Welder	Unsafe Act
13	Shah Faisal	16	04	2016	Weir Site	Sung Bo E & C	Carpenter	PPEs Violation
14	Muhammad Shahid	16	04	2016	Weir Site	Sung Bo E & C	Carpenter	PPEs Violation
15	Malik	21	04	2016	Weir Site	Sung Bo E & C	PT OPERATOR	Unsafe Lifting

Sr.	Name	Date			Site	Company	Designation	Reasons
		DD	MM	YY				
16	Dong Shi Jin	24	04	2016	Weir Site	CNEEC	FOREMAN	Fail to Supervise
17	Paung	29	04	2016	Weir Site	CNEEC	SUPERVISOR	Fail to Supervise
18	Hussain	29	04	2016	Weir Site	HES PAK	SURVEYOR HELPER	Entered HRT without PPEs
19	Muhammad Yunas	11	05	2016	Power house Site	Daewoo E&C	Supervisor	Failure to supervise
20	Hwang In Chang	25	05	2016	Power house Site	Kyung dong	Construction Manager	Unsafe Behavior
21	Kashif Iqbal	26	05	2016	Power house Site	Daewoo E&C	HSE Officer	Unsafe Behavior
22	Rohail Joses	27	05	2016	Power house Site	Daekwang	Electrical Engineer	Unsafe Behavior
23	Safdar Abbas	27	05	2016	Power house Site	Kyung dong	Labor Foreman	Unsafe Behavior
24	Asad Samil	28	05	2016	Weir site	Steel Fixer	Steel Fixer	Unsafe behavior
25	Shoukat	29	05	2016	Weir Site	Carpenter	Steel Fixer	Unsafe Act
26	Adeel abbasi	01	06	2016	Weir Site	Daewoo E&C	HSE A.Officer	Miss use of ambulance
27	Haleem	01	06	2016	Weir Site	Daewoo E&C	Driver	Miss use of ambulance
28	Sirtaj	14	06	2016	Power house Site	Daewoo E&C	Rigger Helper	Unsafe Behavior



d. Incidents of Environmental and Safety Accidents

a) Environmental Accidents and Mitigation

- No major environmental incident occurred during the reporting quarter on both the sites. However, minor soil contamination due to inappropriate handling of oil was observed.
- During the quarter, minor oil spillage was observed in front of the batching plant, power house and in workshop area due to the maintenance of the machinery and generators placed on the site. Corrective actions were taken immediately in this regard to stop oil spillage by removing the top layer of contaminated soil and dumping into the concrete waste trench in the disposal area to prevent environmental degradation.

- During the reporting quarter, the ratio of dust generation has been increased due to the change of weather. Corrective action was taken by in this regard and issued a revised water sprinkling schedule to the batching plant supervisor and asked him to follow the schedule to overcome the dust issues. Three water bowsers were assigned duty to sprinkle water on whole site, as well in the areas near community.




Following preventive and mitigation measures are adopted;

- Filter cartridges of the water filtration plant were changed on both the sites to ensure clean drinking water.
- Shotcrete activities have been undertaken to stabilize slopes and to mitigate risk of erosion and to minimize landslide risk.
- Excavated material is being dumped in designated disposal areas on both sites.
- According to the nature of work inspections have continuously been carried out during the reporting period to reduce the risk of accidents and impacts on environment and for proper maintenance of machineries and other equipment's.
- Quarterly Fish fauna and vegetation monitoring to have been undertaken.
- Bi Annually Water Quality Analysis to have been undertaken in the 4th quarter.
- Fumigation activity was conducted on both sides of the project.
- Hunting and fishing activities are prohibited on project sites.


b) Health and Safety Accidents and Mitigation

EPCC encourages and educates employees to take reasonable care for their own health and safety. Incidents are recorded for all workers/staff working for subcontractors and on rented vehicles/machinery.

In the month of June 2016, an incident occurred at weir site wherein a worker fell down from the height on the 21st of June, the incident was reported by EPCC as medical treatment case as the injured was hospitalized after the incident and then passed away after few days. Detailed report is attached as **Annex-15** to this report.

Summary of health and safety incidents during quarter is in the table given below.

Incident	Frequency	Description	Media or Community Reaction
Fatality	0+0+1	Presented in medical treatment case below in this table. Since it was initially reported as medical incident as the deceased was injured on site and after few days he expired.	None
First Aid Case	1+2+2	1. Lining work was in progress on 1st April,2016 , Labor (Muhammad Amir) was trying to pick up some food item placed inside the electric panel and got electric shock. Immediately moved to the site clinic and then referred to the nearby hospital 2. On 22nd May 2016, at about 16:15, Mr. Yang, Electrician GDYT was shifting the electrical panel from one place to another on the same ground, suddenly the hand thumb got pinched between the two panels, and he was referred to the hospital after first aid from site clinic. 3. On 25th May 2016, at about 8:00 AM, Shiraz Abbasi, Mechanical helper was working inside the power house block 4, erection bay, suddenly a steel plate fell from top where other workers were working also, and hit his head, and got injury in the head, he was taken to the site clinic for first aid and then was shifted to the hospital after first aid, reports clear 4. On 22nd June 2016, at about 17:15 hrs. Mr. Song Chang Hak, Manager DK was working in the Power House, His foot slipped from the ladder and he fell down, got injuries on backside of his neck, after first aid sent to Ambore hospital. 5. June 28, 2016 near about 11:00 a.m., First aid cause incident happen at weir area. When Waleed Steel fixer of SANGBO was doing the job at weir, he got a foot injury, when the IP	None

Incident	Frequency	Description	Media or Community Reaction
		put his foot directly on the nail. This incident happened due to negligence of IP, because he knows the location of nail.	
Medical Treatment Case	0+0+1	On 21st June 2016, at about 23:15, Umar Riaz, welder of Sangbo E&C, was working on the Power intake was engaged on his cell phone, he did not look at his footsteps and fell down from a height, after first aid he was referred to Abbottabad hospital for further treatment.	None
Damage only and Near Miss	0+0+1	On 26th June 2016, Nisar Ahmed, HSE Helper was working on the Power House, KD steel fixers were working on the upper levels, suddenly a scaffolding plate fell down from the top and passed by him, luckily he was not injured.	None
Property damage/env. Incident	0+0+0	None	None
Medical Checkup / Examination / Treatment		**April 2016:** Lower site = 496, Upper site = 132 Total= 628 **May 2016;** Lower site = 612, Upper site = 125 Total= 737 **June 2016;** Lower site = 385, Upper site = 200 Total= 585 **Grand Total: 628+737+585 =1950**	None

External Monitoring /Inspection

Sites HSE internal inspection has remained an ongoing activity. As part of external monitoring, Lender's Technical Advisor Mott MacDonald visited site on May 28, 2016 and raised some issues which were later rectified by the concerned departments, other visits from Daewoo head office approaching time to time and inspecting sites.

Lenders' Technical Advisor highlighted several issues related to HSE and E&S matters on site, with the labors and community which were also highlighted by the OE in their monthly reports. Lenders asked SHPL to share the update on the implementation of corrective action on site related to the issues highlighted by LTA in its report no. 14 after the site visit.

The detailed reply to LTA's comments was shared including the response from EPC, OE and SHPL including the supporting documents. The response is attached as **Annex-12** to this report.

Internal Inspections Conducted During Reporting Period

To mitigate safety incidents, machinery, equipment and electrical appliances are being inspected to ensure fitness through color coding system. List of inspections done during the quarter are attached as (**Annex- 1**).

According to the nature of work being carried out on construction sites, inspections have continuously been carried out during the reporting period to reduce the risk of accidents and impacts on environment and for proper maintenance of machineries and other equipment regularly.

Following inspections have been undertaken during quarter;

- Heavy equipment inspection
- Batching Plant Inspection
- Site Overall Inspection
- Fire Extinguisher Inspection
- Health and Hygiene Inspection
- Gaseous concentration Inspection

Mitigation Measures

To ensure health and safety of both staff and labor on project area, following were some of the prominent activities EPCC undertook during the quarter:

1. Workers (attached with both Daewoo E&C and sub-contractors) have been provided with necessary Personal Protective Equipment (PPE) comprising of helmets, safety shoes and safety jackets and ankle belts to prevent injuries.
2. Warning letters have also been issued to the personnel found to perform activities that are against the rules and regulations of the HSE.
3. Newly employed staff, labor and daily wagers were given HSE inductions so that they are aware of potential risks associated with the construction sites emergency procedures.
4. Safety campaigns and awards are distributed to encourage and develop safe work behavior in labor and staff.
5. To mitigate safety incidents, machinery, equipment and electrical appliances are being inspected to ensure fitness.

6. Regular trainings/education sessions for staff and labor.
7. Water sprinkling on project access road for community health and safety.

Permit To work (PTW)

Permit to work for the following activities have been issued during the quarter.

1. Welding/ Open Flame Work
2. Excavation
3. Lifting
4. Explosive issue
5. Blast
6. Work at height

Work permits issued during the reporting quarter are attached as **Annex-2**.

e. Labor Relations and Conditions

(i) Nature of labor dispute or grievance

Kyung Dong labors went on strike from June 26th to 28th based on misunderstandings of Ramadan salary. Approximately 120 people participated in strike and restrained other labors from working at site. During the Ramadan they were paid Rs.750 per 8 hours as they agreed. However they demanded Rs.875 as they received last year. Point is they worked 9 hours in last year Ramadan. Local government arbitrated this case and following was agreed.

- Labors will get paid Rs.875 per 9 hours for the rest of Ramadan period
- No action will be taken against labors who attended the strike

No other labor dispute or conflict with local community was observed or reported during quarter. Complaints box are positioned on each site on detectable location for the ease of labor in submitting complaints. Labour issues monitoring log is being maintained by the OE who monitors all the labour related issues on site. The detailed log showing issues of the reporting quarter is presented in **Annex-14** of this report.

(ii) Legal requirements, Permit conditions and renewal requirements

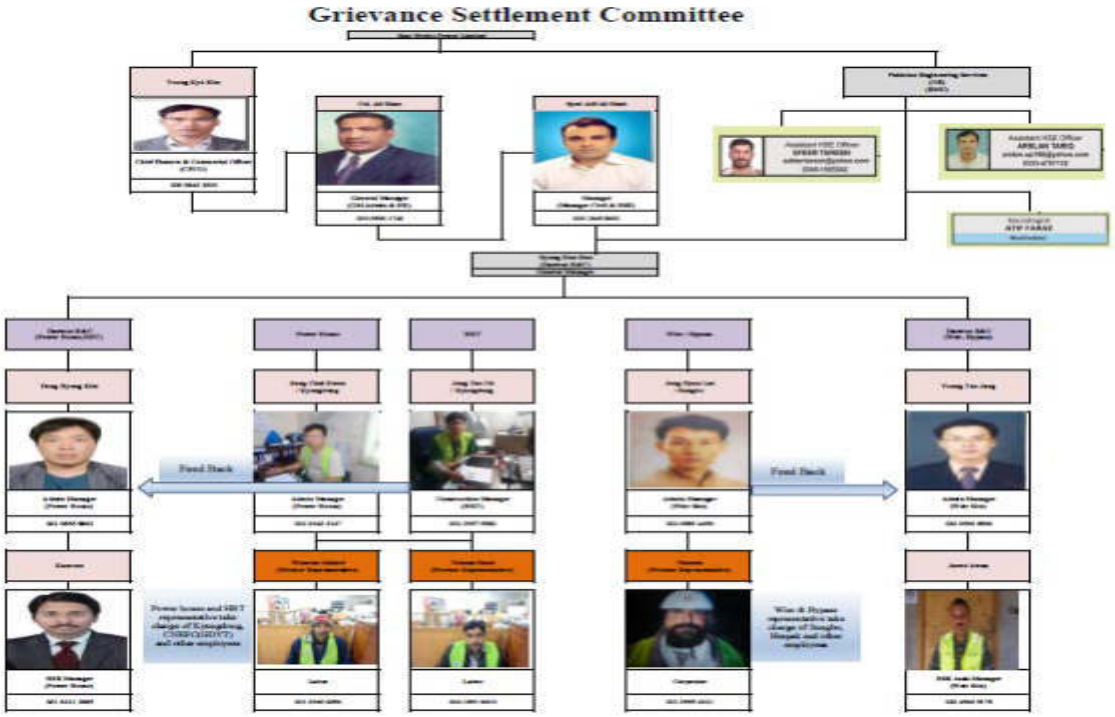
During the reporting period, requirements related to labor's contracts, permits and other conditions remained constant and no change was observed.

EPCC and sub-contractors are providing insurance coverage in case of accident and death. Furthermore, a deduction is being made from salaries for Employees Old Age Benefits Institution (EOBI) as social security on KPK side.

(iii)Authorities in charge of investigation/recording

In case of any labor incident, Site Construction Manager and HSE staff is responsible to record, investigate and address it appropriately.

To address any dispute or work related complaint received from staff /workers. Internal Grievance settlement Committee (GRC) comprising four representatives from labor one from each subcontractor, Planning Manager, Admin Manager and HSE Manager is mandated to investigate the matter in an unbiased manner and resolve it amicably so that the concerned party or individual may be satisfied and a friendly / peaceful environment is reinstated at project site.



(iv)Corrective actions, deadlines, identification of responsible parties.

SHPL, OE and EPCC's HSE departments continuously indicates corrective actions for further compliance by construction team.

(v) Labor relations and living conditions for construction labor force

All staff/workers before induction have been educated to respect local norms and never involve in any conflict with locals. Furthermore, community liaison officer / coordinator who have been employed from local area, assist in managing these accommodations.

Basic services like electricity, water and gas have been provided. Safety measures such as fire extinguishers and emergency contact numbers have been placed on main locations. Fire alarm system has been installed on main campus lower site and will be installed on new accommodations as well. Ambulance drivers are aware of all accommodations to have prompt access in case of any emergency. Following standards are implemented for adherence of local Labor standards:

- Government of Pakistan Labor Policy 2010.
- Standards for labor health and safety are executed according to EPC Construction Contract.
- EPC has made all necessary arrangements for payment, housing & feeding.
- The living conditions are up to merit with all necessities.
- Prefer to hire unskilled /skilled staff and labor from AJ&K or KP.

Compliance status based on applicable National and International laws/ regulation on labor including ILO core labor standards

As per conditions stipulated in the Project construction contract between Company and EPC contractor those have been made in light of National and International laws and standards, implementation during the quarter has been observed accordingly. Statuses of compliance with these laws are given in the table below;

Table: Compliance Status with International and National Labor Laws/Regulations

CONTRACTUAL TERMS/ CONDITIONS	STATUS OF COMPLIANCE DURING QUARTER
ENGAGEMENT OF STAFF AND LABOR	
Except as otherwise stated in the Project Requirements, the Contractor shall make arrangements for the engagement of all staff and labor, local (People living in project vicinity) or otherwise, and for their payment, housing, feeding and transport.	EPC contractor has made all necessary arrangements for the engagement of staff and labor and payment for their wages/ salaries, housing, feeding and transport. However, the local staff/workers do not need accommodation on project base camp.
The Contractor and its subcontractor(s) shall prefer, to the extent practicable and reasonable, to hire unskilled staff and labor, and skilled staff and labor with appropriate qualifications and experience, who are residents of AJ&K or KP especially who are the affected of the Project	More than 700 of unskilled jobs have been provided to nearby communities (Alda, Thori, Patrind, Tarcheela, Sarati, and other adjacent localities) detail presented in subsequent section (viii). Also preference has been given to local people who qualify for skilled positions

The Contractor shall, and shall ensure that its subcontractors shall, fulfill and observe the Environmental and Social Requirements in relation to the engagement of staff and labor	EPC Contractor has established a proper mechanism of daily and weekly reporting and consistent monitoring of HSE and related social issues. On the basis of recommendations, corrective measures are being taken accordingly
RATES OF WAGES AND CONDITIONS OF LABOR	
The Contractor shall pay rates of wages, and observe conditions of labor, which are not lower than those established for the trade or industry where the work is carried out or as prescribed under the Laws of the Country. If no established rates or conditions are applicable, the Contractor shall pay rates of wages and observe conditions which are not lower than the general level of wages and conditions observed locally by employers whose trade or industry is similar to that of the Contractor.	The minimum salary for the permanent worker is 14,000/- for 208 hours monthly according to the budget notification 2015 plus food and accommodation if required.
PERSONS IN THE SERVICE OF OTHERS	
The Contractor shall not recruit, or attempt to recruit, staff and labor from amongst the Employer's Personnel.	Full compliance of the condition was observed during entire quarter
LABOR LAWS	
International Human Rights & Core Labor Standards The Contractor shall comply with all the relevant labor Laws applicable Contractor's Personnel, including Laws relating to their employment, health, safety, welfare, immigration and emigration, and shall allow them all their legal rights.	All regulations are in implementation. Local labor laws were devised in light of International Human Rights & Core Labor Standards; therefore, compliance with local standards is same with international laws /standards. Furthermore, Pakistan has ratified ILO's conventions on core labor standards.
The Contractor shall require its employees to obey all applicable Laws, including those concerning safety at work.	Site HSE status has been improved due to regular instructions and corrective measures.
Abolition of child labor	To ensure the abolition of child labor the Computerized National Identity Card (CNIC) has been made mandatory for induction which is only provided by the GOP after the age of 18.
Elimination of all forms of forced or compulsory labor	No forced labor observed /reported during quarter. Furthermore, during site inspections by SHPL, OE and EPCC's HSE staff, it is strictly checked that no forced labor has been undertaken on any site in any form.

Elimination of discrimination in respect of employment and occupation	No discrimination exists as all persons have been provided equal opportunities irrespective of color, race, origin and nationality. Only difference is the nature of job and relevant skills.
Freedom of association and the effective recognition of the right to collective bargaining	No ban is imposed on workers with regard to establishment of workers organization or freedom to express labor concerns. However, formal labor union or association has yet not been established.
WORKING HOURS	
No work shall be carried out on the Site on locally recognized days of rest, or outside normal working hours, unless: (a) Otherwise stated in the Contract, (b) the Employer gives consent, which shall not be unreasonably withheld, or The work is unavoidable, or necessary for the protection of life or property or for the safety of the Works, in which case the Contractor shall immediately advise the Employer	Work has been carried out on weekends but only with the consent of concerned staff/labor.
FACILITIES FOR STAFF AND LABOR	
(a) Except as otherwise stated in the Project Requirements, the Contractor shall provide and maintain all necessary accommodation and welfare facilities for the Contractor's Personnel. The Contractor shall also provide facilities for the Employer's Personnel as stated in Project Requirements.	Recommended facilities have been provided
(b) The Contractor shall not permit any of the Contractor's Personnel to maintain any temporary or permanent living quarters within the structures forming part of the Permanent Works.	Nobody has been permitted during reporting period

(vi) Medical facilities provided to Staff and Labor during quarter:

On both sites all time availability of clinical staff and facilities has been insured. During quarter 1950 staff and workers visited medical facilities. However, majority of all visitors having normal check up with very few exceptions of minor cuts but rest of other are minor health issues like gastro enteritis, flue and headache etc. Availability of first aid boxes has also been ensured at all sites Implementation of local labor standard.

(vii) Project procedures for: (a) hiring; and (b) acquisition of goods and services:

Procedures for hiring have been adopted as per EPCC's policy and also in compliance with EPC Contract. While, procurement of goods and services by EPC contractor is being carried out under Quality Assurance and Quality Control plan.

(viii) Local Employment Status:

As per the EPC contract, EPCC is bound to employ unskilled labor from local areas/ adjacent villages and for skilled jobs preference has to be given to the qualified locals.

LOCAL EMPLOYMENT STATUS

Company	AJ&K							KPK						Others	Total Employees
	Alrah	Thori	Patrind	Tarshila	Shoran	Other AJ&K	Sub-Total	Sarati	Boi	Deedal	Dalola	Others	Sub-Total		
Daewoo	15	87	25	17	35	410	589	9	11	4	24	57	105	84	778
Kyung Dong	37	32	10	2	-	603	684	-	1	3	4	44	52	171	907
Sungbo	-	-	102	35	42	187	366	-	105	-	138	117	360	92	818
CNEEC	-	-	-	-	-	13	13	-	-	-	-	-	-	11	24
Daekwang	-	-	-	-	-	1	1	-	-	-	-	4	4	6	11
Watch Man	-	-	2	1	-	-	3	-	17	-	-	-	17	0	20
Gurad & Guides	-	11	2	-	-	41	54	-	-	-	-	-	-	0	54
Total	52	130	141	55	77	1255	1710	9	134	7	166	222	538	364	2612
	3.04%	*7.60%*	*8.25%*	*3.22%*	*4.50%*	*73.39%*	*65.47%*	*1.67%*	*24.91%*	*1.30%*	*30.86%*	*41.26%*	*20.60%*	*13.94%*	*100.00%*

Compliance with legal requirement for employment

Project Legal Agreement/Contract	Conditions/Requirements	Compliance Status
EPC Contract Section 6.1 "Engagement of Staff and Labor"	"The Contractor and its subcontractor(s) shall prefer, to the extent practicable and reasonable, to hire unskilled staff and labor, and skilled staff and labor with appropriate qualifications and experience, who are residents of AJ&K or KP especially who are the affected by the Project"	Being complied as most of the workers are from local community. The detail is presented in previous section (viii)
As per Para 5 (n) of Environmental approval issued KPK EPA Approval Condition	"Non-technical jobs should be provided to the local community. Employment record for all positions shall be provided to EPA-Khyber Pakhtunkhwa and priority should also be given to local in technical jobs but not at the cost of merit or requirement of the management of the project"	Unskilled jobs have been provided to local residents whereas preference has been given to locals for technical positions but subject to availability.
As per condition Environmental approval issued by AJK EPA	"As far as possible, employment should be provided to local people for all unskilled jobs. Preference may also be given to local people for all semi- skilled and skilled jobs. Employment record for all positions shall be provided to AJK-EPA positively"	Employment opportunities have been disclosed to the local communities through different avenues such as newspapers advertisement, public notice on prominent locations and through community coordinators and local project staff. Preference has been given to the locals subject to availability of skilled and unskilled human resources.

f. Environmental and Social Capacity

i. Staff capacities in environmental and social management (as relevant)

The Project is being managed/ monitored by EPCC/OE/SHPL having a balanced team of HSE staff comprising safety, environment and health professionals. Organizational chart of EPC is attached as **Annex-3**. An orientation to environmental management, health and safety during construction work is part of induction form of all the staff and workers hired. Furthermore, daily HSE monitoring, toolbox meeting programs and other related activities raise the awareness level among all staff and workers.

ii. HSE Weekly Meetings:

As per monthly HSE Plan of EPC contractor, weekly internal meetings and meetings with site construction teams have regularly been conducted on both sites list of meetings is attached as **Annex-4**.

Issues regarding compliance with HSE standards have always been main agenda items during the meetings.

iii. Environmental laws and regulations

EIA study of the project was completed in light of following laws and regulations. EMP as part of EIA is in implementation under the same laws and regulations;

- Pakistan Environmental Protection Act 1997
- National Environmental Quality Standards (NEQS)
- AJK Environmental Protection Act 2000
- Land Acquisition Act 1894
- Draft National Resettlement Policy 2002
- NWFP Forest Ordinance 2002
- Sarhad National Conservation Strategy 1992
- ADB Safeguard Policy Statement 2009
- IFC Handbook (Resettlement Action Plan)

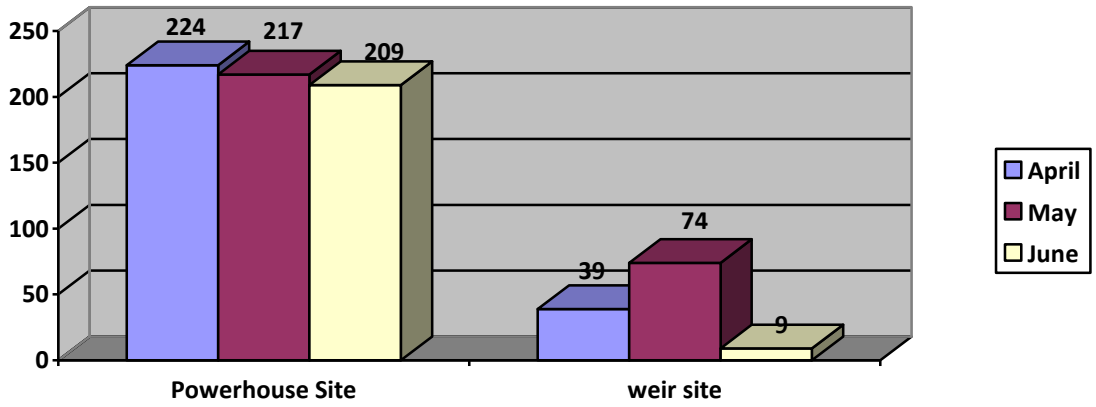
iv. Safety Training and Campaign

v. Induction Training

As part of EMP all staff and workers before starting their respective jobs have been given induction training as per "Induction Performa" recommended in EMP

document. The induction trainings done during the quarter is given below;

Months	Total No of Induction Trainings		Total No. of employees inducted	
	Lower Site	Upper Site	Lower Site	Upper Site
April	54	15	224	39
May	59	15	217	74
June	37	06	209	09



Tool Box Meetings

This is a constant activity undertaken daily by EPCC before the start of every construction shift and is part of 3.5 Safety Campaign. Daily HSE related matters are conveyed to all staff and labor during the meeting by HSE staff.

Daily Education/Training on site

During frequent site visit on spot education/training is an ongoing activity that certainly enhance and promote safety culture on sites.

Moreover, during inspection of equipment and color coding activities, workers and relevant staff has also been educated appropriately. Safety Campaign as part of monthly HSE Plan has been conducted during quarter on both sites.

Monthly Safety Award

Safety campaigns were arranged to promote and develop safe work behavior among labor and staff. To promote safety culture on sites, as per usual safety awards given during month of reporting period:

Safety Awards

Sr. #	Name	Company	Award	Location
1	Wasif Abbasi	Daewoo E&C	Tunnel Engineer	Power House Site
2	Asif Riaz	Daewoo E&C	HSE Assistant Engineer	Power House Site
3	Bilal Qureshi	Kyung dong C&E	Tunnel Foreman	Power House Site
4	Naeem Qureshi	Daewoo E&C	Electrician	Power House Site
5	Perwaz Khan	Daewoo E&C	HTV Driver	Power House Site
6	Ghulam Haider	Daewoo E&C	Crane Rigger	Power House Site
7	Wang Gao Wei	CNEEC	Welder	Power House Site
8	Muhammad Shakir	Daewoo E&C	Time/Store Keeper	Power House Site
9	Raja Mudassir	Architecture Team	Helper	Power House Site
10	Sadaqat Malik	Daewoo E&C	Planning Officer	Power House Site
11	SUNG HOON KIM	Daewoo E&C	Engineer	Power House Site
12	KIM BOUNG CHUL	Daewoo E&C	Engineer	Power House Site
13	SUN HWASUNG	Daewoo E&C	Engineer	Power House Site
14	Mian Muhammad Atif Nazir	Daewoo E&C	Admin manager	Power House Site
15	Shahid Wassen	Daewoo E&C	Driver	Power House Site
16	Muhammad Kamran	Daewoo E&C	HSE Supervisor	Power House Site
17	LEE KANG HOON	Daewoo E&C	Engineer	Weir site
18	DO SAM RAK	Daewoo E&C	Engineer	Weir site
19	Sayed Shafa Hussain	Daewoo E&C	Labor	Weir site
20	Sagib Hussain	Kyung dong C&E	Labor	Power House Site
21	Sayed Zaheer Hussain	Kyung dong C&E	Labor	Power House Site
22	Allah Dittah	Kyung dong C&E	Foreman	Power House Site
23	Muhammad Imran Yousaf	Daewoo E&C	Environmental Officer	Power House Site
24	Nisar Khan	Daewoo E&C	Civil Engineer	Power House Site
25	Awais Hashmi	Daewoo E&C	Mixer Driver	Power House Site
26	Saleem Masih	Daewoo E&C	Electrician	Weir site
27	Sultan Ghauri	Kyungdong C&E	Labor	Power House Site
28	Nabeel Mughal	Kyungdong C&E	Labor	Power House Site
29	Zhu Shui Ging	CNEEC	HSS Fitter	Power House Site
30	Babar Hussain Mughal	Daewoo E&C	HSE Supervisor	Power House Site
31	Mushtaq Ahmed	Daewoo E&C	Camp Manager	Power House Site
32	Abdul Hameed	Daewoo E&C	Lab Assistant	Power House Site
33	Abubakar	Daewoo E&C	Workshop Supervisor	Power House Site
34	Sajid Sulehria	Daewoo E&C	Excavator Operator	Power House Site
35	Ghulam Gillani	Kyungdong C&E	Foreman	Power House Site
36	Fahad Manzoor	CNEEC	Electrical Worker	Power House Site
37	Raja Jameel	Daewoo E&C	Mason	Power House Site
38	Inayat Hussain	Daewoo E&C	Lathe Operator	Power House Site

Needs assessment of environmental and social management capacity

As ongoing activity, ccontinuous capacity building initiatives including more specific trainings on environment and social management are required for staff and labor. Furthermore, daily HSE monitoring, toolbox meeting programs and other related activities have raised the awareness level among all staff and workers.

EPCC's HSE department delivered orientation sessions, awareness raising and capacity building sessions on environment and social management and also identified following training needs of the staff and labor during the next quarter.

i. Work on Height
ii. Pollution Prevention
iii. Corporate Social Responsibility
iv. Safe behavior

g. Stakeholder Consultation/CSR Activities

To initiate and sustain constructive external relationships with Project stakeholders particularly with adjacent /local communities, consultation is an important tool to enhance the social performance of the Project.

Meetings and discussions were held with local NGOs and government departments (Environment Protection Agency, district administration and development authority Muzaffarabad). As part of the grievance redress mechanism the OE is also involved in the

community/stakeholders engagement. OE maintains the record of community complaints/demands. The detailed log is presented in **Annex-14** of this report.

h. Details of community programs involving civil society/NGOs in implementation:

- Some professional services on quarterly basis are being hired by EPCC from locally based individuals and organizations during the quarter .Following organizations have been engaged to undertake activities under EMP and Social uplift Plan:
- HSE sign board preparation and printing activity requirements of the project is being undertaken by local vender (Add City) owned by Mr. Khursheed Qureshi, resident of Patrind village. Add City owner Mr. Khursheed is president of Kunhar Welfare Organization and he himself and rest of his partners are PAPs who are linked with same organization.
- Flora and Fauna Study by local Fisheries and wildlife expert Mr. Yousaf Qureshi who is also retired Director Fisheries Government of AJK.

Table: Organizations/NGOs consulted during the quarter

Organization Name	Location	Purpose/ issues discussed	Actions to address Issues
Kunhar Welfare Organization	Patrind- (Upper Site AJK Part)	EPCC is in constant liaison with the organization regarding preparation of awareness material.	During quarter, HSE sign board preparation and printing activity is being undertaken by local vender (Add City) owned by Mr. Khursheed Qureshi, resident of Patrind village who is president of Kunhar Welfare Organization and he himself and rest of his partners are PAPs who are linked with same organization. Therefore, all printing works are allocated to same organization.
Pakistan Red Crescent Society (PRCS)	Muzaffarabad- (Lower Site AJK)	Placement of First Aid Trained Ambulances Drivers for night shift+ Fitness /service of both ambulances.	First Aid trained drivers placed on night shift and ambulances were sent for service and maintenance by PRCS.
Edinburgh DIRECTAID	Muzaffarabad- (Lower Site AJK)	Environmental monitoring reports submitted by the NGO were discussed to address and incorporate the comments/recommendations made by the owner engineer.	Environmental monitoring activities are being organized by local NGO Edinburg Direct Aid

Rental Vehicle and Heavy Equipment Summary

Lower Site

Sr.	Name	Vehicle No.	Vehicle Type	Providers
1	Ishaq Mir	LEA-2186	Pickup	AJK Others
2	Muhammad Fiaz	D-4026	Pickup	AJK Others
3	Muhammad Iftikhar	B-1060	Pickup	AJK Others
4	Muhammad Iltaf	KN-5259	Shahzore (1-Ton Truck)	AJK Others
5	Arshad	SGP-4986	Shahzore (1-Ton Truck)	AJK Others
6	Abdul Qadeer	MD-122	Pickup	AJK Others
7	Abdul Razzaq	MD-301	Pickup	AJK Others
8	Yameen Awan	NK-161	Prado	AJK Others
9	Muhammad Asif	V-259	Pickup	AJK Others
10	Muhammd Shabbir	B-2202	Prado	AJK Others
11	Syed Israr Gillani	NW-664	Hiace	Others
Total		**11**		

Upper Site

Sr.	Name	Vehicle No.	Vehicle Type	Providers
1	Safeer Ahmed	RLD-8243	Prado	Tarcheela
2	Asif Sawati	B-521	Pickup	Tarcheela
3	Raheel	BA-8490	Pickup	Dalola
4	Shoukat	B-2781	Pickup	Patrind
5	Aleem Gillani	KD-199	Land Cruiser	AJK Others
6	Fiaz	C-3414	Pickup	Boi
7	Jawad	H-2610	Pickup	Dalola
8	Muhammad Sadiq	LX-049	Pickup	Dalola
	Total	**08**		

i. Compliance and Implementation of Mitigating Measures in ESMP

Compliance monitoring of environmental and social management plan has been an on-going activity undertaken by OE and EPCC's HSE staff on both sites. Non compliances with recommended standards and regulations were recorded and reported daily, weekly and monthly. EMP Compliance status is attached as **Annex-6**.

a. Environmental monitoring under EMP:

Internal Environmental and Inspection checklist is developed and being filled on daily bases. Besides this following activities have been undertaken as part of environmental monitoring:

i. Fish fauna Study Monitoring:

Quarterly Study/monitoring was undertaken in Kunhar River (Up & down stream of Project site) during the month of June 2016. Samplings were carried out at the six study points. Coming studies will give a clear picture of the impact of any construction or change in the water flow on the fish. Some insignificant changes in the fish catch and quality of water observed during the study is only due to the irregular seasonal changes and pattern of water turbidity due intensity of rain or drought. Detailed report is annexed as **Annex-10**.

ii. Flora Study Monitoring:

Quarterly Study/monitoring was undertaken at both (Power house & weir) sites in June 2016. The monitoring report recommends the bio-engineering works for the treatment of unstable slopes and stabilization of landslides to retain the good looks and better environment; detailed report is annexed as **Annex-9**.

Table: Compliance with NEQ's

Envrn. component	Standards (NEQS)	Compliance/Mitigation measure	Remarks
Air Quality	EPA ambient air quality (EPAs standards for each Parameter)	NEQS: To ensure dust suppression due to transportation activity, unpaved roads are being sprinkled with water at least twice a day. The EPC is taking all necessary measures to limit pollution from dust and any wind-blown materials during construction.	Dust control has improved significantly during the quarter.
Water quality	WHO Guidelines (EPAs standards for each Parameter)	Waste water from tunnel is treated through sedimentation tanks. Waste water discharged from HRT is being measured	Biannual quality monitoring of waste and drinking water was undertaken in the last quarter of 2015.
Noise levels /Vibration	EPA ambient noise standards and worldwide vibration standards.	Noise: Noise prone activities are avoided during night time. No open blasting occurs during quiet hours. Excavators and all heavy machines are lubricated in a routine matter to minimize the noise and to increase the life of equipment Vibration: EPC is more concerned regarding factors of human comfort and structural damage and always try to comply with allowable vibration standards. Blasting checklist is used by HSE staff.	Noise level and vibration record is maintained on daily bases after each blast
Soil quality	EPA quality standard (Different standards for each Parameter)	No environmental incident except minor soil contamination has been observed.	Visual observations mitigation was done by removing the contaminated soil cover
Flora	Visual observations by relevant Forest professional during EIA study.	Study /monitoring during previous quarter undertaken	Study undertaken in June 2016 (**Annex-09)**
Fish Fauna	Observation by relevant wildlife & Fisheries professional during EIA study.	Study /monitoring for last quarter undertaken	Study undertaken in June 2016 **(Annex-10)**

b. Occupational health and safety

Health and safety of workers has been a prime consideration of Project. In accordance with the safety standards all workers working at site are provided with the Personal Protective Equipment (PPE) comprising of hard hats, safety shoes, and jacket and dust masks depending upon the job specification to prevent injuries. Hygienic inspections were conducted by medical staff. Morning physical exercise has also been undertaken regularly. All sub-Contractors have issued necessary PPEs to employees. Also, daily site inspections are undertaken to ensure the implementation. Community Safety Health and Security:

1. Consistent supervision on surge shaft access road and power house protection works was ensured.

2. Waste management training sessions were held for supervisors and relevant personnel. Furthermore, waste segregation methods were practically taught to site workers and staff to adopt appropriate mechanism.

3. Water sprinkling on project access road for workers /community health and safety

4. Water filter plant is installed for drinking water by Daewoo EPCC at camp residence to provide clean & pure water. Filter Plant cartridges are being replaced quarterly to have better quality of water.

5. During quarter, coordination meetings, monitoring and inspections were undertaken jointly by EPCC and OE's HSE staff with regard to site HSE status,. No dumping of excavated material was allowed on unapproved sites.

6. Waste segregation, collection, transportation and disposal mechanism has been improved during the month and full time waste collectors were placed on both sites. Waste management training sessions were held for supervisors and relevant personnel.

7. Sign boards have been made and placed on the site where there is a need to aware people while doing work.

8. It is being ensured that landfill is carried out in such a manner that it does not cause harm to the environment. This can be done by ensuring that landfills are located, designed, constructed, operated and restored so as to ensure that ground and surface waters are not contaminated.

c. CO2 emissions by the Project

Following project activities are likely to produce CO_2 emissions, which were given due consideration and following mitigating measures were adopted to minimize the CO_2 emissions.

Sources of CO_2	Mitigating/ Preventive Actions
Use of excavation machinery	Regular tuning/servicing of the machinery is made compulsory and regular inspection is done to ensure that. Smoke producing vehicles are banned from working right away until they are repaired.
Tree removal/Land use change	Removal of trees on construction sites will increase the concentration of CO_2 the Project Site atmosphere as trees acted as CO_2 sink. Therefore, as corrective approach, Tree Plantation shall be carried out as retrofitting measure as stipulated in the EMP when it will be practically possible.
Solid Waste Disposal	Improper waste management could result accumulation of CO^2 and CH_4 in the atmosphere. For temporary storage of waste proper waste collection and storage areas have been designated. During last month of the reporting quarter waste management mechanism was improved.
Use of Construction machinery	Regular inspections of machinery are practiced by HSE staff to check machinery conditions. Warning letters have been issued by OE and EPCC to the smoke producing and vehicles.
Usage of liquid fuel	Liquid fuel used at different project activities amounts the maximum CO_2 emissions by the project.
Emissions from electricity use	Electrical appliances release some trace amount of gases in order to mitigate that, it is in company's policy to switch off all the electrical appliances when not in use.

d. Environmental and Social Management Plan, including IFC E&HS Action Plan

To manage the environmental and social issue appropriately, following detailed plans developed by EPCC have been in implementation to fulfill the environmental and social compliance requirements of the project;

a) Plan for Disposal of Excavated Material
b) Plan for Waste Management
c) Plan for Traffic Management
d) Social Uplift Plan

a) Plan for Disposal of Excavated Material

Excavated material is being disposed of in excavated waste disposal area approved as per EIA. At lower site, embankment and gabion walls were washed away due to flash flood on 5th September 2014. Reconstruction of damaged structures has now been completed during the reporting quarter. Whereas, upper site no embankment has yet been developed.

b) Plan for Waste Management

Waste segregation and collection system has considerably been improved on both the sites. EPC and sub-contractors have waste collectors placed on both sites to maintain housekeeping and timely segregation /collection of waste. It is being ensured that landfill is carried out in such a manner that it does not cause harm to the environment. For instance a geo-membrane, concrete and clay lined This can be done by ensuring that landfills are located, designed, constructed, operated and restored so as to ensure that ground and surface waters are not contaminated.


All waste generated in all operation at sites is being managed in accordance with EMP & Waste Management Plan. All the recyclable Waste has been carried and transferred to the scrap dealer.

Paper, Plastics, cardboard and few iron bars have been properly measured by the scrap dealer, the quantity of which has been noted down on the waste consignment note. Daily environmental Performa regarding potential environmental impacts has been made and

monitored at site regularly by direct observation and inspection. These impacts include the monitoring of air emissions, water consumption and discharge, waste management, housekeeping, noise impact, hazardous waste management at the project site. Comments have been noted down In case of any improvement or any corrective action regarding any environmental activity if required.

Municipal Corporation Muzaffarabad is being paid to collect the community waste from collection point established near project site where as for project waste a detailed method statement has been prepared and is being implemented on both sites.

First step that has been followed so far in managing our Project waste was the collection of all waste from all points of the site. Then, all the waste from different points are transported to the disposal area and placed in the trench. Next step of segregation has been attempted, in which cardboard, plastic bottles, paper and plastic sheet has been segregated. Then, waste has been transported to Scrap Yard where signature for evidence from waste collector, waste handler/transporter and scrap dealer has been taken on the "Waste Consignment Note" of Waste Management Plan. Thus, most of the Project Waste has been reused and recycled by selling it to the scrap dealer. Some of the items were of “Reusable” that are used again by a different user or for a different purpose, like a jacket, shoes or a jar used for a cup. They are not reprocessed into raw materials. Whereas some of our Project Waste includes “Recyclables” that are materials like glass, metal and paper that are collected, separated, processed back into raw materials, and made into new products. Final step of Waste Compaction other than segregated waste has been done which is the process of compacting waste, reducing it in size. Wheel loader has been used for compressing waste so that more of it can be stored in the same space. Excavator has also been used to spread the waste evenly in layers over the landfill, and to compact waste to reduce its volume and help to stabilize the landfill.

c) Plan for Traffic Management:

A revised traffic management plan was prepared during last quarter for both sites that partially has been implemented. Parking areas have been designated and speed limit is controlled; safety precautions have been placed to protect workers and the general public. Vehicles are equipped with directional control signage and are being inspected prior to use. Workers have been made aware of mobile equipment operating in the area. Hazard lights have been installed on heavy vehicles and mobile equipment.

d) Social uplift plan:

Revised social uplift plan (SUP) was submitted by EPCC to SHPL in October, 2015. Besides SUP various activities have also been undertaken to facilitate locals such as subletting works, supply of construction material. Status of SUP has been given in (**Annex-11**).

j. Resettlement Plan Implementation

i. Scope of Land Acquisition and Resettlement Impacts

The land identified by the EPC Contractor on the basis of basic design of the Project measuring 872.65 Kanal (683.95 Kanal on AJK and 188.7 Kanal on KP side) was acquired by the Company through Land Acquisition Act (LAA), 1894 applicable in both AJ&K and KPK.

During the construction on the weir site, it was noticed that the land area of 3.7 Kanal "Additional Land" is further required on AJ&K side which is to be submerged due to the head pond of the Project. Due to this addition the total land for the Project becomes 876.35 Kanal.

Due to the change in the design and location of weir downstream, it was confirmed through survey that the land area of 10.3 Kanal is further required on AJ&K side the slope stabilization in the stilling basin area downstream of the weir.

Furthermore, lately on the complaint of the local Mr. Khalid who also raised the same issue during the Lenders' E&S mission in November 2015, on the head pond area a survey was conducted to confirm whether his land is affected or otherwise. EPCC conducted the survey and it was confirmed that his land measuring 5.45 Kanal was being affected due to submergence in the head pond. The process of acquisition has been started by contacting the relevant revenue department. In the month of April 2016 an addendum to the Land Acquisition and Resettlement Plan was prepared and shared with the Project lenders. the Addendum to the LARP is attached as **Annex-13**.

SUMMARY OF THE LAND TO BE ACQUIRED ON AJK AND KPK

PERMANENT LAND						
Sr.	**Project Component**	**Affected Land (Kanal)**				
		State owned Land/ Riverbed	**Farmland**	**Wasteland**	**House land**	**Total**
1	Reservoir Impounding	87.3	282.05	231.9	9.1	**610.35**
2	Weir Structures	0	1.5	48.7	0	**50.2**
3	Powerhouse	13.6	30.1	32.85	5.25	**81.8**
4	Surge Tank	-	-	47.75	-	**47.75**
5	Additional Land	0.3	3.75	15.4		**19.45**
Total Permanent Land Acquisition (Kanal)		**101.2**	**317.4**	**376.6**	**14.35**	**809.55**
TEMPORARY LAND						
1	Colony of Expatriate construction staff, Switchyard, labor camp, access road, bridge, batching plant at Powerhouse Site	54.75	0	27.8	0	**82.55**
Total Temporary Land Acquisition (Kanal)		**54.75**	**0**	**27.8**	**0**	**82.55**
Total Land Acquisition (Kanal)		**155.95**	**317.4**	**404.4**	**14.35**	**892.1**

ii. Status of Land Acquisition, Progress on Compensation Payments and Assistance Delivery

Payment for land acquisition on both sides of the project is in process. The Company has deposited the assessed cost (100%) into Government treasuries for subsequent payment to APs. For the additional land acquired for the head pond about 92% payment has been made which is reflected in the below table. However there is delay in the payment of compensation due to (i) unavailability of entitled land owners who are working or based in other cities or (ii) an existing shareholding dispute among the families. Status of the land acquisition is as follows;

Summary of Land Acquisition Progress and compensation payments

Village	Area	Award Amount	Disbursed	%age	No. of Persons	Persons received payment
1. AJ&K						
A. Land/Property						
Powerhouse (Alda Village AJ&K)	81.8	92,479,824	79,320,704	85.77%	196	479*
Head pond (Shoran Village AJ&K)	130.75	75,181,250	73,283,741	97.48%	611[1]	200
Weir + Head pond (Patrind Village AJ&K)	341.1	204,037,798	163,691,288	80.23%		345
Forest land for Surge Tank (Alda village)	47.75					
B. Additional Land/Property						
Weir + Head pond (Patrind Village AJ&K)	14	8,050,000	1,955,000	24.29%	3	3
B. Trees						
Alda		1,815,089	1,804,318	99.41%		19
Alda		75,546	75,546	100.00%		
Shoran		757,391	685,073	90.45%		55
Shoran		106,053	106,053	100.00%	1	1
Patrind		837,882	620,097	74.01%		33
Sub-Total	**615.4**	**383,340,833**	**321,541,820**	**83.88%**	**811**	**1135**
2. KPK						
Land/Property/Trees						
Weir + Head pond (Sarati Village KPK)	194.15	128,557,081	114,613,320	89.15%	196	Detail Yet to receive
Sub-Total	**194.15**	**128,557,081**	**114,613,320**	**89.15%**	**196**	

*The number of persons who received the payment is higher than the number of affected persons is due to the repetition of the owners names in the payment vouchers[1]

k. Resettlement and Reconstruction

Living standards have been improved due to better compensation received and economic activities in the project vicinity. PAPs who lost their houses had utilized compensation amount in reconstruction of houses. Others have made investment in alternative lands in urban areas for better facilities.
Furthermore, locals from adjacent villages have established small businesses like shops and canteens.

l. Resettlement Related Consultation and Disclosure Activities and Grievance Procedures

In order to ensure that grievances and complaints are addressed in a timely and satisfactory manner and that all possible avenues are available to project affected persons (PAPs) to resolve their grievances, a Grievance Redress Committee has been proposed with following composition:

1. District Revenue Officer	Chairman
2. Union Council Nazim	Principal Member
3. SHPL Representative	Member
4. Affected Community Representative	Member

Establishment of a grievance committee requires the consent from District Administrations (AJK & KPK). The proposed GRC has not been established because SHPL could not ensure the availability of District Revenue Officers as and when required. Nevertheless, while the GRC has not yet been formalized, issues related with acquisition and compensation and community complaints are being addressed with the involvement of same authorities. In practice the same forum is functional but officially has not yet been notified.

Furthermore, the lenders' E&S mission during their site visit in August 2015 suggested establishing a three tier GRC including the sub-contractors, EPC and SHPL/OE. The same was established and communicated to all the workers and the community for future matters and contact.

GRC would be a forum for raising objections and holding discussions to resolve conflicts. Moreover, consultation with the local community and concerned public representatives and officials of the relevant line departments is an ongoing process. Relevant information to the stakeholders has been provided in a timely manner and in a form and language that are understandable and accessible to them. A grievance mechanism is available to allow an AP appealing any disagreeable decision, practice or activity arising from land or other assets compensation. The community/ APs complaints

are being addressed very diligently and carefully at all levels, i.e. district and at project level. Even though the GRC has yet not been established but complaints received are being addressed at all levels (project & local administration level) depending on nature of complaints. Issues related to land acquisition and compensation requires involvement of District Revenue Officer who is part of proposed GRC while other matters related with employment or employees are being managed through community liaison officers/coordinators and project management.

Annexures

Annex-1

Inspections

Sr.	Inspection	Date			Location	Details
		Day	Month	Year		
1	Fire Extinguishers Inspection	01	04	2016	Power House Site	Inspection of fire extinguishers held at Powerhouse site.
2	Color Coding Inspection	02	04	2016	Power House Site	Color Coding of tools and equipment's carried out at powerhouse site.
3	Electrical Equipment Inspection	04	04	2016	Power House Site	Inspection of Electrical DBs and other electrical equipment at powerhouse site
4	Crane Inspection	04	04	2016	Weir Site	Satisfactory
5	Color Coding Inspection	04	03	2016	Weir Site	Color Coding of tools and equipment's carried out at Weir site.
6	Lifting Equipment Inspection	05	04	2016	Weir Site	Inspection of Lifting Equipment held at Weir Site
7	Hand & Power Tools Inspection	06	04	2016	Weir Site	Satisfactory
8	Heavy Machine/equipment	12	04	2016	Weir Site	Satisfactory
9	Heavy Machine/equipment	13	04	2016	Weir Site	Satisfactory
10	Ladder Inspection	21	04	2016	Weir Site	Satisfactory
11	Scaffolding Inspection	25	04	2016	Weir Site	Satisfactory
12	Heavy Machine/equipment	27	04	2016	Weir Site	Satisfactory
13	Ladder Inspection	28	04	2016	Weir Site	Satisfactory

Sr.	Inspection	Date			Location	Details
14	Power Equipment	30	04	2016	Weir Site	Satisfactory
15	Power equipment Inspection	01	05	2016	Weir Site	Inspection of Power Equipment held at Weir site.
16	Color Coding Inspection	02	05	2016	Power House Site	Color Coding of tools and equipment's carried out at powerhouse site.
17	LTV, Cars Inspection	05	05	2016	Power House Site	Inspection of Electrical DBs and other electrical equipment at powerhouse site
18	Heavy Equipment	7	05	2016	Weir Site	Satisfactory
19	Heavy Equipment	8	05	2016	Weir Site	Color Coding of tools and equipment's carried out at Weir site.
20	Fire Extinguisher	8	05	2016	Weir Site	Inspection of Lifting Equipment held at Weir Site
21	Power Equipment	8	05	2016	Weir Site	Satisfactory
22	Heavy Machine/ Equipment	9	05	2016	Power House Site	Satisfactory
23	Fire Extinguishers Inspection	9	05	2016	Power House Site	Satisfactory
24	Heavy Equipment	14	05	2016	Weir Site	Satisfactory
25	Heavy Equipment	15	05	2016	Weir Site	Satisfactory
26	LTV, Cars	17	05	2016	Weir Site	Satisfactory
27	Crane Inspection	18	05	2016	Weir Site	Satisfactory
28	Heavy Equipment	19	05	2016	Weir Site	Satisfactory
29	Heavy Equipment	23	05	2016	Weir Site	Satisfactory
30	Ladder Inspection	25	05	2016	Weir Site	Satisfactory
31	Fire Extinguisher Insp	28	05	2016	Weir site	Satisfactory
32	Lifting Gear Insp	30	05	2016	Weir site	Satisfactory
33	PPE	30	05	2016	Weir site	Satisfactory

Sr.	Inspection	Date			Location	Details
34	Fire Extinguisher Inspection	01	06	2016	Weir Site	Inspection of fire extinguishers held at Weir site.
35	Fire Extinguisher Inspection	02	06	2016	Weir Site	Inspection of fire extinguishers held at Weir site.
36	Scaffolding inspection	03	06	2016	Weir Site	Inspection of Scaffolding at Weir Site
37	LTV, Car inspection.	06	06	2016	Weir Site	Satisfactory
38	Mess Hall and camp inspection	06	06	2016	Power House Site	Inspection of CNEEC Labor accommodation carried out at powerhouse site.
39	Fire Extinguisher	13	06	2016	Power House Site	Inspection of Fire extinguishers at the Power House site.
40	Heavy Machine/Equipment	14	06	2016	Power House Site	Satisfactory
41	Lifting Equipment Inspection	14	06	2016	Power House Site	Satisfactory
42	Scaffolding inspection	19	06	2016	Weir Site	Satisfactory
43	Permit to work inspection	22	06	2016	Power House Site	Satisfactory
44	Working at height inspection	22	06	2016	Power House Site	Satisfactory
45	Lock out tag out inspection	22	06	2016	Power House Site	Satisfactory
46	Confined Space entry inspection	22	06	2016	Power House Site	Satisfactory
47	Heavy equipment inspection	22	06	2016	Power House Site	Satisfactory
48	ladder inspection	22	06	2016	Weir Site	Satisfactory
49	B/plant inspection	24	06	2016	Weir Site	Satisfactory

Annex-2

Work Permit

PAKISTAN PATRIND HYDRO POWER PROJECT

WORKING AT HEIGHTS

PERMIT TO WORK NO.

JOB DETAILS	GANTRY CRANE PARTS INSTALATION		
SPECIAL TOOLS TO BE USED	HAND TOOLS + POWER TOOLS		
LOCATION	POWER HOUSE		
Issue Date	28-05-2016	Time	07:00AM
Validity Date	28-05-2016	Time	18:00PM

Do not proceed with your work until your permit has been authorised by the relevant member of staff.

HAZARDS AND PRECAUTIONS TO BE TAKEN

PRIMARY HAZARDS - fumes, eletics, gases, liquids, sludge, radiation, moving parts

PLEASE ANSWER THE FOLLOWING QUESTIONS TRUTFULLY	YES	NO
Are you qualified / trained to undertake this work ?	✓	
Are appropriate signs to be placed ?	✓	
Are crawl boards with handrails and roofing ladder to be used ?	✓	
Is scaffolding /platform and / or body harness required ?	✓	
If yes, is scaffolding plaftform in place and inpected ?	✓	
Has harness been inspected ?	✓	
Are weather condition acceptable ?	✓	
If yes any hazards from fumes, etc ?	✓	
Is there any risk from falling objects ?	✓	
are there any existing overhead services crossing and /or adjacent to proposed height working		✓
Is edge protection / toeboards required ?	✓	
Is Personal Protective Equipments required ?	✓	

Other Precaution Required	
Other Safety Equipment Required	FULL PPE's

AUTHORISATION AND ACCEPTANCE

I confirm that I have verified the above information and ensured that the necessary precautions have been taken. It is safe to carry out the work as defined above and the permit information has been explained to all workers involved. I accept responsiblility for this work.

Permit Requester name	MUHTAQ SHEIKH	Signature	
Issuing Authorising Construction Manager		Signature	
HSE Representative name	DANISH	Signature	

COMPLETION OR CANCELLATION

I confirm that the work has been completed / partially completed *, checked by my self and the area left in a safe and tidy condition. (*delete as appropriate)

Permit Requester name	MUSHTAQ SHEIKH	Signature	
Issuing Authorising Construction Manager		Signature	
HSE Representative name	Babar	Signature	

THIS PERMIT IS ONLY VAILD WHEN ALL SECTIONS ARE COMPELTE.

PAKISTAN PATRIND HYDRO POWER PROJECT

DAEWOO E&C It's Possible

Lifting Work

PERMIT TO WORK NO.	

Issue Date	27-06-2016	Time	07:00 Hours
Validity Date	27-06-2016	Time	17:00 Hours
Crane Type	GANTRY CRANE	Type of the Load to be lifted	MATRIAL
No. of Workers	04	Maximum Weight of Load	Matrial 15 TON
Operator Name	NU	Rigger Name	SU

Do not proceed with your work until your permit has been authorised by the relevant member of staff.

HAZARDS AND PRECAUTIONS TO BE TAKEN

PLEASE ANSWER THE FOLLOWING QUESTIONS TRUTFULLY	YES	NO
Crane operator holding the valid licence	✓	
Crane travel routes determined	✓	
crane sitting on firm foundation out rigger pade	✓	
Area roped off & signs displayed	N/A	
Over / under ground facilities are be protected	✓	
sling wire & lifting equipments are be tested	✓	

Other Precaution Required	
Other Safety Equipment Required	FULL PPE'S

AUTHORISATION AND ACCEPTANCE

I confirm that I have verified the above information and ensured that the necessary precautions have been taken. It is safe to carry out the work as defined above and the permit information has been explained to all workers involved. I accept responsibility for this work.

Permit Requester name	WAQAR	Signature	[signature]
Issuing Authorising Construction Manager	M&E MANAGER KIM JUNG HAN [signature]	Signature	M&E MANAGER KIM JUNG HAN [signature]
HSE Representative name	KAMRAN	Signature	[signature]

COMPLETION OR CANCELLATION

I confirm that the work has been completed / partially completed *, checked by my self and the area left in a safe and tidy condition. (*delete as appropriate)

Permit Requester name	M. Abbas	Signature	[signature]
Issuing Authorising Construction Manager	[signature]	Signature	[signature]
HSE Representative name	Babar	Signature	[signature]

THIS PERMIT IS ONLY VAILD WHEN ALL SECTIONS ARE COMPELTE.

PAKISTAN PATRIND HYDRO POWER PROJECT

DAEWOO E&C

CUTTING / WELDING /HOT WORK PERMIT		PERMIT TO WORK NO.	
WORK DETAIL	PEN STOCK PIPES INSTALATION		
SPECIAL TOOLS TO BE USED	WELDING MACHINE + ACCESORIES		
LOCATION	POWER HOUSE		
Issue Date	29-06-2016	Time	07 :00 AM
Validity Date	29-06-2016	Time	18 :00 PM

Do not proceed with your work until your permit has been authorised by the relevant member of staff.

HAZARDS AND PRECAUTIONS TO BE TAKEN

PRIMARY HAZARDS - fumes, eletics, liquids, sludge, moving parts

PLEASE ANSWER THE FOLLOWING QUESTIONS TRUTFULLY	YES	NO
~~Building sprinklers~~ or other fire suppression systems.	✓	
cutting welding, flame or spark producing equipment is in good.	✓	
Islolation of Plant.	✓	
Operator having good visibilitly.	✓	
All flammable and combustible material have been removed	✓	
Warning signs attached.	✓	
All sources of flammable vapors or combustible dusts have been eliminated.	✓	
lighting checks of all the units.	✓	
Opening have been covered.	✓	
All equipment has been cleaned.	✓	
Check fire extinguisher condition and location.	✓	

Other Precaution Required	
Other Safety Equipment Required	FULL PPE's

AUTHORISATION AND ACCEPTANCE

I confirm that I have verified the above information and ensured that the necessary precautions have been taken. It is safe to carry out the work as defined above and the permit information has been explained to all workers involved. I accept responsibility for this work.

Permit Requester	MUSHTAQ SHEIKH HSE MANAGER	Signature	
Issuing Authorising	KIM JUNG NAM	Signature	
HSE Representative	Faijan	Signature	

HAND BACK AND CANCELLATION

I confirm that the work has been completed / partially completed *, checked y my self and the area left in a safe and tidy condition. (*delete as appropriate)

Permit Requester	MUSHTAQ SHEIKH	Signature	
Issuing Authorising	HSE MANAGER KIM JUNG NAM	Signature	
HSE Representative	Babar	Signature	

THIS PERMIT IS ONLY VAILD WHEN ALL SECTIONS ARE COMPELTE.

PAKISTAN PATRIND HYDRO POWER PROJECT

It's Possible DAEWOO E&C

CUTTING / WELDING /HOT WORK PERMIT	PERMIT TO WORK NO.	

WORK DETAIL	STRATOR ACCESORIES + PIPE FABRICATION		
SPECIAL TOOLS TO BE USED	WELDING MACHINE+ ALLESORIES + HAND TOOLS		
LOCATION	P/H		
Issue Date	29/5/2016	Time	07:00
Validity Date	29/5/2016	Time	17:00

Do not proceed with your work until your permit has been authorised by the relevant member of staff.

HAZARDS AND PRECAUTIONS TO BE TAKEN

PRIMARY HAZARDS - fumes, eletics, liquids, sludge, moving parts

PLEASE ANSWER THE FOLLOWING QUESTIONS TRUTFULLY	YES	NO
Building sprinklers or other fire suppression systems.		✓
cutting welding, flame or spark producing equipment is in good.	✓	
Islolation of Plant.		✓
Operator having good visibilitly.	✓	
All flammable and combustible material have been removed.	✓	
Warning signs attached.	✓	
All sources of flammable vapors or combustible dusts have been eliminated.	✓	
lighting checks of all the units.	✓	
Opening have been covered.	✓	
All equipment has been cleaned.	✓	
Check fire extinguisher condition and location.	✓	

Other Precaution Required	
Other Safety Equipment Required	FULL PPE'S

AUTHORISATION AND ACCEPTANCE

I confirm that I have verified the above information and ensured that the necessary precautions have been taken. It is safe to carry out the work as defined above and the permit information has been explained to all workers involved. I accept responsiblility for this work.

Permit Requester	M. Abbas	Signature	
Issuing Authorising		Signature	
HSE Representative	KAMRAN	Signature	

HAND BACK AND CANCELLATION

I confirm that the work has been completed / partially completed *, checked y my self and the area left in a safe and tidy condition. (*delete as appropriate)

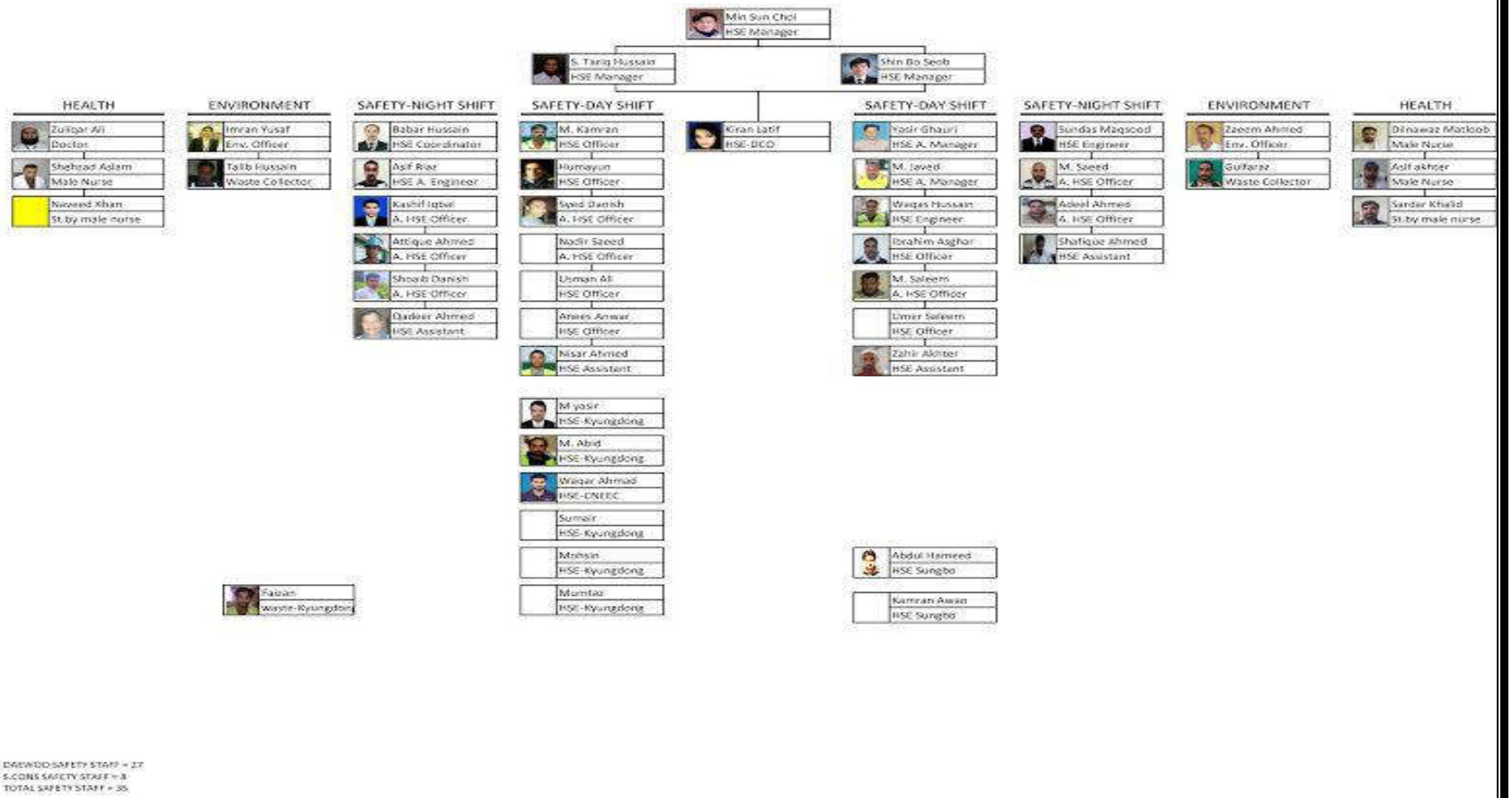
Permit Requester	M. Abbas	Signature	
Issuing Authorising		Signature	
HSE Representative	Babar	Signature	

THIS PERMIT IS ONLY VAILD WHEN ALL SECTIONS ARE COMPELTE.

Annex-3

HSE Organization

HSE ORGANIZATION CHART



DAEWOO SAFETY STAFF = 27
S.CONS SAFETY STAFF = 3
TOTAL SAFETY STAFF = 35

Annex-4

WEEKLY MEETINGS

Sr.	Meeting with	Location	Date			Start Time	Main agenda
			DD	MM	YY		
1	Weekly HSE Meeting with Subcontractors and Construction Team Upper Site	HSE Training Hall Camp Office Weir Site	07	04	2016	14:00	Discussed all Site HSE issues with construction team.
2	Weekly HSE Meeting with Subcontractors and Construction Team Upper Site	HSE Training Hall Camp Office Weir Site	14	04	2016	14:30	Discussed all Site HSE issues with construction team.
3	Weekly HSE Meeting with Subcontractors and Construction Team Upper Site	HSE Training Hall Camp Office Weir Site	21	04	2016	14:30	Discussed all Site HSE issues with construction team.
4	Weekly HSE Meeting with Subcontractors and Construction Weir Site.	HSE Training Hall Camp Office Weir Site	28	04	2016	14:00	Discussed all HSE matters with construction team.
5	HSE Internal Meeting	HSE Training Hall Camp Office Powerhouse Site	02	04	2016	18:00	Discussed about the Collapse of Mobile scaffolding at powerhouse site in D-Block while shifting from one location to another.
6	Progress Meeting with Owners Engineer (OE)	OE Office Conference Room	02	04	2016	10:00	1- Dust at site 2- Housekeeping and hygiene 3-Flammable Materials 4-Updated schedule of HRT waste water 5-Excavated material deposit 6- Waste disposal 7-Fuel spillage

							8-Lack of PPEs 9-Traffic management 10- Lighting arrangements 11-Coordination 12-Plan /Method Statement 13-Color Coding inspection 14-Medical and health facilities 15- Social issues 16-Security issues on the project
7	Weekly HSE Meeting with Subcontractors and Construction Team Upper Site	HSE Training Hall Camp Office Weir Site	05	05	2016	14:00	Discussed all Site HSE issues with construction team.
8	Weekly HSE Meeting with Subcontractors and Construction Team Upper Site	HSE Training Hall Camp Office Weir Site	12	05	2016	14:30	Discussed all Site HSE issues with construction team.
9	Weekly HSE Meeting with Subcontractors and Construction Team Upper Site	HSE Training Hall Camp Office Weir Site	19	05	2016	14:30	Discussed all Site HSE issues with construction team.
10	Weekly HSE Meeting with Subcontractors and Construction Weir Site.	HSE Training Hall Camp Office Weir Site	26	05	2016	14:00	Discussed all HSE matters with construction team.
11	Weekly HSE Meeting with Subcontractors and Construction Team Upper Site	HSE Training Hall Camp Office Weir Site	08	06	2016	14:00	Discussed all Site HSE issues with construction team.
12	Weekly HSE Meeting with Subcontractors and Construction Team Upper Site	HSE Training Hall Camp Office Weir Site	16	06	2016	14:30	Discussed all Site HSE issues with construction team.
13	Weekly HSE Meeting with Subcontractors and Construction Team Upper Site	HSE Training Hall Camp Office Weir Site	25	06	2016	14:30	Discussed all Site HSE issues with construction team.

Annex-5

HSE TRAININGS

Sr. No	Title of the training	Date			Trainer	Times	Site	Location	No. of attendees	Contractor
		Day	Month	Year						
01	Sand Blasting Training	18	04	2016	Syed Tariq	13:00	Powerhouse Site	HSE Training Hall Camp Office	14	Daewoo E & C Sub Contractor Pro Steel
02	Crane load chart training	21	04	2016	Syed Tariq	13:00	Powerhouse Site	HSE Training Hall Camp Office	12	Daewoo E & C & all Sub-Contractors
03	Permit To Work Training	22	04	2016	Syed Tariq	7:00	Powerhouse Site	HSE Training Hall Camp Office	28	Daewoo E & C & all Sub-Contractors
04	Emergency Evacuation drill	26	04	2016	Syed Tariq	11:00	Powerhouse Site	HSE Training Hall Camp Office	200	Daewoo E & C & all Sub-Contractors
05	Induction Training for NUST Visitors	28	04	2016	Syed Tariq	11:30	Powerhouse Site	HSE Training Hall Camp Office	30	NUST University Students
06	Scaffolding Safety	04	04	2016	M. Javed	11:00	Weir Site	HSE Training Hall Camp Office	14	Sung Bo E & C
07	Lifting Safety Training	21	04	2016	M. Javed	11:00	Weir Site	HSE Training Hall Camp Office	14	Sung Bo & HES Pak
08	Electrical Safety	28	04	2016	M. Javed	11:00	Weir Site	HSE Training Hall Camp Office	17	Sungbo

Sr. No	Title of the training	Date			Trainer	Times	Site	Location	No. of attendees	Contractor
		Day	Month	Year						
09	Heat Stress Safety Training	3	5	2016	Syed Tariq	07:00	Powerhouse Site	Powerhouse Site	100	CNEEC And Pakistani Staff
10	Scaffolding Safety	3	5	2016	M. Javed	09:00	Weir Site	HSE Hall	21	Sung Bo
11	Work At Height	5	5	2016	M. Javed	11:00	Weir Site	HSE Hall	22	SUNG BO
12	Environmental Management	11	5	2016	Imran Yousaf	07:00	Powerhouse Site	Powerhouse Site	37	Daewoo E&C
13	Lifting Safety	14	5	2016	M. Javed	11:00	Weir Site	HSE Hall	9	SUNG BO
14	Solid Waste Training	16	5	2016	Zaeem Shah	02:00	Weir Site	Hse Hall	9	Sung Bo/Daewoo
15	Site Management Training	18	5	2016	Raja Faisal Masaud	18:00	Powerhouse Site	HSE Training Hall Camp Office	10	Daewoo E&C HSE Staff
16	Hand & Power Tools Safety	25	5	2016	Syed Tariq	07:00	Powerhouse Site	Powerhouse Site	26	CNEEC
17	Work At Height Training	26	5	2016	Syed Tariq	07:00	Powerhouse Site	Powerhouse Site	64	CNEEC
18	Work At Height Training	27	5	2016	Syed Tariq	07:00	Powerhouse Site	Powerhouse Site	32	Kyung dong
19	Work At Height Training	27	5	2016	Syed Tariq	15:00	Powerhouse Site	HSE Training Hall Camp Office	14	Pro-steel
20	Lifting Safety	28	5	2016	M. Javed	11:00	Weir Site	HSE HALL	13	Sung Bo
21	Work at height training	09	06	2016	M. Javed	05:00	Weir site	Weir Site	170	Sungbo E&C and HESPAK

Sr. No	Title of the training	Date			Trainer	Times	Site	Location	No. of attendees	Contractor
		Day	Month	Year						
22	Heat Stress Safety Training	12	6	2016	Syed Tariq	05:00	Powerhouse Site	Powerhouse Site	100	Daewoo E&C and all subcontractors
23	Work at height training	16	6	2016	Syed Tariq	05:00	Powerhouse Site	Powerhouse Site	200	Daewoo Architecture team
24	Lifting safety	17	6	2016	M. Javed	05:00	Weir site	Weir site	35	Sungbo E&C
25	General Safety Training	22	6	2016	Syed Tariq	05:00	Powerhouse Site	Powerhouse Site	200	Daewoo E&C and all subcontractors
26	Work at height/ Heat stress	23	6	2016	M. Javed	05:00	Weir Site	Weir Site	65	Sungbo E&C
27	Work at height	28	6	2016	M. Javed	05:00	Weir Site	Weir Site	35	Sungbo E&C

Annex-6

Monthly HSE Plan

DAEWOO E&C

MONTHLY HSE PLAN (PATRIND HYDRO POWER PROJECT)

JUNE 2016						
MON	**TUE**	**WED**	**THU**	**FRI**	**SAT**	**SUN**
		1	**2**	**3**	**4**	**5**
• As ongoing activity daily Tool Box Meetings will be held on both sites. • Site inspection and monitoring of HSE status will be carried out repeatedly on daily basis. • Daily & weekly HSE progress reports will be consistent activities.		PPEs Inspection (Lower Site)+ Weekly HSE Meeting with Site construction team (Upper Site)+	Electrical Equipment Inspection (Lower Site) + **Training session on "Permit to work system (Lower Site)**	**Monthly Safety Campaign (Both Sites)+Monthly HSE Report to PES / SHPL + Monthly HSE Report to Head Office**		
6	**7**	**8**	**9**	**10**	**11**	**12**
Weekly Progress meeting (All departments) + Weekly HSE Report to Head Office + Internal HSE Meeting	Weekly HSE Meeting with construction team (Lower Site) + **Heavy Equipment Inspection (Lower Site)**	Weekly HSE Meeting with construction team (Upper Site)+ **Batching Plant Inspection (Upper Site) + Training session on "work at height / scaffolding(Upper Site)**	Site Visit by HSE Management for monitoring the labor conditions and site housekeeping (Upper Site) **+Color Coding (Both Sites) + Training session on "safe driving and operating (Upper Site)**	**Batching Plant Inspection (Lower Site) + Ambulance Inspection by Medical Attendants (Upper Site)**		
13	**14**	**15**	**16**	**17**	**18**	**19**
Management HSE Walkthrough (Both sites) + Weekly Progress meeting (All departments) + Weekly HSE Report to Head Office + Internal HSE Meeting	Weekly HSE Meeting with construction team (Lower Site) + **Training session on "hygiene and health safety (Upper Site)**	Weekly HSE Meeting with construction team (Upper Site) + **Training session on "Lifting Safety (Lower Site)"**	**Fire Extinguishers Inspection (Lower site) + Training session on "Sand Blasting (Lower Site)"**	**Fire Extinguishers Inspection (Upper site) + Ambulance Inspection by Medical Attendants (Lower Site) + Training session on "lifting & crane safety (Upper Site)**		
20	**21**	**22**	**23**	**24**	**25**	**26**
Weekly Progress meeting (All departments) + Weekly HSE Report to Head Office + Internal HSE Meeting	Weekly HSE Meeting with construction team (Lower Site **+ Subcontractor's PPE Bills submission to Planning**	Weekly HSE Meeting with construction team (Upper Site) + **PPEs Inspection (Upper Site)**	Site Visit by HSE Management for monitoring the labor conditions and site housekeeping (Lower Site) + **Training session on "welding / hot work (Upper Site)**	**Heavy Equipment Inspection (Upper Site)+ Inspection of waste management (upper site)**		
27	**28**	**29**	**30**			
Weekly Progress meeting (All departments) + Weekly HSE Report to Head Office + Internal HSE Meeting	Weekly HSE Meeting with construction team (Lower Site) **+Firefighting training (Lower Site)**	Weekly HSE Meeting with construction team (Upper Site) + **Electrical Equipment Inspection (Upper Site)**				

Prepared by:
HSE Manager: B. S. Shin

Approved by
Project Manager

Annex-7

EMP COMPLIANCE STATUS

Sr. No	Environmental Management Plan (Compliance Status)		
	Feature/Issue	**Parameters/monitoring**	**Compliance Status/Action taken by EPCC**
1.	Statutory Requirements	Compliance with approval conditions	With few exceptions, implementation in compliance with EPA's NOC & ADB's Environmental and Social Safeguards, IFC's Performance Standards
2.	Landslides	Catchment stability	• Annual Monitoring undertaken after monsoon during September 2015 and report received from experts and has already been shared with SHPL & OE. • Slope stability on powerhouse and surge shaft slopes is under process and stone pitching is also under process on the right bank slopes on weir site.
3.	Erosion and Sediment	i. Extent of erosion and sedimentation ii. Topsoil stripped and covered or seeded if stockpiled for longer than one month or during the monsoon	• Erosion & Sediments on project sites has yet not been quantified, however, to prevent this protection works have been undertaken on slopes at both sites. • Wind erosion of dust and sand has been controlled by frequent water sprinkling and covering stockpiles with polythene sheets
4.	Muck Disposal	i. Reuse of spoil/muck within project areas where possible ii. Correct disposal of surplus spoil/muck in designated areas	Excavated material being used in civil works and dumping is done on approved area at both sites. Muck material has also been used in repairing of project access road during the month
5.	Water Quality	Wastewater treated prior to river discharge (Temperature, dissolved oxygen, pH, conductivity, turbidity, total phosphorous, inorganic phosphorous, total nitrogen, ammonia nitrogen, nitrogen oxides, biochemical oxygen demand and fecal coli forms)	Biannual water quality monitoring is undertaken in the month of June, 2016 and reports and reports will be dispatched in the end of July, 2016 to OE.

6.	Waste Management	i. Waste materials reused or recycled on-site where possible ii. Non-recyclable wastes disposed of appropriately	• Papers, mineral water bottles are being sent to market for recycling • On both sites garbage/Waste is disposed in designated trenches • Segregation on source has been improved • Waste consignment note has been maintained by keeping the recyclable waste record properly and remaining food waste has been composted into the designated trench in the disposal area
7.	Hazards/Risk	i. Workers provided with appropriate safety equipment and regular safety training ii. Storage of hazardous goods in bounded areas or in secure sheds iii. Explosives stored in guarded bunkers iv. Use of hazardous goods according to manufacturers' specifications	• Induction trainings • Providing PPEs • Tool Box Meetings, Job craft & on site trainings • Explosive store established under NOC (Lower Site) • MSDS and SOPs partially followed
8.	Aquatic Ecology	i. Fish and Aquatic populations	• Fish study was undertaken during this quarter on 2nd June, 2016. • Fishing& hunting prohibited on project sites. No endanger species found. • No considerable disturbance to aquatic life
9.	Flora	i. Direct observation of surrounding vegetation	• Study/monitoring undertaken during quarter on 2nd June, 2016. • Removal undertaken as indicated in EIA. Mitigation measures will be undertaken after construction phase. • Plantation activity undertaken above surge shaft slopes.
10.	Noise and Vibration	i. Maintenance of equipment in accordance with manufactures' specifications ii. Controlled blasting	• Regular inspections and service of heavy equipment • Regular monitoring, blast permit issuance and SOPs adopted
11.	Air Quality	Exhaust emissions from machinery – visual inspection	• Regular inspections and service of heavy equipment
12.	Traffic/Access	i. Enforcement of speed limits on Project roads ii. Noise Traffic Signs	• Heavy equipment/vehicle driver's education sessions • Speed limit and directional sign board installed

Annex-8

ENVIRONMENTAL INSPECTION CHECKLIST

16-06(07).

DAEWOO E&C

Opposite Thuri Park Lower Chatter Park Muzaffarabad AJ&K Pakistan Tel: (92) 058-2243-9498 Fax: (92) 058-2243-2657

Environmental Awareness Training for Daewoo E & C Supervisors and Labors

Dated: 11- May, 2016
Time: 07:00 - 08:00 hrs.

Training Objectives:

The training is designed for Site Supervisors, Site Managers and labors to provide the necessary level of environmental awareness. Objectives of the training are:

- To Increase awareness of relevant environmental issues on site.
- A greater understanding of, and commitment to, the organization's environmental management programme.
- Preparation for any responsibilities they may have under an Environmental Management System. (EMS)

Training Contents

- Why is the environment important?
- Environmental Management Systems.
- Ecology and biodiversity.
- Ecosystem Services.
- Contaminated Land and Oil Spillage.
- Solid Waste Management.
- Water Pollution and Techniques to avoid.
- Management of Energy and Resources.

Knowledge of Training

- Implement best practice techniques on site.
- Implement and regulate correct and appropriate legislation.
- Understand the environmental impacts of the construction process

Imran Yousaf
Environmental Officer
Daewoo E&C

For B.S Shin

MINSUN Choi
HSE Team Leader
Daewoo E&C

Register of Environmental Aspects and Impacts

Project Title: Patrind Hydropower Project			Dated:	09-05-2016 to 16-05-2016	
Completed by: Imran Yousaf			Reviewed by:	Min Sun Choi	
Location	**Environmental Aspects**	**Environmental Impacts**	**Significance Rating**	**Operational Control/ Procedures**	**Environmental Objectives and Targets**
In front of PES	Community Waste	Domestic waste has found in an unaesthetic condition in front of PES office that spreads smell in the surrounding area	Medium	Removal of community waste has been attempted	Waste collectors have removed all the domestic waste clearly and sent to trench for disposing and composting by waste land filing method
Batching Plant	sedimentation tank cleaning	Sludge has found outside of sedimentation tank that degrades the environment	Medium	Removal of sludge should be conducted	sludge has been removed and sedimentation tank has got cleaned by sending it to the disposal area
Disposal Area	Soil Cover	Residual waste has found uncovered in the disposal area which produces foul smell that can disturb the nearby vicinity	Medium	Quickly covered the waste with soil by waste collectors	Asked to waste collectors for not leaving the waste trench uncovered after disposing the residual or food waste to prevent

Daewoo E&C

DAEWOO E&C [redacted] SUNGBO

Date (yyyy.mm.dd)	Time (00:00)	Waste Description	Non-Hazardous /Hazardous	Unit of measure	Quantity	Origin of waste	Waste Transport company	Waste transporter Name and signature	Disposal Location
2016-5-16	9:00 a	Non Recycabal	Non hazardous	KG /L	300 Kg	Main + workshop	Sungbo		Disposal area
2016-05-17	11:00 a	Non Recycabal	Non hazardous	KG /L	250 kg	bay pas tunnel out let inlet	Sungbo		
2016-05-19	5:00 Pm	Non Recicabal	Non hazardous	KG /L	300 kg	power intake Workshop	Sungbo	Nawaz	
2016-05-20	9:00 a	Non Recicabal	Non hazardous	KG /L	200 kg	Office + Shelter area	Sungbo		
				KG /L					
				KG /L					
				KG /L					

H.S.E-M:

Env Officer:

Kamran Khan
HSE Officer (Sungbo)

Annex-9

VEGETATION STUDY- KUNHAR RIVER

Vegetation Study on the

Patrind Hydro Power Project Area

April-June 2016

By Mohammad yousaf Qureshi

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VEGETATION STUDY OF PATRIND HYDRO POWER PROJECT

1. Abstract

The hilly areas of any country need the forest cover on it to control instability of the land. The construction of dams and combination of mines and dams has devastating impacts on the environment and on the local people in the area. These impacts not only cause serious environmental destruction and suffering for the affected communities, but also violate the collective rights of the indigenous peoples. As proven by the experience of various projects of the same nature, large-scale corporate mining and dams destroy, pollute, disrupt agricultural economies, destabilize the slopes and displace indigenous peoples.

Aside from land subsidence, the water tables also subsides as deep mining tunnels and drainage tunnels disrupt groundwater paths. Tunneling often leads to a long-term lowering of the water table. They also cut the water veins resulting in the drying up of springs in the area.

Ventilation shafts also draw water away from surface streams, irrigation canals, and pond fields. In addition, the felling of timber to shore up underground tunnels has denuded surrounding watersheds, aggravating water loss.

Forest cover in Pakistan is only 5% of the total land area (GoP 1991) and is said to be rapidly deteriorating due to unsustainable use of the resources, especially in the mountain regions (IUCN 2002). Another main reason for low tree cover is the high demand for grazing land and fodder for the animals. Local people in the area burn the land after cutting the grass in the month of October and November. This leads to the loss of all vegetative cover, especially the young shooters, on the steep slopes and leaving behind the exposed surface to the mercy of the Nature. The soil loses the water peculation capability hence, giving support to start of gully making and erosion on larger scales. Thus we can say, that the original vegetation is almost destroyed due to the heavy grazing, lopping, poor agricultural practices and urbanization. Because of this shortage of vegetative cover, the area is very badly suffering from soil erosion.

Another serious impact is the landslide disaster in the fragile mountains due to mining and tunneling. This impact can easily be observed in and around the working area of project sites.

2. Introduction

Patrind Hydro Power project is coming to its final stages. The impact of this vegetative cover has appeared very rapidly in and around the project area. The study area is about 10 km up and downstream of river Kunhar from the weir point at Patrind (34^{o} $20^{/}$ 36" N and 73^{o} $25^{/}$ 10" E) at an elevation of 2516-3123 ft a.m.s.l) and around the outlet at Alda (34^{o} $20^{/}$ 06.05" N, 73^{o} $27^{/}$ 18.6" E) in

AJK. It covers both the eastern aspects on the left bank of river Kunhar and right bank of river Jhelum in AJK. Total Area is about 100 Acres.

Powerhouse site Lower Chatter Alda)

3. Forest Types (Ecological Zonation):

The Patrind project area lies in the Sub-tropical ecological zone of the country. This zone is again classified in:

a) Subtropical Scrub forest with broad leave tree species in the foot hills and

b) Subtropical Chir pine Forest with a dominant tree species of Chir Pine.

4. Vegetation Cover

Project site vegetation does not contain any species listed as endangered or threatened by the Government of Pakistan or IUCN. Only two species *Celtis austarlus* (Batculd) and *Ficus carica* (Enjeer) were found rare in Pakistan but they are listed as common for the rest of the world. The presence of these two species will not be disturbed as they were found above the submerged area and away from the area where trees needed to be felled down. The rest of the vegetation species were found protected and common in Pakistan and for the rest of the world. So it is concluded that there will be no negative impacts of Patrind Hydropower Project on conservation status of the vegetation of the area.

An excellent soil binder local species of Ficus palmate (Phagwar)

Following Tree species were documented in the project area both at Patrind and Alda:

Common Name	Botanical Name	Type of Tree	Status
Akhrot (Wallnut)	*Juglans regia*	Fruit	common
Anjeer	*Ficus carica*	Fruit	rare
Batang	*Pyrus patia*	Fruit	common
Batculd	*Celtis australis*	soil Binder	rare
Beence	*salix spp*	Firewood	common
Ber	*Zizyphus mauritiana*	Fruit	common
Chir	*Pinus roxburglii*	Timber	common
Dhaman	*Grewia oppositifolia*	Fodder	common
Drawa	*Ailianthus anus*	Firewood	common
Drek	*Melia azadrach*	Firewood	common
Kangarr	*Pistacia khunjak*	Soil binder	rare
Kau	*Olea cuspidate*	Agri tools,	common
Kiker	*Acacia nilotica*	Firewood	common
Nim	*Azadirachata indica*	Firewood	common
Phagwarr	*Ficus Palmata*	Soil binder	common
phulai	*Acacia modesta*	Firewood	common
Pipal	*Ficus religiosa*	Firewood	common
Robinia	*Robinia pseudoacacia*	Firewood	common
Shahtoot	*Morus alba*	Fruit	common
Sherol	*Alnus nitida*	Firewood	common
Snatha	*Dodonaea viscosa*	Soil binder	common
Talli (shisham)	*Dalbergia sisso*	Furniture wood	common

The main contributor grass species were *Heteropogon contortus* (Sariala), *Cenchrus ciliaris* (Dhaman), *Desmostachya bipinnata* (Dab ghaas), and *Cynodon dactylon* (Khabbal).

Comparatively low vegetation cover was recorded in the flat area and highest from steep slope areas (74.29%) followed by gentle slope and gully bed areas. Chir pine is the dominant species on powerhouse site while broad leaved species are mostly found on the Patrind inlet site.

Chir pine trees on the Power house site

Broad leaved tree species on the Patrind side

5. Outcome of this study and possible Impacts of the project on vegetative cover

There has been a new development at the power house site. A reinforced cement concrete retaining wall has been constructed to control the landslide close to the tunnel outlet; but some area needs work on the control of erosion and restoration of vegetative cover.

The project lies mostly under the responsibility of Engineers and to them, it is the easiest and permanent solution for treating the slides. The loss of biomass quantum is not as significant as there has been a low vegetative cover in these areas.

A view of degraded area around the power house

Some broadleaved trees were observed dried up most probably due to ground water shortage which is a definite impact of the project. Project site vegetation does not contain any species listed as endangered or threatened by the Government of Pakistan or IUCN. Only two species *Celtis austarlus* (Butculd) and *Ficus carica* (Enjeer) were found rare in Pakistan but they are listed as common for the rest of the world. The presence of these two species will not be disturbed as they were found above the submerged area. The rest of the vegetation species were found protected and common in Pakistan and for the rest of the world. So it is concluded that there will be no negative impacts of Patrind Hydropower Project on conservation status of the vegetation of the area on larger scale except to a limited extent for which suggestions have been given below.

The present status of vegetation on Patrind side does not depend upon the water of river Kunhar but it depends on natural precipitation or water channels taken out of the side nallahs or natural springs and underground water. So reduction in water regime downstream will not affect the vegetation of the area. However the change of water ducts due to tunneling in the area will have an effect on the vegetative cove at the top and sides of the hill having that tunnel underneath. The average biomass for forage that will be submerged under water after the construction of weir was calculated as 3,468 Kg/ha. The total biomass to be inundated is estimated to about 200 tons. (*farmer Study Report for Patrind project)*

The area affected on the weir site due to inundation is 57.2 ha and on the powerhouse site is 5.5 ha which will come under construction.

Present picture of the Alda side behind the project camp office

6. Recommendations

Since the area close to the tunnel and inlet and outlet of the tunnel where working concentration is high, the impact on the vegetation and water courses will have negative impact. The lake will submerge some of the vegetation due to rise in water level. Similarly downstream the water area will reduce so new species of invasive nature may appear along the banks of the river course. There is a need to compensate this loss by some possible means listed below:

1. Tree species of alternate requirement of water and soil should be planted in these area like shrole, salix be replaced by robinia, walnut, wild fig.
2. Water springs affected by the construction of tunnel may have impact on the life of the dependent community so; water from alternate sources should be made available to these spring dependent communities.
3. Responsible authorities should develop minimum standards for the protection of the environment and human rights that are binding on all countries and companies, based on the highest existing standards, and with effective monitoring and sanctions imposed on the offending parties
4. There exists voluntary guidelines, developed under the Convention of Biological Diversity, for the conduct of cultural, environmental and social impact assessments regarding developments proposed to take place on, or which are likely to impact on sacred sites and on lands and waters traditionally occupied or used by local communities. These guidelines should be made binding on the Powerhouse Construction Company rather than voluntary and could be adopted as a minimum standard by international financial institutions and national governments when implementing development projects like this, affecting local people.
5. In the case of Patrind power project, where the local people have already suffered and will continue to suffer due to enormous damage to their lands and environment due to the long-term impacts of mining and dams. Proper and immediate compensation and reparation should be provided to all affected people to include adequate monetary compensation, sustainable livelihood, alternative land, employment and other sources of regular income. A program for the restoration and rehabilitation of lands and waters destroyed by mines and dams should also be implemented. Neither monetary compensation nor livelihood project could replace or surpass the destroyed ancestral land and traditional livelihoods of affected local people. The solution to restoring the living quality and to stop the permanent destruction of the environment is to cover up the area with plants and make it green and good looking.
6. Areas of high working concentration (in-let and outlet of the tunnel) are facing the problem of soil erosion and these have been treated by concreting. It was suggested in the last almost all study reports to initiate the biological and Bio-engineering technology to control these slides

effectively which include vegetated soft gabions, vegetated loose stone walls, gabion check dams, live brush wood check dams, planting, sowing and tufting, dry seeding, hydro seeding, hay seeding, grass sodding, sowing with geo- textile sheets, brush wattles, brush layering, hedge layering, semi-dead fences with live hedges. Total engineering treatment has caused a loss for growing vegetative cover. This will also contribute in the process of global warming and environmental degradation which is not acceptable globally. This adverse effect should be compensated by treating the adjacent slides with Bio-engineering measures which will not only treat the soil but will also improve the environmental status.

Annex-10

FISH STUDY - PATRIND HPP

147 MW Pakistan Patrind Hydro Power Project

Quarterly Report

Impact Study
on
Fish Fauna of
Kunhar River

April-June
2016
(June 02, 2016)

By Mohammad Yousaf Qureshi

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Background

It is well documented that dams have an effect on the downstream habitat in several ways including; modification of the magnitude and timing of stream flow; alteration of quality and quantity of sediment; changes to water temperature regime; alteration of food/nutrient dynamics, and physical habitat; create barriers to organism movement (Graf, 2006; Magillian and Nislow, 2005; Ligon et al., 1995; Poff and Hart, 2002). These various effects on stream habitat depend on both the size of the dam and the operation of the dam (Poff and Hart, 2002). This study sought to characterize the effect of Patrind dam on water temperature, macro invertebrate and fish communities in Kunhar River. Geographic information systems (GIS) and field checks were used to develop six suitable sampling locations. Analysis focused on correlating environmental variables with aquatic biota to quantify relationships between variables to support the causal analysis step of Stressor Identification. The production of hydro power always impacts the aquatic life of the relative water system both in upstream and downstream of the infrastructure established for the power generation.

Dams impact fish biodiversity, fish stocks and fisheries indirectly by modifying and/or degrading the upstream and downstream aquatic environments, including: thermal stratification of the reservoir and release of cool and anoxic hypolimnion water downstream; downstream flow alteration and termination of inundation of downstream floodplains; sediment and nutrient trapping in reservoirs; release of contaminants from trapped sediment into the reservoir food chain; infestation of the reservoir with floating aquatic plants; and pesticide contamination arising from agriculture on the reservoir drawdown zone. This study deals with exploring the possible impacts on the fish fauna of river Kunhar up and downstream of the Weir site of the Patrind Hydro Power Project area. The degree of impact depends on the blockage percentage of the water and release downstream. The Patrind Hydro Power generation project is based on the diversion of River Kunhar through a tunnel and dropping down into River Jhelum in Muzaffarabad Azad Jammu & Kashmir. This diversion will make a water pool at Patrind behind the concrete structure of the weir and almost dry up about 13 km of the Kunhar river system downstream.

The project is heading towards its competition and hopefully by the end of 2016 it will be in the operational phase. The river blockage has not yet been done on the river Kunhar but the course of river has been changed at the weir site of the project where a diversion tunnel has been constructed at first stage of the project to get space for the construction of weir which is touching to its completion stage. The reported fish fauna of Kunhar River shows the wide diversity of fish species in it but the study carried since September 2013 shows that only two fish species are present in the study area. Study in almost all the seasons have been carried out and no any other fish species could be caught or seen except the versions of the locals giving the evidences of the presence of Glyptothorax species and Cyprinus carpio (Gulfam) species in Nallah Boi.

1. INTRODUCTION

The province of Khyber Pakhtunkhwa is located in the north-west of Pakistan, The Khyber Pakhtunkhwa is largely located on the Iranian plateau and Eurasian land plate, while peripheral eastern regions are located near the Indian subcontinent and this has led to seismic activity in the past.

It covers an area of 74,521 km² (28,773 sq mi). According to the 1998 census, the total population of Khyber Pakhtunkhwa was approximately 17 million out of whom 52% is male and 48% female. The density of population is 187 per km².

The northern part of the province is snowy in winters, and also experiences heavy rain falls. Its valleys Swat, Kaghan, Chitral and Kohistan are surrounded by rugged mountains and have temperate climate, including cold winters. Rivers in these valleys mostly carry clean cold water and are suitable for trout and schizothoracines (snow trout). Several lakes and reservoirs also provide suitable conditions for cold water fish. As one moves to south, transitional or semi-cold waters are present, with snow trout and mahseers presence. Further south and at lower altitude warm water fish species prevail.

There is subsistence cold water capture fishery, but no statistical data are available on its extent. Recreational/sport fishery has been steadily increasing. In 1990 cold water fish catches were estimated at about 200 t yr-1 (Akhtar, 1992), with the bulk formed by snow trout and indigenous small fish. In the same year Madyan fish farm produced 7.5 t and the private sector about 5 t of trout. With the completion of two more fish farms in Swat and Kaghan, the private sector was expected to produce 50 t by 1993.

Brown trout introduction and subsequent stocking in Kaghan and Chitral at the beginning of the 20th century were very successful. Starting in 1962 at least three schemes initiated the development of trout in five districts, i.e. Mansehra, Swat, Dir, Chitral and Kohistan, resulting in five trout hatcheries. It is estimated that about 40 percent of the total fry produced from these hatcheries are released in various natural water bodies. Sport fishery has promoted tourism and its economic role is well established (Akhtar, 1992). It is recognized that at present the trout industry in Khyber Pakhtunkhwa is more advanced than elsewhere in Pakistan. There are now three trout hatcheries in Chitral Valley. The largest trout hatchery-cum-farm is in Madyan in Swat Valley. There is a hatchery at Kalkot in Dir, and the Shinu hatchery in Kaghan, the oldest one in the Province. A new hatchery has been completed at Dobar in Kohistan. Both brown and rainbow trout are produced in the hatcheries.

In 1992 the private sector owned nine trout farms (7 in Swat and 2 in Kaghan), and 4 farms were under construction. In 1992 the private farm production amounted to about 10 t. Private farmers were receiving seed from state-owned hatcheries, but two farmers were developing their own brood stock with the intention of entering into hatchery production as well

Kunhar River flows through Kaghan valley. Starting from Naran (2,362 m amsl) in

Khyber Pakhtunkhwa, it has a length of 129 km up to weir site (755 m amsl). It is spread over a catchment area of 2,429 Km2.

River from weir site to its confluence with Jhelum River at Domishahi has a catchment area of 256 Km2. The study has been carried out on six fixed points of the river Kunhar starting at 34° 18′ 18.56" N and 73° 26′ 45.56" E to 34° 20′ 40.54" N and 73° 25′ 04.27" E, covering about 10 km up and down the Weir at Patrind.

The right side of the river Kunhar area is located in the province of Khyber Pakhtunkhwa Province. The left bank of the river Kunhar belongs to the State of Azad Jammu & Kashmir. Most of the catchment area of River Kunhar is situated in Kaghan Valley of KPK.

Province of Khyber Pakhtunkhwa

2. Fish catch and fishery potential

The fishing activities take place for 8 months of the year during spring, summer, autumn and the early winter months (interview with locals and fishermen).There is usually no fishing during floods and part of the winter season. The full-time fishermen fish for 6 months and catch 0.2-1.2 kg per day. The individual catch is around 126 kg per person per year. The 6 professional part-time fishermen generally fished 2-5 months per year and were laborers, mechanics, a few businessmen and a few job holders. The fish catches ranged between 0.2 and 0.5 kg per person with an average catch of 43.5 kg per person per year. However the fishermen using the electro fishing gears catch fish in the range of 2-4 kg, with an average of 315 kg per fisherman per year, and they do fishing in groups of 3-5 people. Basically, occasional fishermen were non-fisher groups and do fishing for recreation. Such groups catch fish 2-10 times per year and catch 0.2-0.5 kg per day, with an average of 2.1 kg per person per year for consumption.

The fishermen catch fish in the main Kunhar river system and its tributaries. The estimated total length of the river with its tributaries is 214 km other than the trout area with an average water depth of 2.2 m.

Fisheries in the Himalayan Rivers can be divided into (a) subsistence fishery; and (b) sport/recreational fishery. Fish production in mountain streams is low and therefore any commercial fishery is on a very limited scale. The low biological productivity results in the prevalence of small-sized fish, except in pools where fish have some shelter and resting place.

The fishing methods using nets, traps, electro fishing gear and poisons are simple but well-suited to the turbulent nature of the streams. Cast nets of 1.0-2.0 m diameter, with mesh sizes 1.2 to 3.0 cm bar to bar and sinkers of a total weight of 5 kg are the most common gear used. The sinkers allow rapid settling of the net at the bottom, thus preventing it from being carried downstream by the rapid current. The fisherman upturns the stones on the stream bed covered by the net, which makes the fish come out of their hideouts below the stones and get trapped in the peripheral pockets of the net. The other types of nets used are: drag nets operated in conjunction with stake net (kadh), seines, stake nets, bag nets (kochbi), and some other types.

The various poisons used are lime, sap of Euphorbia rogleana, powdered seed of Xanthoxylum alatum and Cascaria tormentosa, boiled tea leaves, etc. In addition, spears, horse hair nooses, harpoons with 4-5 barbed points and grain fishing are also used in different waters of the local rivers.

Use of explosives and electro fishing gear in river Kunhar is usually done by the non-professional fishermen who visit the areas in groups. They damage the point very badly and stay at the site for one

to two hours, catch the easy accessible fish and leave the other dead fish to flow away with fast current of water.

Table-1 showing water parameters

S No	Point	Dissolved Oxygen (ppm)	pH	Temperature °C	Transparency
1	Boi	10	6.5	11.5	0.7
2	Nallah Boi	10	7.5	12	0.8
3	Parri	10	6.5	11	0.8
4	Tunnel exit	12	6.5	11	0.8
5	Tunnel Inlet	11	6.5	11	0.8
6	Tarchella/Shorran	13	6.5	11	0.8

Fig 1&2: Gabion fixing and stone pitching at dumping site in March, 2016

Fig 3: Progress of gabion work in 3 months April - June, 2016

3. Fish catches and species composition

Two professional fishermen, Mr. Muhammad Haneef and Mr. Muhammad Arshad were engaged for fishing in the river Kunhr at fixed sampling points. Fishing in the Kunhar River using cast nets of 1 m to 1.5 m diameter recorded a catch of two fish species only. The catch comprised mainly of Schizothorax plagiostomus (75%) followed by Schizothorax curvifrons (25%). The water is shady to clear and fish catch was very low at all points unlike the last year during the same month (June 2015). The low fish catch trend for the last four studies shows the increasing impact of the weir. The diversion tunnel has very rapid water flow velocity and chances of fish revival in this water are minimum. Second thing is that upward migration of the fish is impossible from here. This creates a big impact on the fish spawning as it migrates during the summer season and finds suitable ground for spawning during September. So the spawning of the fish does not take place for the fish 2 kilometers downstream of the weir. This shows that fish existence at these places will steadily be disappeared in the near future.

Fig 4. Fisherman Mr. Mohammad Haneef- Fig4 5 Fisherman Mr. Muhammad Arshid

Reported Fish species of River Kunhar:

Family: Salmonidae

Oncorynchus mykiss {Salmo gairdneri }(Rainbow Trout

Salmo trutta (Brown Trout)

Family: Cyprinidae

Schizothorax esomus

Schizothorax plagiostomus

Schizothorax micropogon

Schizothorax curvifrons (Snow Trout)

Tor putitora

Tor tor

Labeo spp

Cyprinus carpio

Family: Sisoridae

Glyptothorax kashmirensis

4. Sport and recreational fishery

Trout

The trout, which is now acclimatized in the upper reaches of River Kunhar (upstream of Jared in Kaghan), is permitted to be caught on rod and line using both artificial and live baits. Special bylaws have been formulated under the Fisheries Act in the Khyber Pakhtunkhwa province. They regulate the fishing season, bag limit and prescribed baits.

Organized brown trout fishing is confined mainly to the upper reaches of river Kunhar. As per fishing regulations, `dry and wet' fly spinning, artificial and natural worms, etc. are the allowed baits for brown trout fishing. The number of anglers to be permitted in each beat is fixed on a daily, weekly or seasonal basis. The fishing season extends from March to October every year. The minimum legal size of trout to be caught ranges from 25-30 cm. The bag limit ranges from 5-7 fish of 25 cm and above in length. The number of undersized fish caught by each angler has to be returned in the river. However, there are very few anglers who follow such instructions. The trout fish can be raised in the lake developed by the damming process behind the weir at Patrind with professional input.

5. Fisheries Status of River Kunhar in view of locals

During the last few studies, few locals were also interviewed who are having some water mills (Gharat) just beside the river or nallahs. Among them were Mr. Khaqan Hussain Shah, Mr. Husnain Gilani and Mr. Mohammad Sadiq. According to them a gradual decline in the fish catches have been observed during the last two decades. Use of explosives and poisoning are the major two reasons and electro fishing has also been observed for the last three years in River Kunhar and Nallah Boi. The people responsible for doing so are mostly non-resident visitors not the locals. Most of the small size fish so killed flows down in river Kunhar. Another reason of decline in the fish population, according to them, is the predation of local fish by exotic trout fish in the upper reaches of the Kunhar.

6. Field Results:

6.1 Point-I (Boi)

First sampling point of the study is situated at 34° 18′ 19” N, 73° 26′ 44” E at 2422 ft of elevation. Four fish could be netted here as compared to no fish during the last study of March 2016. The detail of fish is shown in the table.

Fig 7:. Measurement of fish caugh at point-I

Fig 8: Sampling at Point I

6.2 Point-II (Domel Boi)

This sampling point is situated at 34° 18/ 36" N, 73° 26/ 43" E at 2398 ft. of elevation above sea level. This is the point where fish can migrate upstream in the Boi Nallah during the spawning period and can have little impact of low river flow when tunneling of the water starts. Unlike before, the nallah water was very clear as compared to the relatively turbid water of river Kunhar. No fish could be caught here at this point.

Fig 9: Sampling at Point of confluence of nallah Boi with River Kunhar

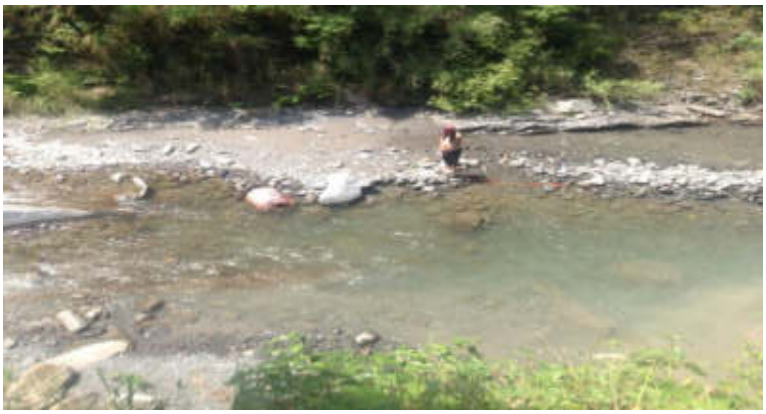


Fig 10: Clear water of Nallah Boi

6.3 Point-III: (Parri)

This sampling point is situated at 34° 19/ 47" N, 73° 25/ 35" E at 2475 ft of elevation above sea level. The river water is almost grayish as compared to clear during last study. The small creek joining the river is also clear. The fish concentration is always expected here but most probably due to migration the fish could not be found.

Fig 11: Sampling at point-III, Parri

Fig 12. Difference of water colour from last study at Parri

6.4 Point IV: (Outlet of river diversion)

The point is situated at 34° 18/ 19" N, 73° 26/ 44" E at 766 meters of elevation above sea level. Difficult access was possible last time but no access is possible to the river this time so no sampling could be done here. This diversion tunnel has a definite impact on the fish production but to a maximum of 800 meters downstream. There is another flushing tunnel has been constructed at Patrind which will have more impact during its function as sediment and toxic effect will be very high on the aquatic life and will change the ecology of the river as well.

6.5 Point-V: Diversion Tunnel Inlet

This is the point situated at 34° 20/ 36" N, 73° 25/ 08" E at 2615 ft. of elevation above sea level. The temporary dam just at the inlet has been removed and the actual dam will now start working may be after five to six months. The access at the point was very difficult. The fishermen had to climb up the hill beside the river and got down to the river side for sampling. No fish could be caught here. Still the impact on aquatic life is not very high as the lake has not developed and course and flow of water has not changed here. When the lake will grow after construction of Patrind weir, this can harbor the Rainbow and Brown trout. If carefully planned, this can become commercial activity but needs expert's inputs. There is another tunnel almost completed which will carry through the overflow or released water. A concrete pond construction is underway at this place which is supposed to hold the water and control the speed of water to avoid any side damage. This means upward migration of fish will not be possible; hence, the impact on the survival and spawning of the fish will be very high during the operational stage of the project.

Fig13: Sampling at inlet of water diversion tunnel - Fig 14: Inlet position in March 2016

6.6 Point-VI Dumping Point

This is the point situated at 34° 18/ 19" N, 73° 26/ 44" E at 776 meters of elevation above sea level. This is the dumping site of the disposal from the tunnel. This is a potential site of the lake emerging due to damming on the river at Patrind. One fish could be caught here. Side strengthening by stone pitching and gabion work is still in progress and may take another three months. Most of the area will submerge at this point and side cutting danger was very high. The low side of the river has appeared to cross through.

Fig: 15 Small part of river crossing at point-VI

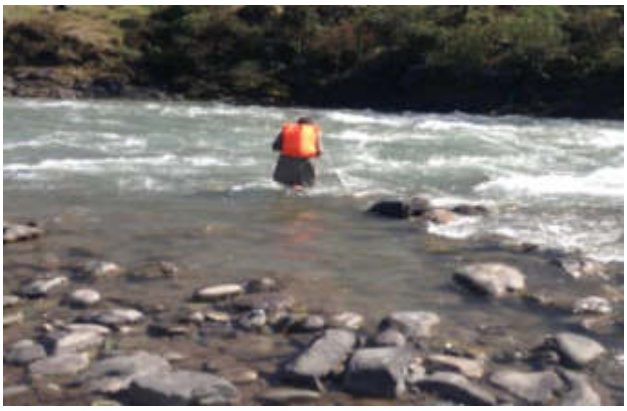


Fig16: Sampling at point VI during March, 2016 -Fig: 17: June 2016

Table-2 Showing record of fish caught at each sampling point

S no.	**Name of Species**	**Weight gm**	**Length inch**	**Remarks**
Point 1				
1	Schizothorax plagiostomus	34	6	
	--do—			
2	--do—	41	6.4	
3	Schizothorax curvifrons	53	7.4	
4		48	7.2	
Point 2				
				No fish could be caught
Point 3				
				No fish could be caught
Point 4				
				No fish could be caught
Point 5				
				No fish could be caught
Point 6.				
1	Schizothorax plagiostomus	121	11.4	
Total Fish caught				
	Schizothorax plagiostomus		4	
	Schizothorax curvifrons		1	

Species composition

Schizothorax curvifrons - 1 - Schizothorax plagiostomus – 4

7. MANAGEMENT AND CONSERVATION

Conservation and river system management has remained a very big issue all over Pakistan. Over the years uncontrolled and often indiscriminate fishing in the largely unmanaged river and streams has resulted in a sharp decline in catches of the important sport and subsistence fish. The increasing use of river water for irrigation, hydropower production, municipal and industrial purposes, and the inputs of pollutants also has a very negative impacted on fish stocks. Among the difficulties that fishery

managers are facing today is the shortage of data for a number of rivers and even whole areas of Himalayas. The most essential requirement is to estimate the resources which would enable the fishery scientists and planners to formulate a management policy. Another and an increasingly important aspects, is the need to evaluate the environmental impacts caused by human-induced changes in river and lake catchments, and how these have contributed to the decline in fish stocks. The use of destructive methods of fishing calls for effective enforcement of legislative measures and for education of the fishing community. There is a need to improve the surveillance along the rivers in order to protect fish stocks. In this respect the role of voluntary agencies in conserving stocks must not be ignored.

Fish ladders constructed on several weirs and barrages to facilitate migration of migratory fish species were found ineffective. The drawbacks of these fish ladders are their steepness and then narrow and inconspicuous inlets. These ladders were found to function as fish traps and as such used by poachers.

While the creation of a reservoir results in the creation of a new habitat for fish, at the same time many endemic species are adversely affected. To resolve this problem, priority should be given to the preservation of the diminished stocks of riverine fish species. This should include enforcement of legislative measures such as closed season, types of nets and mesh size regulation, and also the involvement of voluntary organizations, including fishing associations and clubs, in an effort to maintain the fish stocks at a healthy level. The stocks should be enhanced through regular releases of hatchery-produced fingerlings. Only in this way can the rising demands from subsistence and sport/recreational fishermen are satisfied. A programme of stream improvement to maintain optimal conditions for cold-water fish is also needed, especially where such streams have been impacted by dams, channelization and pollution.

The practice of protecting fish stocks of brown trout and schizothoracines during the low water level period by creating deep pools, covering them with tree branches and protecting them from poaching, also has proved beneficial. The best way of improving the trout and schizothoracines fishery in rivers and lakes is to regularly stock the waters with yearlings produced in hatcheries.

There is also need to improve infrastructure for recreational and sport fishermen, as this would attract more tourists to the areas. Kaghan Valley has already such facilities. There is a need to develop trout facility in Patrind when a pool is expected to appear as a result of Weir construction. This pool will change the ecology of the river system both up and downstream and some fish species are likely to disappear as a result of this. Permanent stocks of brown trout are required to be established in the near most suitable water to stock the fish in the upcoming lake. At present Kaghan Valley has 203 km of streams available for trout fishing. It is common knowledge that fishing tourism improves the economic status of a region. It is estimated that the economic benefits of sport fishing for trout is quite high and an angler spends about Rs. 2000 per week during the tourist season.

8. Comparison

There is a very clear difference in the results of the early studies and the last three studies which show that the impact is very significantly appeared on the aquatic environment of the River Kunhar. Significant changes in the fish catch and quality of water observed during the study shows that the impact of diversion at the weir point is growing gradually and will be at the peak after the complete or high blockage of water. This is mainly because of the ecology of the river has started changing. The major change in ecology is expected after the weir construction and obstruction on the river flow. This will affect the migration of the fish down and upstream and all breeding grounds will highly be affected downstream. The species composition may change and some species may disappear with the change of river ecology.

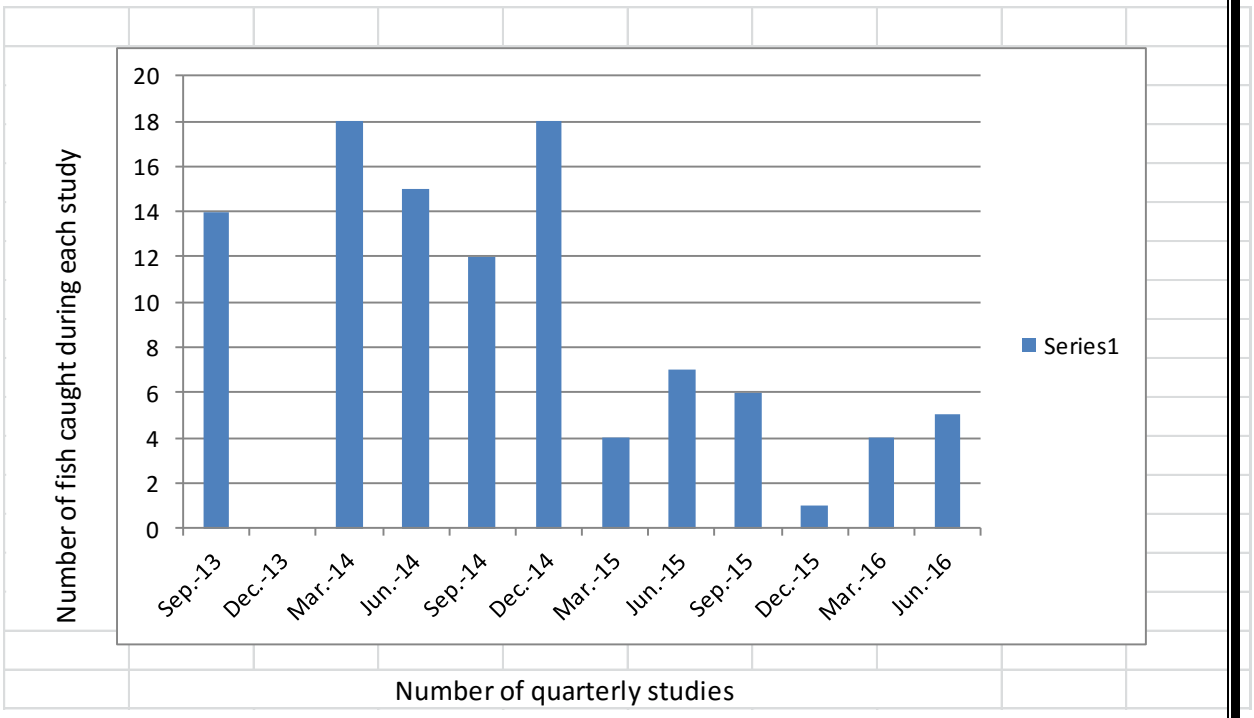
Table-3 Comparative number of fish caught at sampling points

Period	**Point**	**No. of fish**	**Period**	**Point**	**No. of fish**	**Period**	**Point**	**No. of fish**
July-September 2013	1	3	July-September 2014	1	0	July-September 2015	1	4
	2	6		2	4		2	1
	3	4		3	1		3	1
	4	0		4	2		4	0
	5	1		5	3		5	0
	6	0		6	2		6	0
Total:		**14**			**12**			**6**
October-December 2013			October-December 2014	1	6	October-December 2015	1	
				2	5		2	
				3	0		3	
				4	4		4	
				5	0		5	1
				6	3		6	
Total:					**18**			
	1			1	**2**		1	
	2			2	**0**		2	

January-March 2014	3		January-March 2015	3	**0**	January-March 2016	3	**3**
	4			4	**0**		4	
	5			5	**0**		5	**1**
	6			6	**2**		6	**4**
Total:					**4**			
April-June 2014	1	5	April-June 2015	1	3	April-June 2016	1	4
	2	7		2	1		2	
	3	4		3	1		3	
	4	0		4	0		4	
	5	No access		5	0		5	
	6	2		6	2		6	1
Total:		**18**			**7**			5

Fig 20: Showing comparative graph of fish catches during each study

The graph given below shows the comparative picture of the fish catches during each study



9. Recommendations

- During the Dam Operation Phase, the needs for fisheries management of three impact areas must be addressed: 1) the reservoir and its affluent streams, 2) the fauna passage facilities, 3) and the downstream river channel and floodplain(s),
- Reservoir fisheries management concerns focus on protecting spawning grounds in affluent inflow areas, stocking with indigenous and non-indigenous fish species to increase production, development of a small pelagic fishery, and management of the water level to prevent erratic behavior deleterious to fish stocks.
- Management of the fauna passage facility includes monitoring of fish traffic in terms of species, numbers, and length/weight range. An assessment should be carried out of the efficiency of the fish pass in providing an access route for individual species, and appropriate adjustments made to the structure to improve its efficiency. The overall impact of the fish pass on reservoir fisheries and downstream river fisheries should be determined.
- Downstream river fisheries management concerns focus on aeration of anoxic discharge water from the dam, provision of effective fish passes to allow brood stock and juveniles to migrate across the dam, reduction of turbulence in the stilling pool, and mitigation of fish losses on the floodplain. The release of artificial mini-floods and the provision of adequate dry season flow are crucial to maintaining a suitable environment for migratory fish species, especially endangered species.
- Fish catches in the Kunhar River have been declining because of the use of illegal fishing methods such as poisoning and use of electro-fishing gears. To preserve the fish stocks, controls should be imposed on illegal fishing practices and a fish sanctuary be established. The deep water pools of the Kunhar and its feeder streams should be declared fish sanctuaries for the protection of brood stock.
- The Kunhar River catchment has been subject to deforestation, resulting in erosion and silting of streams and rivers. There is a need for land rehabilitation measures to be urgently implemented in the watershed. The incidence of water pollution is increasing in the lower reaches of the river due to the discharges of sewage waste, and the illegal use of insecticides, pesticides and control over such activities must be strictly enforced.
- Habitat improvement is an essential factor for fishery improvement. To avoid seasonal changes of water level, suitable pools should be created under the management of the local development authority. Such a practice will improve the fish habitat quality and avoid the winter desiccation.
- Protection of fish stocks and fishery regulation should be based on periodic assessments of fish stocks. It is high time to enforce the existing fishery law and to restrict the use of nets with less than 2 cm mesh size.

- Early planning and consultation with expert should be initiated to have aquaculture development in the cold water pool appearing as a result of damming on river Kunhar at Patrind.
- During this study it was observed that another concrete pond is being constructed at the outlet to control the rapid flow of water through the overhead flow tunnel. There will be complete check on the migration of the fish. This pond will make another base for the culture of trout as this will have no impact on the other river fish because of its stagnant condition. Survival of local fish in this pond is near to impossible.
- Proper Fish ladders should be provided for the easy up and downward migration of the fish on the lake behind the weir. This is the time to take action in this regard otherwise it will not be possible when the water level will rise due to the start of operational phase of the project.

10. Potential Impacts and Mitigation Measures

Aquatic ecology is affected by water quality, quantity, availability of breeding habitat (such as spawning and rearing grounds), foot access to the river, fishing methods and terrestrial activities along the river banks and in the watershed (Helland-Hansen et. al., 1995). The existing aquatic habitat of the Kunhar River in the Project area is continuous, fast flowing where water quality and quantity are seasonally affected, primarily by monsoon runoff and snowmelt. The Patrind Hydropower Project will divide the existing aquatic environment into three distinct habitat areas with different flow conditions:

1) Upstream of the weir

2) Within the weir pond

3) Downstream of the weir

a) Upstream of the Weir and in the Pond

Flow rates, water quality and fish habitat in the Kunhar River and its tributaries, above the reservoir will not be affected by the Project, except for the distribution of some aquatic organisms. The presence of the reservoir will isolate these upstream, fast-flowing habitats from the riverine habitat below the reservoir, preventing migratory species from reaching these areas. The populations of sedentary, resident fish species above the reservoir will not be directly affected by the Project, but will become genetically isolated from populations downstream.

b) Within the weir pond

The weir upstream/at the weir will create a deep, still water aquatic habitat, replacing about 7km of existing riverine habitat. Water quality in the reservoir was found suitable for the protection of aquatic ecosystems. The most productive parts of the reservoir will be the shallower sections where light is able to penetrate to the bottom and allow the growth of attached aquatic macrophysics.

The creation of the lake will provide a large open water fish habitat that could be used for promotion of fish culture especially for cold water fish. The harvesting of fish culture, if it proves viable will be an offset to the lost production. This will also increase the fish fauna and their density to be exploited locally for the socio-economic uplift of local communities.

c) Downstream of the Weir

The Project will alter the Kunhar River flow regime in the stretch starting from the weir to the confluence with Jhelum River (13 Km length). Changes in the flow regime will affect the composition and abundance of planktonic and benthic communities, thus affecting the food supply of fish. These changes will have the potential to influence on the species composition of the fish population in the Project area, but due to the low availability of fish fauna in the Project area as shown by the study results, the impact shall not be significant.

Furthermore, it should be noted that the topography of Kunhar River valley downstream of the weir is characterized by high river banks with relatively deeper bed levels that prevent the use of the Kunhar River for agricultural irrigation and drinking water supply. The operation of the Project for hydropower generation will reduce flows downstream of the weir. A minimum of 2 m3/s of water will be released from the head pond as ecological flow throughout the year. This flow will increase further downstream as numerous medium and small streams enter the Kunhar River, thus providing mitigation measures for aquatic flora and fauna in the downstream reach of the weir. These additional side streams will, on average, contribute an estimated 1.8 m3/s to the Kunhar River flow downstream of the weir.

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Annex-11

Implementation Plan of Social Uplift Plan

Implementation Status & Future Plan of Social Uplift Plan

Weir site camp owner demands

S. No	Demand	Action Plan
1	Mr. Ali ur Rehman (land owner camp office weir site) worried about sliding in slope behind Korean mess in weir camp  Mr. Ali ur Rehman (land owner camp office weir site) cracks in his own house derived from building of camp structures 	1. We couldn't find any clues or signs of collapse and sliding in this slope area. We answered the same way in 2015. However, he is still showing the same concerns without any supporting data. 2. Cracks were caused by differential settlement. But it does not means necessity of a retaining wall. Moreover, it is his personal issue. 3. The material claimed to be sliding behind Korean mess and other areas is actually the cut material that was left there during construction of camp and was not disposed of. It carries no hazard of sliding or collapse. 4. The only danger to slopes in that area is the water coming down from the owner's house, during rain etc. We demand the owner to make proper drainage for the water to eliminate this hazard. 5. Cracks in the owner's house are due to poor construction of the house not due to construction of the camp buildings. The soil beneath owner's house was insufficiently compacted, resulting in cracks appearing now due to settlement of soil. This is a normal issue in most constructed houses not adhering to standards of good construction practices.

S. No	Demand	Action Plan
2	Mr. Ali ur Rehman (land owner camp office weir site) wants us to extend retaining wall area beneath Korean residential area(behind mosque) 	We will complete extension, but we are not obliged to make the wall higher because we don't see any safety hazard here. He is asking this work for his future benefit because he is the one who will take-over Daewoo camp building.
3	Mr. Ali ur Rehman (land owner camp office weir site) land owner weir site camp office) claimed that water tank in camp does not have overflow control systems	It is not true. We have a switch system that can stop and resume water flow
4	Mr. Ali ur Rehman (land owner camp office weir site) and owner weir site camp office) claimed sewerage line work outside of camp is not completed properly	We have completed this on May 6, 2016 See pictures below 
5	Mr. Ali ur Rehman (land owner camp office weir site) claimed that no proper maintenance for camp, e.g. building cracks, carried out	Maintenance of camp building is our own concern, not his business.
6	Unnecessary plants in camp 	Please see grass cut area photos below 

S. No	Demand	Action Plan
		

(2) Next community meeting

Community meeting will be held in July after OE and EPCC reach an agreement on the schedule.

Social Uplift Plan

Construction of water tank in Alda village

EPCC has been paid Rs.600, 000/- to Alda village for water tank that is completed in the month of June 2016.

Annex-12

Response to FTA's Comments

Report# 14

Sub-chapter	Mott MacDonald's Construction Monitoring Report No. 14, May 2016 (Rev A, 22/06/2016) – HSES concerns / recommendations	EPCC's response/ Status as of June 30, 2016	OE Remarks / Recommendations/ Status as of June 30, 2016	SHPL's action status (as of June 30, 2016)
6.2.1 Key Site Visit Observations	The OE and EPCC should investigate the following issues **as a matter of priority** and ensure that all items have been addressed prior to the issuance of Mott MacDonald's next construction monitoring report. A summary of the activities undertaken to address the issues raised must be included in the next report.		OE and EPCC have conducted a meeting after the Mott MacDonald's visit at 24, 25 May, 2016. OE suggests to EPCC that all the open issues must be closed on priority basis. The summary of activities related to aforesaid issues will be included in the next reports.	
	1. Poor scaffolding practices: There were some scaffolds with no tagging at all and presumably regular inspections were not being conducted on these structures. It is expected that such breaches should be identified by HSE personnel at the site.	EPCC has employed competent scaffolding inspector with HSE staff trained and the scaffolds are inspected regularly. A tagging system is in place. However due to the rapidly changing environment scaffolds are regularly altered or moved. EPCC has provided training to it HSE staff and improvements continue to be made. **SEE ANNEX-1**	EPCC has took corrective actions regarding unsafe and poor scaffolding on Powerhouse Site but still need improvement at Weir Site as well. Tagging system has been implemented and daily inspections are carried out after the visit and coordination meetings.	Improvements have been made in this regard and further improvements are suggested by OE which shall be monitored accordingly in future.
	2. Provision of barriers and netting at openings in the power house – an incident that happened during Mott MacDonald's visit of May	EPCC does provide, erect and maintain edge protection, safety barriers and netting. Unfortunately these systems are	Corrective action has been taken on the recommendation of Mott MacDonald's about openings in the	Compliance is observed and monitoring of the same shall be continued in

Sub-chapter	Mott MacDonald's Construction Monitoring Report No. 14, May 2016 (Rev A, 22/06/2016) – HSES concerns / recommendations	EPCC's response/ Status as of June 30, 2016	OE Remarks / Recommendations/ Status as of June 30, 2016	SHPL's action status (as of June 30, 2016)
	24-25, 2016 …there was an incident with a plank of wood that fell through a hole in the netting provided and hit a worker below. This was not a fatal incident, but the worker was taken to hospital. We have been provided with the investigation report to date. This …. Demonstrates the need to be vigilant to ensure the equipment is fit for purpose and that measures are adequately and satisfactorily implemented.	often damaged and the damage is not reported by the workforce. With regards to the incident, the falling object fell through a damaged section of netting before a member of the HSE staff identified the damage. Detailed report was submitted to OE on 25th May, 2016 (Ref # Patrind-16-481). **SEE ANNEX-2**	power house. 1. Hard barriers with green net are placed 2. HSE close supervision is insured 3. Training and consoling is conducted	future as well.
	3. Work at height: At a site where trip hazards are commonplace, such visual measures are considered inadequate and should be replaced with barriers that also provide physical fall protection. HSE personnel must identify such areas and ensure appropriate barrier protection is in place.	Where ever possible physical barriers are erected and sign are placed to identify the hazard. Unfortunately as works proceed and finishes are added it is not always possible to erect a barrier, so signs and hi-visibility tapes are used to identify hazards. The HSE staff has been doing monitor the situation.	EPCC has taken corrective actions and tried to fulfill the requirements of required standard. 1. All access and egress are defined and marked, trip hazards were removed from common access. 2. Full body harness with double lanyard is mandatory to work at height for all personnel on project.	Being complied with the requirement of future improvements as well. OE is continuously monitoring the site HSE matters.

Sub-chapter	Mott MacDonald's Construction Monitoring Report No. 14, May 2016 (Rev A, 22/06/2016) – HSES concerns / recommendations	EPCC's response/ Status as of June 30, 2016	OE Remarks / Recommendations/ Status as of June 30, 2016	SHPL's action status (as of June 30, 2016)
			3. Some improvement required at Weir Site.	
	4. Use of PPE: …compliance (of using appropriate PPE) in some areas is still lacking. The Contractor needs to aim for 100% compliance and Contractor supervisors play a vital role in enforcing compliance.	PPE (Safety shoes, Hi-Visibility vests and Hard Hats as a minimum) have been issued to the entire workforce on the project. It is also regularly replaced when damaged. During the daily tool box talk all labor is inspected to insure they have and are wearing it appropriately. The HSE staff constantly monitors the work force and warnings are issued for not wearing PPE. **SEE ANNEX-3**	EPCC provided the PPE's on site and HSE staff ensuring and implementation, training and awareness campaign required from EPCC site. Some shortcomings are still noted from sub-contractors which needs attention from EPCC.	Compliance is being monitored.

Sub-chapter	Mott MacDonald's Construction Monitoring Report No. 14, May 2016 (Rev A, 22/06/2016) – HSES concerns / recommendations	EPCC's response/ Status as of June 30, 2016	OE Remarks / Recommendations/ Status as of June 30, 2016	SHPL's action status (as of June 30, 2016)
	5. Traffic management: ….. Some measures, such as the removal of parking and waiting areas below slope stabilization work, had been implemented since the previous visit, but the traffic management needs to be further improved.	A traffic management plan is operated by EPCC and is constantly monitored and modified as the works proceed. Traffic Management plan was submitted to OE in August, 2015 (Patrind-15-547) **SEE ANNEX-4**. Training has been delivered to all signalmen for smooth movement of vehicles on site.	EPCC submitted the revised traffic management plan as per site condition, which was approved and OE addressed to EPCC must be strictly follow the approved plan and ensured safe working road accident free environment. On OE recommendations EPCC has also conducted trainings. Modifications in plan whenever required would be conveyed to EPCC.	Traffic management plan is a dynamic plan which is being changed frequently as the site changes due to the construction activities. OE is continuously monitoring the traffic management plan and any changes in the same are conveyed to EPCC.
6.2.2 Monitoring and Reporting Systems and Performance	1. Reporting of near misses and unsafe observations … However given the high number of site incidents; it is likely that they are being underreported as highlighted in our previous reports. We urgently recommend that training is provided to staff on site on how to report near misses and that reporting be improved.	All the incidents are being reported by EPCC's staff. EPCC has trained it's not only HSE staff but also all superintendent to identify and report both near misses and unsafe observations. And whilst EPCC accepts the comment it is felt that the time of the HSE staff is better spent on-site rectifying situations, rather than in the office filling out reports. Evidence is attached as **ANNEX-5**	Near misses and unsafe observations reporting system has been improved which needs continuous evaluation and monitoring.	OE is critically observing the reporting procedures and intimates the EPCC if they lack in the same or their reporting is delayed.

Sub-chapter	Mott MacDonald's Construction Monitoring Report No. 14, May 2016 (Rev A, 22/06/2016) – HSES concerns / recommendations	EPCC's response/ Status as of June 30, 2016	OE Remarks / Recommendations/ Status as of June 30, 2016	SHPL's action status (as of June 30, 2016)
	2. The EPCC and the OE monthly monitoring reports state that in March and April 2016 there was one first aid case and one medical treatment case. All reports provide short descriptions of the incidents but also need to include adequate information in future monthly reports to show that there has been adequate redress made for the incidents raised.	If required the detailed report can be annexed to the monthly reports. However, this is to inform that due to reduced civil activities, no Near Misses were occurred.	No major accident/incident has been noted during the reported months of March & April	Details of the incidents to be provided in future reports.
	3. Site visits conducted by the OE's HSE staff undertaken in April 2016, highlighted further recommendations which are reflected in the latest OE monitoring report issued in April 2016. …. Information needs to be provided in the next EPCC and OE monitoring reports as to how these issues have been addressed in order to be able to include in the next Mott MacDonald construction monitoring report.		Corrective actions for any outstanding issues stated in monthly report are generally addressed in the upcoming reports. However, as per MM's recommendation more focus for addressing the issues and action taken would be included in the next reports.	The required information will be included in the future reports.
	4. … Mott MacDonald to continue to strongly recommend that the EPCC develops a more	EPCC staff is regularly trained on the site systems. These systems are monitored by	Most of EPCC HSE staff are qualified and trained and refresh trainings session also managed by	The details on the outstanding actions are being provided in

Sub-chapter	Mott MacDonald's Construction Monitoring Report No. 14, May 2016 (Rev A, 22/06/2016) – HSES concerns / recommendations	EPCC's response/ Status as of June 30, 2016	OE Remarks / Recommendations/ Status as of June 30, 2016	SHPL's action status (as of June 30, 2016)
	rigorous HSE management, monitoring and reporting system which will help prevent more serious incidents by identifying and acting on safety risks immediately. A plan should be developed that demonstrates outstanding actions and identifies how they will be addressed and by whom.	EPCC management and improvements made as required. EPCC has submitted 22 HSE procedure with regard to HSE management, monitoring and reporting system and the entire activities are prepared with proper MS, JSA and HIRAC.	EPCC in their own camp. Deficiency wherever noted has always been conveyed to concerned Managers.	OE's monthly report however a detail on action items and corrective actions will be provided in future reports.
	5. Mott MacDonald previously recommended that the EPCC conduct a thorough review of all HSE policies, procedures and training related to the Project and create a system of accident reporting that investigates potential hazards and any potential serious injuries. The EPCC must indicate when these corrective measures will be instituted and who will be conducting them. Mott MacDonald could, if required, undertake a detailed HSE audit. However to date no information regarding this has been received.	HSE policies and procedures are being updated every year. The implemented accident reporting system is that the incident is to be reported and verified within 24 hours and assess the hazard and to decide how to prevent such incident with JSA and risk assessment. Policy & Procedures clearly indicates/describes when and by whom the corrective actions are to be conducted. The last update was done in July, 2015. **SEE ANNEX-6**		The policies and procedures are being reviewed by EPCC and OE on a regular basis and the insertion of JSA was also part of the review process. Any deficiency found in the same is being and will be conveyed to EPCC for compliance. Please note that a labour audit was also conducted late last year by an independent

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				consultant to assess/highlight the labour related issues and conduct a labour audit. The recommendations made by him were implemented in letter and spirit. The final report has already been shared with the lenders.
6.3.1 Overview of Social Compliance Monitoring and Reporting	1. While there is some mention of monitoring in the EPCC and OE monthly reports; coverage of social compliance issues is not considered sufficient. Mott MacDonald recommends that reporting on grievances, the social uplift plan, HR matter and land acquisition be increased and more information be provided as part of the EPCC and OE monthly monitoring reports.	EPCC has been reporting the issues in monthly reports however the data will be further strengthened in future reports as recommended.	OE's monthly report includes the information for major and minor social complaints and grievances meetings etc. the matters related to land acquisition can be addressed properly by SHPL being the direct interaction party with line departments. However as per MM's instructions more elaborated details would be included in upcoming reports regarding social matters.	Grievance log and update on social uplift is part of quarterly ESMR which is submitted every quarter. Last ESMR for the period Jan-mar-16 has been shared in June 2016. Since land acquisition does not fall in the scope of EPC and OE, it is being detailed in Company's quarterly

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				ESMRs.
	2. .. It is recommended that the OE and EPCC monthly reports include a statement about each outstanding action point (of the updated environmental and social action plan (September 3, 2015) that identified items that are still outstanding), to facilitate more effective monitoring and reporting.	EPCC will include outstanding action points in future reports	Updated status will be included in HSE section of upcoming monthly report.	The actions taken against all the proposed items in referred ESAP (Sept.15 & Nov.15) have been shared with the lenders through emails dated October 27, 2015, December 23, 2015 and May 02, 2016 including the supplement comments. The status will be provided in next quarterly ESMR. Please note that construction monitoring report cover just a brief on environmental, social and HSE matters. Putting all the information on E&S, HSE matters in construction report

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				will make the same more complexed. It would be much better to share the ESMR with FTA for their review.
6.3.2 Labour Relations and Grievances	1. **An issue related to EPCC worker salaries has remained unaddressed since 27 January 2016.** Labourers are claiming that they are being paid less than the amount specified in their contracts. The only action that has been undertaken by the Project is that on 23 February 2016, the EPCC made new contracts for daily labour. This is not considered to appropriately address the original complaint. No information is provided on the number of affected workers and the amounts of back payment potentially owed. The OE should conduct its own audit to verify and identify the scale of the problem. Following an audit, corrective actions should be	EPCC pays all worker on a regular bases. There pay is in accordance with both there contract or employment and the Law. The issue is not that EPC is paying less to the workers but the calculation of wage which was misunderstood by some of the workers. At the start of new year, many new labours didn't understand the calculation of their salary. To resolve the matter, EPCC executed new contracts with daily labours clearly specifying the daily wage according to basic working hours (10.5 hrs). After execution of the contracts no further complaints were received and the same was communicated to OE. **SEE**	The corrective actions included in ANNEX-5 are as per OE's recommendation and the issue has been addressed properly. Regarding the number of affected workers, it is stated that the matter was associated with all EPCC's labours. The matter has already been investigated by OE by verifying the actual contract of labours and their salary status etc. The same can be furnished to MM, if required.	The complaint is settled and closed. OE in its next report will update the status of the same.

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	carried out.	**ANNEX-12**		
	2. An additional worker was terminated on 19 February 2016 and claimed to have worked 27 days without leave and was terminated after taking a half day break. Although the EPCC claims the termination was in line with company policy, the issue of working excessively without opportunity for rest is concerning. The OE should review timesheets and report on whether the EPCC is providing adequate leave based on hours worked.	The worker was terminated for violating the code of conduct. He had received a number of both verbal and written warnings regarding his violations. The worker had chosen to work 27 days without leave, and whilst he had worked 27 days he had not worked excessive hours. While at work no one exceeds the working hrs more than 6 hrs daily as on project site the lunch, dinner and prayer breaks are offered to all the employees.	As conveyed by EPCC the additional worker has received verbal warning but no proof for written warning is been provided by EPCC. Regarding the continuous working for 27 days without leave, improvements are required to ensure the international labours laws i.e. as a common practice EPCC is not paying the daily wages laboures for day-off which results labours to work on leave days.	The complaint is closed. Please refer to OE's monthly report of March 2016, Table6-1. (Social Monitoring Record)
	3. On 3 March 2016, 30 labourers were terminated at the end of their two-week contract but had not received payment. The EPCC needs to ensure that all payments are made to workers in a timely manner.	The matter is being misunderstood. EPCC did not hold any payment. The delay was only due to the payment procedure. The last working day was February 20, 2016 and the payment was made on May 01, 2016 which is normal pay day. The same was also communicated to OE. Once the workers had completed their	The corrective action was taken by EPCC and the issue has been resolved.	The complaint is closed. Please refer to OE's monthly report of March 2016, Table6-1. (Social Monitoring Record)

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		two week contract their times sheets were passed to the accounts department who made prompt payment. Despite the workers desires it is not possible for accounts to pay before they have received the time sheets and they cannot be produced until the work period has been completed. **SEE ANNEX-13.**		
	4. This collection of grievances following terminations indicate that the EPCC and its subcontractors need to ensure their HR policies have clearly stated procedures for terminations including reporting verbal or written warnings and a system for making an appeal. These should then be communicated on a regular basis through toolbox talks.	For contracted workers, the case of terminations is clearly mentioned in employee agreement of each company. For temporary workers, Ordinance (Standing Order, 1968) clearly states that "No temporary workman shall be entitled to any notice if his services are terminated by the employer". However EPCC and subcontractors lay off people when they have violations.	As conveyed by EPCC the contract workers have clear mention of termination procedure in their contract. OE recommends that for the termination, procedures should be communicated at the time of induction trainings or during tool box meetings.	Compliance will be monitored in future.
	5. On 28 March 2016, an excavator operator experienced an accident when the vehicle fell	If a worker is observed to be unfit to work during the tool box talk or at any time during	The labours fitness is daily accessed before commencing any site activity and in case of any symptom of	OE is monitoring the accident reporting very critically and the

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	down a slope. The cause of this incident appears to be tiredness of the operator due to him working a second job outside the Project. The operator received minor injuries and was moved to hospital for further treatment. No information was provided in terms of corrective actions.	their duty then actions are taken.	tiredness such person is not allowed to work onsite.	compliance of the same will be monitored in future.
6.3.3 Worker accommodation	1. The EPCC reported a fire incident at the worker accommodations on 19 February 2016. …..Although the incident was addressed by Project firefighting personnel, the risks of fire were not identified and mitigated beforehand, such as the removal of gas cookers inside accommodation. No additional information was provided regarding an investigation, corrective actions or training on fire safety. These measures should be considered by the EPCC.	**See ANNEX-7**	ANNEX-7 includes all the details and according corrective action.	Please refer Annex-7
6.3.4	1. No improvements appear to have been made in regards to	a. 3 megaphones for power house and 4 megaphones for	Improvement has been seen from EPCC end. During coordination	Compliance observed with provision of

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Community Health, Safety and Security (CHSS)	community health, safety and security. The February and March 2016 OE monthly monitoring reports continue to highlight recommendations that have already been raised in previous monitoring reports, including: a. Security arrangements need to be improved and the EPCC should equip the site with walk through gates, automatic barriers, security huts and emergency lights and the staff with megaphones, cars for site mobilization and metal detector devices b. Adequate lighting during night shifts to be provided, especially for security posts at the power house, access roads and access bridge c. Movement of unauthorized personnel in the project areas	weir site have been arranged. Other security arrangements such as barriers, check posts are well equipped. **See ANNEX-15.** b. More night security lights (powerhouse) and surveillance cameras (weir site) were equipped and was reported to OE. **See ANNEX-14** c&d. Movement of unauthorized personnel and local people are being monitored and managed by this manpower and facilities. **See ANNEX-15.**	meeting EPCC explained that walk through gates and automatic barriers are not possible to install and maintain. But number of security guards is increased on main entrance with metal detectors and manual barriers.	future strict monitoring since the security of personnel/site is of top priority.

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	should be restricted d. Adequate arrangements of entrance and exit gates on the project site for the local community to be provided While some information has been provided, it is not complete for sufficient to assess whether all the aforementioned items have been adequately addressed. It is required that more information regarding community health, safety and security actions is provided, as Mott MacDonald is unable to comment on all the issues listed above without it.			
6.3.5 Stakeholder Engagement	1. On 2 February the OE and EPCC visited Tarcheela village in order to listen to the concerns of community members. The following issues were raised by the members of Tarcheela village: ….. On 7 March 2016, another meeting was held at Shoran village. The main issues raised	**See ANNEX-16** EPCC is tracking the pending issues and sharing the feedback with OE.	The issue of providing an alternative water source to Tarcheela village for present water spring is still open. OE is continuously monitoring the issue. For point **(a),** OE has already included detailed catalogue for all the outstanding issues related to	The survey was conducted by EPCC on November 24, 2015 to identify the water sources of Tarcheela village. The report was shared with lenders as well.

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	by the members of Shoran Village were: …. The local community at the weir site organized a peaceful strike on 27 March to request the EPCC construct a protection wall along the reservoir to protect their land. The EPCC provided assurances that it would bring the matter to the Project owner. a. The aforementioned community meetings in recent months show a positive dialogue between residents and the OE and EPCC about Project impacts. However, there are many issues that remain open and many assurances that have been made. The OE needs to catalogue these agreements and follow up with the EPCC on their progress. b. Grievances are still not being tracked fully. In addition to reporting the date of issue, the OE and EPCC need to track		EPCC in the monthly report and such catalogue can be provided separately if required by MM. For point **(b),** more details as per direction of MM will be included in the grievances track record.	The matter is under discussion and the way forward will be determined with the consultation of locals as they are also in conflict on this matter.

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	follow-up actions, the communication back to the complainant and dates of these steps.			
6.3.6 Social Uplift Programme	1. … A section on the Social Uplift Plan continues to be absent from both OE and EPCC monthly monitoring reports. Future reports should list outstanding commitments and how they will be completed.	The update on social uplift will be included in future monthly reports.	Social uplift plan section will be included in the upcoming monthly reports	The update is being provided on regular basis through quarterly ESMR. However the same will be made part of monthly progress reports.
6.3.7 Land Acquisition and Resettlement	1. Two residents raised grievances related to land acquisition during the 7 March 2016 community meeting at Shoran village. They each complained that the amount received in compensation was not fair. The OE is waiting for a response from the EPCC on both of these matters. These new grievances should be tracked along with any outstanding payments for land acquired.			The land acquisition matters are dealt by SHPL directly. The grievance regarding compensation fairness is totally baseless as this has been clarified many times that the cost assessment is done by the government and whatever rates were assessed. The company deposited the assessed amount in the government treasury.

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				The matter has to be settled between the owner and the government. Few PAPs have filled court cases. Some of them were closed in company's favour and some are pending.
	2. Previously MML have proposed that a grievance redress committee (GRC) is established to manage issues raised by PAPs. However no information has been provided on the implementation of a GRC during this reporting period. The Project Company has stated that it will continue to pursue the establishment of the GRC. Mott MacDonald would support the prompt establishment of the GRC and reiterates its recommendation that this is a priority action for the next reporting period.	Both power house and weir site have social officers and organizations who actually deal with PAPs and grievance. We explained to lenders when they visited in November 2015 that we don't need GRC because we are practically handling their issues through our current systems.	The present system of dealing the social issues is more workable than GRC.	The GRC recommended in the EIA and the resettlement plan couldn't be established but to deal with the community grievances earlier SHPL was in direct contact with the community which was further strengthened last year by employing a social expert in OE's team who also deals with the community liaison/engagement on regular basis. OE is also maintaining the

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				community grievance log to track all issues and their resolution.
6.3.8 Pollution prevention	1. A number of environmental incidents occurred during the reporting period: a. ….. This item is considered **closed.** b. There was an accumulation of sediment and sludge in the sedimentation tank in front of the O&M building,. During the site visit it was confirmed that this had not been undertaken to date. **Open.** c. It was reported in April that a community sewage pipeline and associated trench was overflowing. ….**Open** d. At the penstock and in front of batching plant minor oil spill was observed. … It is recommended that hazardous materials handling	B. Cleaning of sludge from the sedimentation is ongoing activity sometimes it is delayed due to unavailability of machinery but mostly it is done after one to two day gap. The tanks in front of O&M building are removed due to the construction of drainage system. The tanks in front of HRT and near river corner are cleaned regularly. C. Yes community sewage line near PES office was overflowing due to blockage but later it was fixed by the professionals and placed pipe as well covered the opening of the tanks with steel sheets and wooden planks. D. Minor oil spills incident are occurring on site but remedial	For point (b), EPCC has provided the required information in ANNEX-11. However, OE will monitor the situation to ensure the regular cleaning of accumulated sludge in front of HRT. For point (c), proper corrective action has been taken by EPCC in OE's and community person's presence. For point (d), corrective action has been taken by EPCC. Measures will be taken as per recommendation of MM.	Compliance evidence has been submitted by EPCC on point (b, c & d) which will be closed upon monitoring.

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	and storage is reviewed and improved, spill kits are easily accessible across the site in the event of an oil/chemical spill and tool box talk to be given to the workers and security personnel in terms of material storage and spill response measures;	actions were taken as soon as possible. Top layer of the soil which contains oil contaminants is removed and sent to the disposal area for proper disposal. Tool box has also been delivered to all of labors including drivers and other workshop staff that take extra care when handling with the oil or hazardous chemicals.		
6.3.9 Monitoring	1. According to the monthly progress reports, regular monitoring of air quality, water consumption and discharge, continued during the reporting period. It is not clear from the reporting if there have been any breaches in the emissions limits.	EPCC is conducting Bi-Annual water monitoring to assess the quality of drinking water and the release of waste water from any source directly interacting to environment. Regular Gas detection is being done in each area and no hazard has been identified as per Gas Limitation Standards. **See ANNEX-17**	Monitoring for air quality is carried out on daily basis and no breach in air quality is been observed so far. However, a detail graphical summary for air quality at different work phases would be included for easy understanding in the upcoming reports.	Compliance will be observed in future reports.
	2. In addition, it is understood that quarterly fish monitoring was conducted in March 2016. It is requested that the monitoring report be provided in the May monthly progress report.	First Quarter Fish monitoring study was conducted in the month of March, 2016 and reports are shared with OE.(Patrind-16-362) on 16th	As conveyed by EPCC	These reports i.e. Quarterly Fish & Vegetation Studies are part of quarterly ESMR. If required the ESMR can be shared

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		April,2016 **See ANNEX-9**		for review.
6.3.10 Waste Management	1. A number of waste management issues were reported for the period. a. ..However, community waste continues to be dumped in infront of the PES office, which is a HSE risk. …. **Open.** b. In April a dump truck was observed disposing of sludge and concrete openly into the disposal area because ….. **Open.** c. Waste water is reportedly be treated prior to the release in to the environment. Monitoring of discharges should also be monitored. **Open.**	**A**. Community waste in front of PES office is regularly cleaned by the MCM dumper. However, it is not clear whether this falls in EPC's scope or not. **C.** Waste water on project site is treated via sedimentation and settling tanks prior interacting with the Environment. Bi-Annual water quality monitoring by third party also conducted to make sure the proper disposal and treatment of waste water.	For point (a) regular cleaning is carried out by EPCC through Municipal corporation Muzaffarabad (MCM). For point (b), strict monitoring will be ensured to avoid the reoccurrence in future. For point (C), waste water treatment, sedimentation tanks are regularly cleaned and properly maintained.	Compliance of the open items is being observed. Since EPCC has implemented the corrective actions, their status will be evaluated to close the issues.
6.3.11 Noise and	1. . Results from the noise monitoring should be provided in the May monthly progress report.	Regular Noise monitoring and assessment is carried out on project site then it was included	Details of any noise monitoring will be included in upcoming reports.	Will be included in future reports.

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Vibration	**Open.**	in monthly report. **See ANNEX-8**		
6.3.12 Air Quality	1. … Regular inspections on exhaust emissions are ongoing. It should be clarified if this is through air emissions monitoring or through vehicle maintenance. **Open.**	EPCC is regularly inspecting the Equipment to minimize the emission impact. If any vehicle/Machinery that can badly effect the environment from exhaust emission are removed from site without any delay. **See ANNEX-10**	Both air emission and vehicles maintenance is been checked and in case of any violation corrective actions are taken accordingly.	The matter is a regular and continuous process. Compliance of the same is also a continuing process which is being monitored.
6.3.13 Erosion and Sediment Control	1. …However, in each monthly progress report it is reported that erosion and sediment movement has not yet been quantified fully on the project site. It is recommended that this is done as a matter of priority. Progress made should be reported in the May MPR. In addition the monitoring report should detail exactly what erosion protection and sediment control measures are being implemented across the site and identified at each of the worksites.	It will be handled on monthly report.	It will be included as per recommendations.	Will be included in future reports.

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6.3.14 Traffic Management	1. …the OE has reported that access roads are not being adequately maintained. This must be undertaken frequently by the EPCC so that it does not create additional traffic problems. Speed limits must also be implemented and followed on the project roads.	Traffic Management Plan has submitted to OE on 10 August,2015 (Patrind-15-547) Training to all LTV and HTV drivers has been delivered and allocated signalmen's on each corner to avoid any traffic issue. Traffic Sign Boards are also placed on the visible location.	As per OE's concern, EPCC has implemented the required corrective actions.	Compliance is being observed as the issue is now settled when EPCC implemented all the corrective actions.
6.4 Training	1. The EPCC has noted that daily tool box talks on the environmental management plan have been given to increase awareness of environmental issues on site. It is recommended that the scope of these tool-box talks is widened to include topics related to the HSE issues mentioned above.	More deliberation will be done with regard to HSE issues in future as suggested. **See ANNEX-11**	The tool-box talks include both HSE and environmental issues and will be more focused in future as per recommendation.	Noted.
6.5 Summary and Concluding	1. While there has been an increase in HSE staff on site, it remains to be seen whether or not this has a positive effect on the HSE issues and if so should be reflected in	By increase in number of HSE staff we have good control on site because incident ratio has been reduced.	Improvements are noted on both sites by increasing HSE staff. More assessment would be included in the upcoming reports.	Since the construction reports covers the main technical issues and brief on the E&S and HSE issues. If all the

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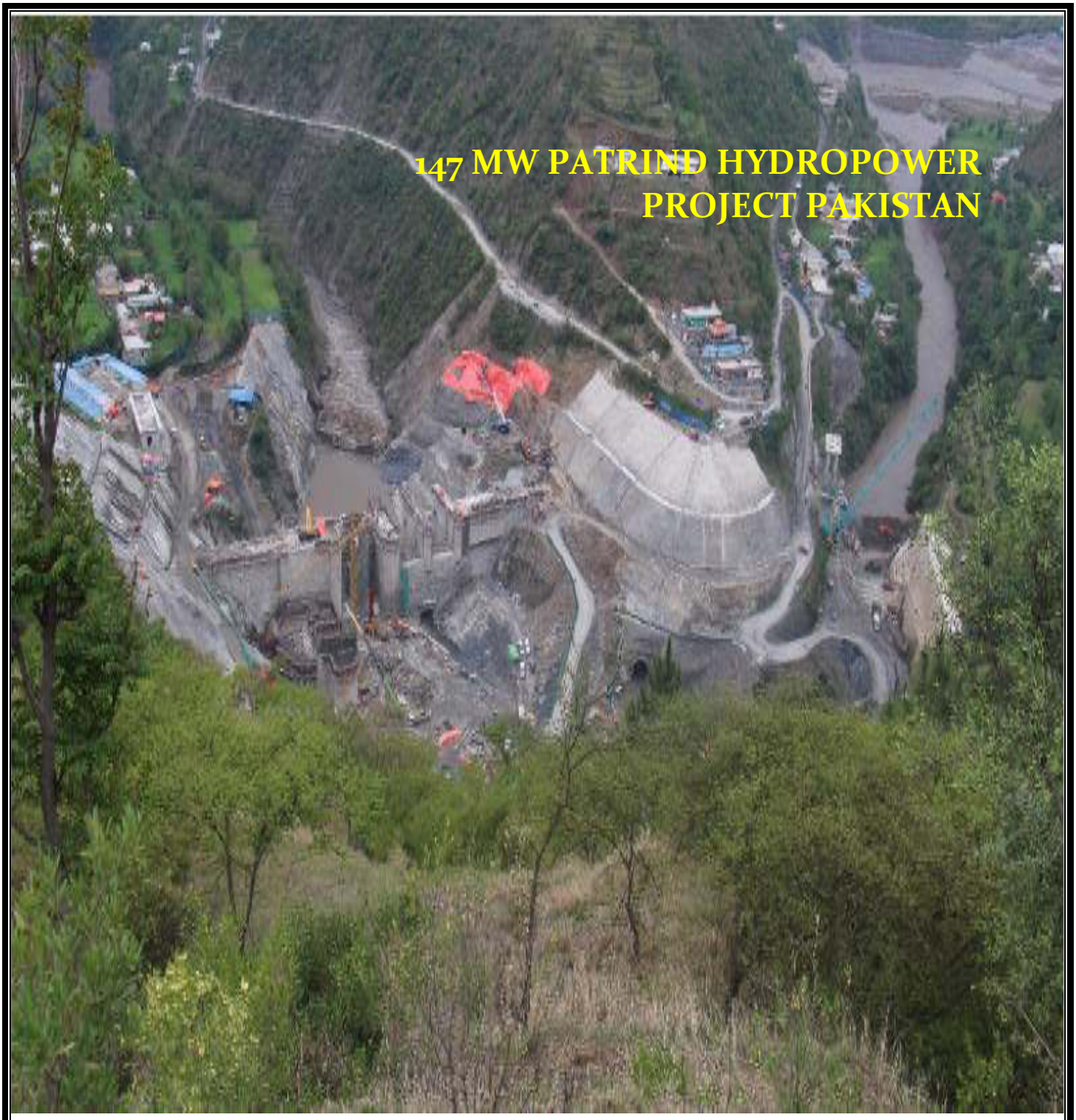
Comments	the next EPCC and OE monthly reports to determine if the level of HSE capacity on site is adequate given the HSE issues arising and whether further training needs to be provided. 2. This reporting period has seen a high number of worker and community grievances raised. Unaddressed salary payments and termination of workers need to be address in line with HR policies and national labour law. Community grievances, including land acquisition compensation, require additional information on social compliance to track their status.			details are to be provided in a single report, this will become a very huge report including all the details of the project i.e. technical, commercial, financial, environmental, social, HSE, correspondence and all other matters. It is suggested that the quarterly ESMR should be shared with the LTA for better understanding of the E&S, HSE matters.

Annex-13

Addendum To LARP



147 MW PATRIND HYDROPOWER PROJECT PAKISTAN

RESETTLEMENT PLAN

ADDENDUM

April 2016

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PATRIND HYDROPOWER PROJECT- LARP ADDENDUM

1. INTRODUCTION

This Addendum to the Resettlement Plan (October 2012) prepared by Star Hydro power limited "the Company" for 147 MW Patrind Hydropower Project "the Project" which provides additional information regarding the matters related to the additional land acquisition for the Project.

The project was approved by the Private Power and Infrastructure Board (PPIB) of Pakistan in July 2007. The EIA (2006) was subsequently submitted to the Environment Protection Authority (EPA) of Azad Jammu Kashmir (AJK) Province in July 2008 and was not processed at this time. The EIA was subsequently revised in June 2010 and submitted to the EPA AJK and Khyber-Pakhtunkhwa Province that month. EPA AJK issued Environmental Approval in August 2010 following due process in accordance with the laws of AJK, including a Public Hearing held on 5 August 2010. The revised EIA is currently being considered by EPA Khyber-Pakhtunkhwa, with a Public Hearing held at Deedal Meera village on 1 February 2011 as part of this process. As part of the condition precedents "CPs" for the financial close of the Project the Company prepared a standalone Resettlement Plan (RP) which was agreed and finalized between the Company and the Project lenders in October 2012.

Till date the RP has not been altered by adding the additional material requested by the Project lenders recently during their annual missions, but instead this Addendum has been prepared as a separate supporting report, covering the additional information. The Addendum is also supported by the data sheets of the owners of additional acquired land.

2. SCOPE OF LAND ACQUISITION AND RESETTLEMENT

Land Acquisition

In accordance with the previous design of the Project (2012), the land to be acquired was estimated as below;

Permanent Land Acquisition	790.10 Kanal
Temporary Land Acquisition	82.55 Kanal
Total	**872.65 Kanal (44.07 Ha)**

In 2014, the EPC Contractor of the Project submitted a change in the Project design, covering change in weir location, change in the type of sandtrap from surface type to rearranged sandtrap, addition of bypass tunnel and keeping the coffer dam as a permanent structure rather than temporary.
Due to this change in the weir site layout, the land requirement was also increased, the detail of which is presented in following section.

3. PURPOSE AND DURATION OF ACQUISITION

i. Upstream of weir (AJK Side)

During the construction on the weir site, it was noticed that the land area of 3.7 Kanal is further required on AJ&K side which is to be submerged due to the headpond of the Project.

The land falls in headpond area which is a permanent feature of the Project and the land shall be acquired through a long term lease of 35 years as was done in previous acquisition for the Project.

ii. Downstream of weir (AJK Side)

Due to the change in the Project design and addition of bypass tunnel, it was observed that the slope on the left bank of the river in front of the bypass tunnel outlet needs to be stabilized. The subject land was a private land which was to be acquired through the same process as adopted during the land acquisition process before financial close.

It was confirmed through survey that the land area of 10.3 Kanal is further required on AJ&K side the slope stabilization in the stilling basin area downstream of the weir.

The land falls in stilling basin area which is a permanent feature of the Project and the land shall be acquired through a long term lease of 35 years as was done in previous acquisition for the Project.

iii. Disposal area (KP Side)

During the lenders' E&S mission in early 2015, one of the land owners during a discussion revealed that his land was missed during the survey and was not included in the land acquisition process. It was agreed that a survey shall be conducted to confirm whether his complaint was legitimate or not.

In November 2015, a survey was conducted by EPC Contractor to check the land pertaining to the complainant and was confirmed that land area measuring 5.45 kanal was missed by the revenue department during the land acquisition process before financial close.

The land falls in headpond area which is a permanent feature of the Project and the land shall be acquired through a long term lease of 35 years as was done in previous acquisition for the Project.

The process of acquisition was started in late 2013 and as per LAA 1894, it took about 10 months.

4. MODE OF ACQUISITION

The procedure adopted for the acquisition of the additional land is same as was done during the land acquisition process before financial closing i.e. through LAA 1894. Since the required land falls in the jurisdiction of both AJ&K and KP, the Company cannot purchase the land directly from the land owners in AJ&K. It shall be done through the land revenue department who shall then lease the land in name of the Company in AJK and in KP a transfer deed shall be executed between the Company and the revenue department.

5. DETAIL OF LAND ACQUISITION

Existing land

Land Acquisition

Permanent Land Acquisition	790.10 Kanal
Temporary Land Acquisition	82.55 Kanal
Total	**872.65 Kanal (44.07 Ha)**

Additional land

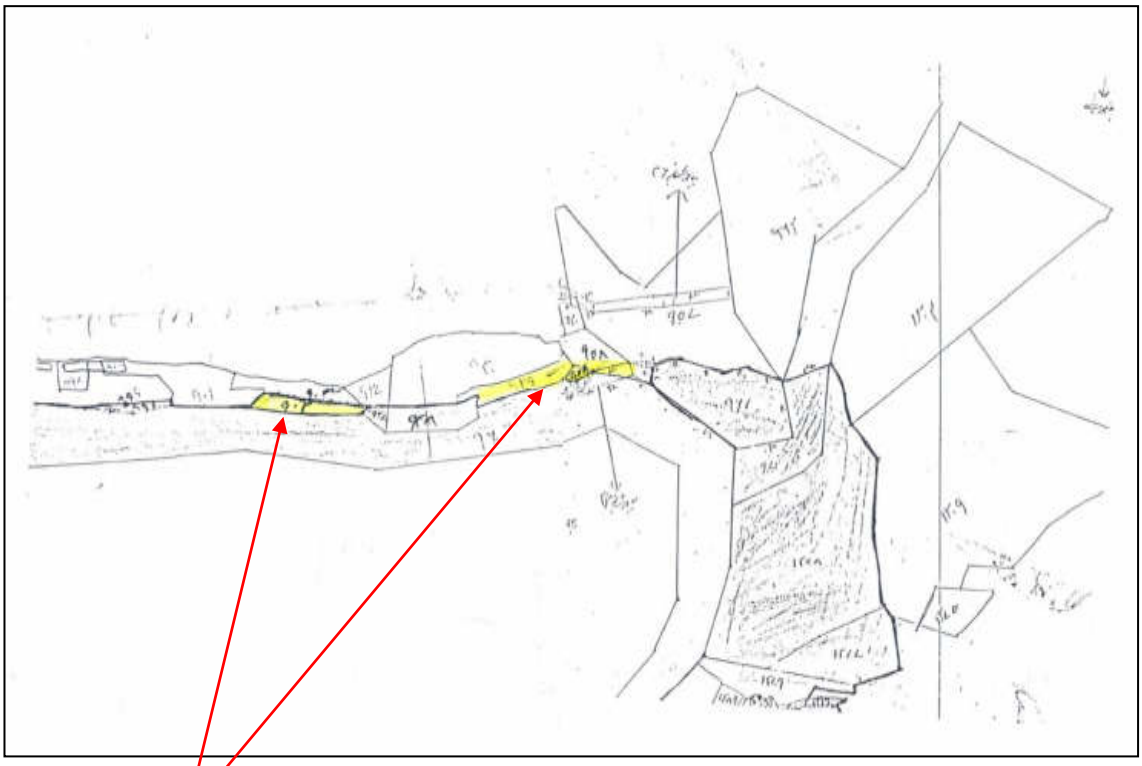
On AJ&K side, 3.7 Kanal land is required for the headpond area and 10.3 Kanal land is required for slope stabilization in stilling basin area.

In addition to the above, 5.45 Kanal land is required for the headpond area which was missed during the previous acquisition process.

The names of the households whose land is to be acquired, type of the land, its usage, source of livelihood and socio-economic condition is discussed in detail in this report.

Upstream of weir (AJK Side) Location Map- Google

Additional land Location Map- Revenue Department



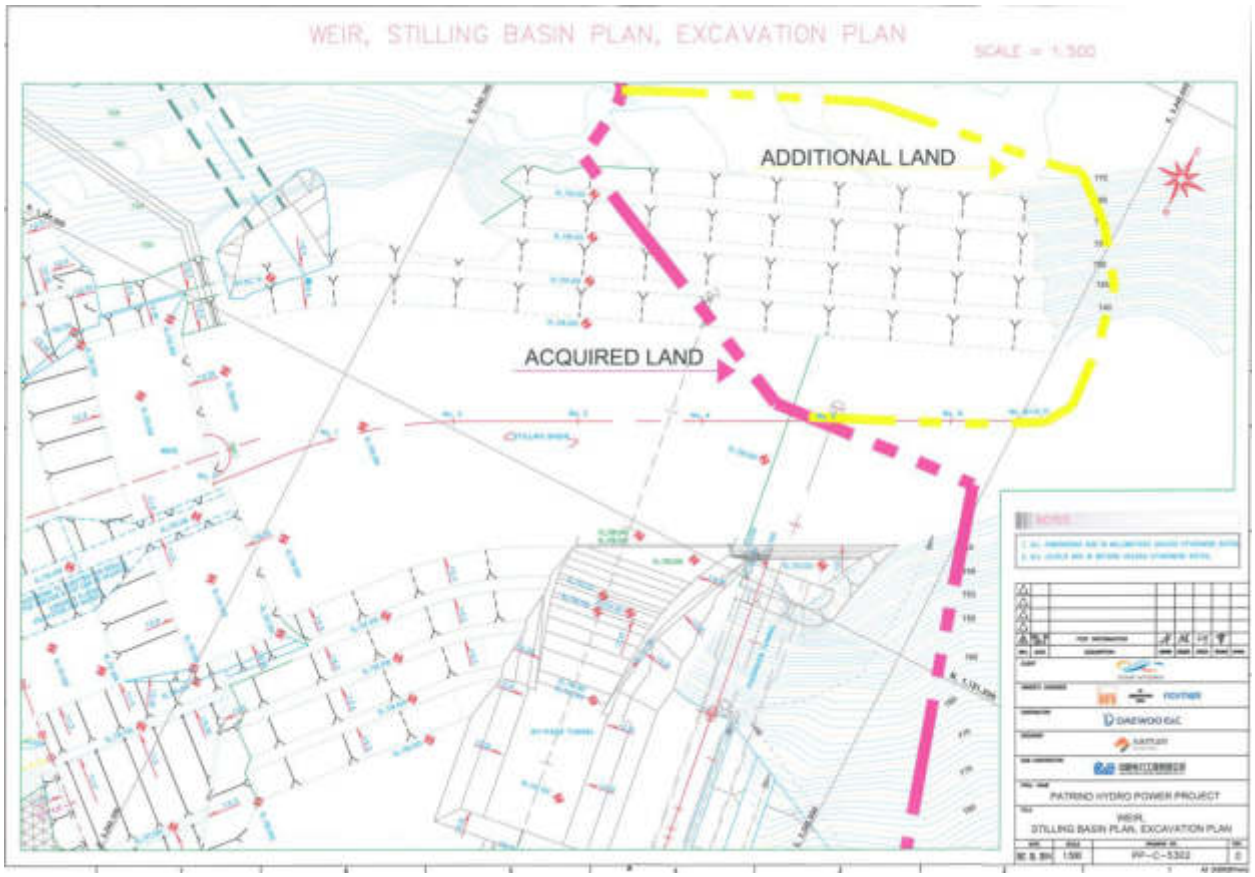
Additional Land to be acquired

Disposal area (KP Side) Location Map

Disposal area (KP Side) Layout drawing

Downstream of weir (AJK Side) Location Map- Google

Downstream of weir (AJK Side) Layout drawing



The names/ addresses of owners/households numbering 94 have been identified and listed in the RP October 2012 whose land has been acquired showing land classification into farmland, waste land and river bed.

The aggregated detail of the Additional Land required for headpond (permanent), the inhabitants (owners and their family members) associated with such land and their income status is shown in table below, while the analysis follows in the subsequent paragraphs.

Type of the land to be acquired and the income status of the occupants

Sr. #	Item	Unit	Area	Type of Land			No. Of Occupants		Income Status	
				Farm Land	Waste Land	River Bed	Male	Female	Long Term	Short Term
	AJ&K Side									
1	Upstream of weir	Kanal	3.7	0	3.4	0.3	7	6	2	2
2	Downstream of weir	Kanal	10.3	3.75	6.55		12	14	8	1
	KP Side									
3	Disposal area	Kanal	5.45	-	5.45	-				
	Total		**19.45**	**3.75**	**15.4**	**0.3**	**19**	**20**	**10**	**3**

The area of the Additional Land is 19.45 Kanal, out of which only 3.75 Kanal is farmland the remaining 15.4 Kanal is waste which shall be acquired on permanent basis belonging to the local residents of Patrind village and 0.3 Kanal of river bed area is government land. The data collected from the revenue department showing the details of the land owners, size of the land holding and type of the land is given in **Annex-5** to this report.

The number of inhabitants (the owners and their family members) linked to the land required for headpond purposes are around 39 (19 Male and 20 Female). Out of which 19 male members 3 are employed on short term basis and 10 are on permanent basis.

6. VALUE OF LAND

The estimates of value of land will be based on recent market transaction and consultation with affected persons as was done in the previous acquisition by the revenue department officials. In previous acquisition the price of the land per Kanal on weir side was assessed at PKR 500,000 by the revenue department which was a generous assessment considering the quality of the land and other recent assessments in the surrounding area. Another important factor to be highlighted is that in the LAA 1894 the land to be acquired should be categorized as per its condition and yield but in case of Patrind Hydropower Project the revenue department of AJ&K had not taken in to account and the rates for the top category were assessed to ensure that the APs/DPs should get the replacement cost for the acquired land. On the opposite side of the Kunhar river (Abbottabad) the revenue department assessed the cost of the same category land at Rs. 69,048 per Kanal. Assessed cost using rates i.e. Rs. 500,000 per kanal for the Additional Land is given in the table below.

HHID	S. #	Name of Affected Persons	Type of Land	Affected Area Kanal	Rate per Kanal	Estimated Cost PKR	CAS 15%	Total PKR
Reservoir Impounding (AJK)- Patrind								
PT44	1	Aurangzaib S/O Muhammad Suleman	River Bed	0	500,000	0	82,500	632,500
			Farmland	0	500,000	0		
			Wasteland	1.1	500,000	550,000		
PT45	2	Muhammad Riaz S/O Gul Zaman	River Bed	0	500,000	0	33,750	258,750
			Farmland	0	500,000	0		
			Wasteland	0.45	500,000	225,000		
PT46	3	Muhammad Shabir S/O Qalander Khan	River Bed	0	500,000	0	138,750	1,063,750
			Farmland	0	500,000	0		
			Wasteland	1.85	500,000	925,000		
PT47	4	Nisar Rafiqe S/O Muhammad Rafique	River Bed	0	500,000	0	387,500	2,970,833
			Farmland	0	500,000	0		
			Wasteland	5.17	500,000	2,583,333		
PT48	5	Khalil -u-Rehman	River Bed	0	500,000	0	86,250	661,250
			Farmland	0	500,000	0		
			Wasteland	1.15	500,000	575,000		
PT49	6	Banaras S/o Shahzaman	River Bed	0	500,000	0	57,917	444,028
			Farmland	0	500,000	0		
			Wasteland	0.77	500,000	386,111		
PT50	7	M. Haroon	River Bed	0	500,000	0	57,917	444,028
			Farmland	0	500,000	0		
			Wasteland	0.77	500,000	386,111		
PT51	8	M. Arshad	River Bed	0	500,000	0	57,917	444,028
			Farmland	0	500,000	0		
			Wasteland	0.77	500,000	386,111		
PT52	9	M. Ibraheem	River Bed	0	500,000	0	57,917	444,028
			Farmland	0	500,000	0		
			Wasteland	0.77	500,000	386,111		
	10	Common Land	River Bed	0	500,000	0	67,083	514,306
			Farmland	0	500,000	0		
			Wasteland	0.89	500,000	447,222		
	11	Govt. Land	River Bed	0.3	500,000	150,000	22,500	172,500
			Farmland	0	500,000	0		
			Wasteland	0	500,000	0		
	Total			**14**		**7,000,000**	**1,050,000**	**8,050,000**

7. AFFECTED HOUSES/COMMERCIAL ASSETS

There is no house/commercial asset in the Additional Land required for the Project hence no involuntary resettlement is involved for the acquisition of this Additional Land.

8. AFFECTED TREES

There are no trees in the land required for the head pond upstream of the weir whereas in the stilling basin area downstream of the weir 31 fruit trees and 69 fruitless trees are to be acquired.

9. ELIGIBILITY, CUT-OFF DATE AND ENTITLEMENT

The affected persons (AP) eligible for compensation and other entitlement provisions are:

1. All AP losing land or land based assets, i.e., crops and trees whether covered by legal title/traditional land rights or without legal status;
2. Tenants and share-croppers, whether registered or not;
3. AP losing the use of structures and utilities, including titled and non-titled owners, registered, un-registered tenants/lease holders and encroachers/squatters; and/or
4. AP losing business, income, and salaries or a person or business suffering temporary effects, such as disturbance to land, crops, business operations during construction.

Entitlement eligibility has been limited by a cut-off date which was determined and pegged by the land revenue department Muzaffarabad on 06/02/2014 for the land required in the headpond area measuring 3.7 kanal whereas for the land required for the

stilling basin area measuring 10.3 kanal the cut-of date was pegged on. The copies of section-4 under LAA are attached as **Annex- 1** to this report. The cut-off date was established to avoid influx of outsiders or other entities speculating on potential compensation.

Legal/legalizable owners are being compensated at replacement cost in the same area plus a 15% compulsory acquisition surcharge (CAS) free of taxes and transfer a cost which is a routine addition to compensation at market rates under the LAA of 1894 in Pakistan.

10. SOCIO-ECONOMIC INFORMATION AND PROFILE

The collection of baseline data on socio-economic environment involved field survey for socio-economic status in terms of land holdings, occupations and income. For the purpose of getting baseline data a survey was conducted in February 2014 and March 2016. During consultation with the land owners, a predefined proforma in local language (Urdu) was used which is attached as **Annex-3** to this report, same was used during earlier public consultation/meetings. The initial information gathered from the cadastral survey is given in data collection sheets which are attached as **Annex- 2** to this report.

The survey parameters include household head and members, name, sex, age, occupation, education, ethnicity, ownership of assets including key household assets, services and access to basic services access (e.g. water, sanitation, irrigation, schools, health, government), etc. While the inventory of assets per household includes the following parameters: property ownership, land holdings, status of ownership, structures, crops/trees, etc.

Photographs of the survey conducted during the month of February 2014 and March 2016 are attached as **Annex-4** to this report.

None of the land owners are using the land (Additional Land) for productive use as only waste land is being acquired.

After analyzing the gathered data during the above mentioned surveys, it has been observed that the Additional Land is not the source of livelihood/income for the land owners keeping in view the type of land i.e. Waste land and the size of the land i.e. 13.7 Kanal (shared by 9 land owners).

11. RESETTLEMENT BUDGET AND FINANCING

The resettlement and environmental cost of Patrind Hydropower Project was estimated as PKR 568.03 million (US$ 6.6 million) at the time of financial closing of the Project i.e. October 2012 when the Resettlement Plan was agreed and finalized.

Due to the addition of the additional land required for the Project (under discussion), the additional cost for the same will be added to the previous cost of the land.

The cost of the additional land is PKR 11,183,750 (11 million), and the cost of trees being acquired is PKR 144,457 which means the total additional cost of land is PKR 11.3 million adding only 0.1 million USD in total resettlement cost which means the total resettlement cost of the Project with additional land will be (US$ 6.7 million).

12. IMPLEMENTATION SCHEDULE

Implementation schedule as per LAA 1894 for the acquisition of Additional Land is as under;

LAA Sec-4 Preliminary Notification-3.7 Kanal	6-Feb-14
LAA Sec-4 Preliminary Notification-10.3 Kanal	6-Aug-15
LAA Sec-4 Preliminary Notification-5.45 Kanal	1-Apr-16
Entitlement Eligibility cut-off date-3.7 Kanal	6-Feb-14
Entitlement Eligibility cut-off date-10.3 Kanal	6-Aug-15
Socio-economic Survey-3.7 Kanal	28-Feb-14
Socio-economic Survey-10.3 Kanal	29-Mar-16
LAA Sec-5 Formal Notification-3.7 Kanal	10-Feb-14
LAA Sec-5 Formal Notification-10.3 Kanal	22-Aug-15
LAA Sec-6 Formal declaration of intent to acquire-3.7 Kanal	31-Mar-14
LAA Sec-6 Formal declaration of intent to acquire-10.3 Kanal	11-Nov-15
LAA Sec-8 LAC to physically mark out, measure land for acquisition	1-Jul-14
LAA Sec-9 Notice to land owners	30-Jul-14
LAA Sec-11 LAC Measurement, valuation and final award-3.7 Kanal	2-Aug-14
LAA Sec-11 LAC Measurement, valuation and final award-10.3 Kanal	17-Dec-15
Full payment of compensation-3.7 Kanal	30-Oct-14
Full payment of compensation-10.3 Kanal	30-Apr-16
LAA Sec-16 Possession of Land-3.7 Kanal	30-Oct-14
LAA Sec-16 Possession of Land-10.3 Kanal	31-Dec-15

ANNEXURES

ANNEX-1
SECTION-4

AZAD GOVERNMENT OF THE STATE OF JAMMU & KASHMIR
OFFICE OF THE DEPUTY COMMISSIONER MUZAFFARABAD

Notification:

Where as it appears that land detailed below is likely to be required by the Government of Azad Jammu and Kashmir at the public expense for a public purpose namely Land acquisition for **Patrind Hydropower Project 150 MW** Village **Patrind** Tehsil & District **Muzaffarabad** as recommended by the **Chief Executive Office Star Hydropower Ltd. Muzaffarabad** vide his letter No. **01** Dated **29-01-2014**, for the said project and it is hereby notified that land in the locality described below is likely to be required for above purpose.

This notification is made under the provision of the section 4 of the land Acquisition Act, 1894 to all whom it may concern.

In exercise of the powers conferred by the aforesaid section, the Azad Jammu and Kashmir Government is pleased to authorize the officers for the time being engaged in the undertaking with their servants and workmen to enter upon and survey any land in the locality and do all other acts required or permitted by that section.

Any person interested who has any objection to the Acquisition of any land in the locality may, within thirty days of the publication of this notification file any objection in writing before the Collector Land Acquisition.

SPECIFICATION

District *Muzaffarabad* ***Tehsil*** *Muzaffarabad*

District	Tehsil	Village	No. Khasra	Area		
				Kanal	Marla	Sarsai
Muzaffarabad	Muzaffarabad	Patrind	902	01	17	00
			929 min	01	02	00
			958 min	00	09	00
			959	00	06	00
//	//	**Total**	**Nos. 04**	**03**	**14**	**00**

District Collector
Muzaffarabad

No.DC/SQ/ 683-86 ***2014/Dated*** 06-02-2014

Copy to:

1. *Commissioner Muzaffarabad Division Muzaffarabad.*
2. *Chief Executive Office Star Hydropower Ltd. Muzaffarabad.*
3. *Collector Land Acquisition Muzaffarabad.*
4. *Controller Government Printing Press Muzaffarabad, for printing in the extra ordinary gazette.*

District Collector

AZAD GOVERNMENT OF THE STATE OF JAMMU & KASHMIR
OFFICE OF THE DEPUTY COMMISSIONER MUZAFFARABAD

Notification:

Where as it appears that land detailed below is likely to be required by the Government of State Azad Jammu and Kashmir at the public expense for a public purpose namely Land acquisition for the construction of **Patrind HydroPower Project (150 MW)** as recommended by the **Chief Exective Office Star Hydro Power Limited Muzaffarabad** vide his letter No. Star/81/2015 Dated **28-07-2015** for the said project and it is hereby notified that land in the locality described below is likely to be required for above purpose.

This notification is made under the provisions of the section 4 of the land Acquisition Act, 1894 to all whom it may concern.

In exercise of the powers conferred by the aforesaid section, the state of Azad Jammu and Kashmir Government is pleased to authorize the officers for the time being engaged in the undertaking with their servants and workmen to enter upon and survey any land in the locality and do all other acts required or permitted by that section.

Any person interested who has any objection to the Acquisition of any land in the locality may, within thirty days of the publication of this notification file any objection in writing before the Collector Land Acquisition.

SPECIFICATION

District Muzaffarabad *Tehsil Muzaffarabad*

District	Tehsil	Village	No. Khasra	Area		
				Kanal	Marla	Sarsai
Muzaffarabad	Muzaffarabad	Patrind	1013 min	00	17	00
//	//	//	1048 min	01	05	00
//	//	//	1049	00	15	00
//	//	//	1180	01	03	00
//	//	//	1281	00	17	00
//	//	//	1282	01	16	00
//	//	//	1283	00	07	00
//	//	//	1285 min	00	03	00
//	//	**Total**	**Nos.08**	**05**	**06**	**03**

District Collector
Muzaffarabad

No.DC/MZD/2787-90 2015 Dated 05-08-2015

Copy to:

1. *Commissioner Muzaffarabad Division Muzaffarabad.*
2. *Chief Exective Office Star Hydro Power Limited Muzaffarabad.*
3. *Collector Land Acquisition Muzaffarabad.*
4. *Controller Government Printing Press Muzaffarabad for printing in the extra ordinary gazette.*

District Collector
Muzaffarabad

OFFICE OF THE LAND ACQUISITION COLLECTOR DISTRICT ABBOTTABAD

No. 434 Dated; Abbottabad 1-4-2016

Where it appears to the Land Collector District Abbotabad that the land is likely to be taken by Star Hydro Power Limited "the Company" at the public expence for a public purpose namely for the construction of Patrind Hydro Power Project "the Project".

This Notification is made under the provision of section 4 of the Land Acquisition Act.1894 to all whom it may concern.

In exercise of the powers conferred by aforesaid Section, the Land Acquisition Collector Abbottabad District is pleased to authorize the officer for the time being engaged in the undertaking with their servants and workmen to entre upon and survey any land in the locality and do all other acts required or permitted by that Section.

Any person interested who has any objection in to the Acquisition of any locality may within (30) days of the publication of this notification file an objection in writing before the land Acquisition Collector Hazara Division Abbottabad.

SPECIFICATION

Tehsil&District Abbottabad	Locality	Khasra Nos.	Area
	Deedal	577/962/1	5 Kanals & 9 Marlas

Chief Executive Officer(SHPL) Deputy Commissioner/LAC

No.435-44

Copy to:

1. Commissioner Hazara Division Abbottabad.
2. Managing Director, Private Power Infrastrasture Board,50 Mezim adin Road F-7/4 Islamabad.
3. General Manager WPPO,325,Wapda House Lahore.
4. Director General,Power Purchase Cell,AJ&K.
5. Manager Govt.Printing Press KPK Peshawar for publication in the official Gazette.
6. Tehsildar Abbottabad for wide Pulicity in the Locality.

ANNEX-2

DATA COLLECTION SHEETS

DATA COLLECTION SHEET FOR SOCIOECONOMIC SURVEY

Date Surveyed 25/02/2014
Name of HH head Muhammad Shabir S/O Qalander Khan
Location Patrind

Sr. No.	Name	Age	Gender	Relationship to the HH head	Spoken dialect/ Language	Ethnic affiliation	Education Attained	Occupation	Income Source	Annual Income	Vulnerability (Y or N) e.g. physical	Other Parameters
1	Muhammad Shabir	54	Male	Self	Hindko	Qureshi	8th	Driver	Driving	200,000	Nil	Nil
2	Robeena Bibi	45	Female	Wife	Hindko	Qureshi	Nil	House wife	Nil	Nil	Nil	Nil
3	Marium Bibi	16	Female	Daughter	Hindko	Qureshi	Matric	Student	Nil	Nil	Nil	Nil
4	Malaika Bibi	10	Female	Daughter	Hindko	Qureshi	Primary	Student	Nil	Nil	Nil	Nil

Sources of fuel	Wood
Sources of water - potable and other	Spring

Affected Structures of the household

Sr. No.	Type of structure	Area Kanal	Construction Type
1	Nil	0	
	Total	**0.00**	

Affected land parcels of the household

Sr. No.	Area Kanal	Classification	Beneficial Owners
1	1.85	Waste Land	HH Head
Total	**1.85**		

Other household land holdings

Sr. No.	Type of land	Area Kanal	Productivity
1	Waste land	25	Nil
2	Farm land	5	Agriculture
	Total	**30**	

Note: Interviewee (should) sign/thumb mark on the sheet

DATA COLLECTION SHEET FOR SOCIOECONOMIC SURVEY

Date Surveyed 25/02/2014
Name of HH head Aurangzeb S/O Salman
Location Patrind

Sr. No.	Name	Age	Gender	Relationship to the HH head	Spoken dialect/ Language	Ethnic affiliation	Education Attained	Occupation	Income Sources	Annual Income	Vulnerability (Y or N) e.g. physical	Other Parameters
1	Aurangzeb S/O Salman	45	Male	Self	Hindko	Qureshi	Primary	Driver	Driving	300,000	Nil	Nil
2	Sakeela Bibi	38	Female	Wife	Hindko	Qureshi	Primary	House wife	Nil	Nil	Nil	Nil
3	Kinat Bibi	18	Female	Daughter	Urdu	Qureshi	B.A	Student	Nil	Nil	Nil	Nil
4	Muhammad Sohaib	16	Male	Son	Urdu	Qureshi	Matric	Student	Nil	Nil	Nil	Nil
5	Muhammad Usman	14	Male	Son	Urdu	Qureshi	Matric	Student	Nil	Nil	Nil	Nil
6	Muhammad Naseeb	12	Male	Son	Urdu	Qureshi	8th	Student	Nil	Nil	Nil	Nil

Sources of fuel	Wood
Sources of water – potable and other	Spring

Affected Structures of the household

Sr. No.	Type of structure	Area Kanal	Construction Type
1	Nil	0	
	Total	**0**	

Affected land parcels of the household

Sr. No.	Area Kanal	Classification	Beneficial Owners
1	1.1	Waste land	HH Head
Total	**1.1**		

Other household land holdings

Sr. No.	Type of land	Area Kanal	Productivity
1	Waste land	20	Nil
2	Farm land	10	Agriculture
	Total	**30**	

Note: Interviewee (should) sign/thumb mark on the sheet

DATA COLLECTION SHEET FOR SOCIOECONOMIC SURVEY

Date Surveyed 25/02/2014
Name of HH head Muhammad Raiz S/O Gul-Zaman
Location Patrind

Sr. No.	Name	Age	Gender	Relationship to the HH head	Spoken dialect/ Language	Ethnic affiliation	Education Attained	Occupation	Income Sources	Annual Income	Vulnerability (Y or N) e.g. physical	Other Parameters
1	Muhammad Riaz S/O Gul-Zaman	61	Male	Self	Urdu	Qureshi	Matric	R Inspector	Pension	300,000	Nil	Nil
2	Jameela Bibi	52	Female	Wife	Urdu	Qureshi	B.A	Teacher	Salary	500,000	Nil	Nil
3	Muhammad Haseeb	16	Male	Son	Urdu	Qureshi	F.Sc	Student	Nil	Nil	Nil	Nil

Sources of fuel	Wood
Sources of water – potable and other	Spring

Affected Structures of the household

Sr. No.	Type of structure	Area Kanal	Construction Type
1	Nil	0	
	Total	**0**	

Affected land parcels of the household

Sr. No.	Area Kanal	Classification	Beneficial Owners
1	0.45	waste land	HH Head
Total	**0.45**		

Other household land holdings

Sr. No.	Type of land	Area Kanal	Productivity
1	Waste land	40	Nil
2	Form land	30	Agriculture
	Total	**70**	

M. Riaz

Note: Interviewee (should) sign/thumb mark on the sheet

DATA COLLECTION SHEET FOR SOCIOECONOMIC SURVEY

Date Surveyed: 03-09-16
Name of HH head: Nisar Rafiqe
House Hold ID: PT47
Location: Patrind Headpond-AJK

Sr. No.	Name	Age	Gender	Relationship to the HH head	Education Attained	Occupation	Income Sources	Annual Income	Vulnerability (Y or N) e.g. physical	Other Parameters
PT47-1	Akhter Bibi widow	65	Female	Mother	Nil	Nil	Nil	Nil	Nil	Nil
PT47-2	Nisar Rafiqe	42	Male	Self	F.A	Shopkeeper	Business	300,000	Nil	Nil
PT47-3	Nazakat Rafiqe	38	Male	Brother	8th	Govt. Employee	Job	250,000	Nil	Nil
PT47-4	Zarya Bibi W/O Naser Rafiqe	35	Female	Wife	Matric	House wife	Nil	Nil	Nil	Nil
PT47-5	Shahnaz Bibi W/O Nazakat	30	Female	Sister	Matric	House wife	Nil	Nil	Nil	Nil
PT47-6	Zahida Bibi W/O M. Arif	45	Female	Sister	Primary	House wife	Nil	Nil	Nil	Nil
PT47-7	Seiqa Bibi W/O M. Saeed	32	Female	Sister	Matric	House wife	Nil	Nil	Nil	Nil

Sources of fuel	Wood
Sources of water – potable and other	Spring

Affected Structures of the household

Sr. No.	Type of structure	Area Kanal	Construction Type
	Nil	0	
0	Nil	0	Nil
	Total	0	

Affected land parcels of the household

Sr. No.	Area Kanal	Classification	Beneficial owners
1	5.17	Farm/Waste land	HH Head
Total	5.17		

Other household land holdings

Sr. No.	Type of land	Area Kanal	Productivity
1	Farm Land	6	Agriculture
2	Waste land	20	Nil
	Total	26	

Note: Interviewee (should) sign/thumb mark on the sheet

DATA COLLECTION SHEET FOR SOCIOECONOMIC SURVEY

Date Surveyed 03-09-16
Name of HH head Khalil -u-Rehman
House Hold ID PT48
Location Patrind Headpond-AJK

Sr. No.	Name	Age	Gender	Relationship to the HH head	Education Attained	Occupation	Income Sources	Annual Income	Vulnerability (Y or N) e.g. physical	Other Parameters
PT48-1	Khalil-u-Rehman	55	Male	Self	Nil	Carpenter	Daily Wages	150,000	Nil	Nil
PT48-2	Zaheer Ahmed	28	Male	Son	F.A	Computer Operator	Govt. Job	300,000	Nil	Nil
PT48-3	Kashif	16	Male	Son	Matric	Student	Nil	Nil	Nil	Nil
PT48-4	Shahida Bibi	20	Female	Daughter	8th	Student	Nil	Nil	Nil	Nil
PT48-5	Iqra Bibi	18	Female	Daughter	F.A	Student	Nil	Nil	Nil	Nil
PT48-6	Khaira Bibi	14	Female	Daughter	Matric	Student	Nil	Nil	Nil	Nil
PT48-7	Naseema Bibi	50	Female	Wife	Nil	House wife	Nil	Nil	Nil	Nil

Sources of fuel	Wood
Sources of water – potable and other	Spring

Affected Structures of the household

Sr. No.	Type of structure	Area Kanal	Construction Type
1	Nil	0	
0	Nil	0	Nil
	Total	0	

Affected land parcels of the household

Sr. No.	Area Kanal	Classification	Beneficial Owners
1	1.15	Farm/Waste land	HH Head
Total	1.15		

Other household land holdings

Sr. No.	Type of land	Area Kanal	Productivity
1	Farm Land	5	Agriculture
2	Waste Land	15	Nil
	Total	20	

خلیل الرحمن

Note: Interviewee (should) sign/thumb mark on the sheet

DATA COLLECTION SHEET FOR SOCIOECONOMIC SURVEY

Date Surveyed 03-09-16
Name of HH head Banaras S/o Shahzaman
House Hold ID PT49
Location Patrind Headpond-AJK

Sr. No.	Name	Age	Gender	Relationship to the HH head	Education Attained	Occupation	Income Sources	Annual Income	Vulnerability (Y or N) e.g. physical	Other Parameters
PT49-1	Banaras S/O Shahzaman	50	Male	Self	Matric	chemist	Business	1,000,000	Nil	Nil
PT49-2	Ayesha Bibi	9	Female	Daughter	Primary	Student	Nil	Nil	Nil	Nil
PT49-3	Aseya Bibi	40	Female	Wife	Matric	House wife	Nil	Nil	Nil	Nil

Sources of fuel	Wood
Sources of water – potable and other	Spring

Affected Structures of the household

Sr. No.	Type of structure	Area Kanal	Construction Type
	Nil	Nil	
0	Nil	0	Nil
	Total	0	

Affected land parcels of the household

Sr. No.	Area Kanal	Classification	Beneficial Owners
1	0.77	Farm/waste Land	HH Head
Total	0.77		

Other household land holdings

Sr. No.	Type of land	Area Kanal	Productivity
1	Farm land	2	Agriculture
2	Waste land	6	Nil
	Total	8	

Note: Interviewee (should) sign/thumb mark on the sheet

DATA COLLECTION SHEET FOR SOCIOECONOMIC SURVEY

Date Surveyed 03-09-16
Name of HH head M. Haroon
House Hold ID PTS0
Location Patrind Headpond-AJK

Sr. No.	Name	Age	Gender	Relationship to the HH head	Education Attained	Occupation	Income Sources	Annual Income	Vulnerability (Y or N) e.g. physical	Other Parameters
PTS0-1	M. Haroon	43	Male	Self	Primary	Shopkeeper	Business	200,000	Nil	Nil
PTS0-2	M. Umer	23	Male	Son	8th	Shopkeeper	Business	150,000	Nil	Nil
PTS0-3	M. Bilal	19	Male	Son	F.A	Student	Nil	Nil	Nil	Nil
PTS0-4	M. Usman	15	Male	Son	Matric	Student	Nil	Nil		
PTS0-5	Maria Bibi	26	Female	Daughter	B.A	Student	Nil	Nil		
PTS0-6	Nusrat Bibi	40	Female	wife	Primary	House Wife	Nil	Nil	Nil	Nil

Sources of fuel	Wood
Sources of water – potable and other	Spring

Affected Structures of the household

Sr. No.	Type of structure	Area Kanal	Construction Type
	Nil	0	
0	Nil	0	Nil
	Total	0	

Affected land parcels of the household

Sr. No.	Area Kanal	Classification	Beneficial Owners
1	0.77	Farm/Waste Land	HH Head
Total	0.77		

Other household land holdings

Sr. No.	Type of land	Area Kanal	Productivity
1	Farm land	4	Agriculture
2	waste land	8	Nil
	Total	12	

Note: Interviewee (should) sign/thumb mark on the sheet

DATA COLLECTION SHEET FOR SOCIOECONOMIC SURVEY

Date Surveyed 03-09-16
Name of HH head M. Arshad
House Hold ID PTS1
Location Patrind Headpond-AJK

Sr. No.	Name	Age	Gender	Relationship to the HH head	Education Attained	Occupation	Income Sources	Annual Income	Vulnerability (Y or N) e.g. physical	Other Parameters
PTS1-1	M. Arshad	35	Male	Self	Matric	Shopkeeper	Business	300,000	Nil	Nil
PTS1-2	Amina Bibi	30	Female	Wife	8th	House Wife	Nil	Nil	Nil	Nil

Sources of fuel	Wood
Sources of water – potable and other	Spring

Affected Structures of the household

Sr. No.	Type of structure	Area Kanal	Construction Type
	Nil	Nil	
0	Nil	0	Nil
	Total	0	

Affected land parcels of the household

Sr. No.	Area Kanal	Classification	Beneficial Owners
1	0.77	Farm/Waste Land	HH Head
Total	0.77		

Other household land holdings

Sr. No.	Type of land	Area Kanal	Productivity
1	Farm land	2	Agriculture
2	Waste land	7	Nil
	Total	9	

Note: Interviewee (should) sign/thumb mark on the sheet

DATA COLLECTION SHEET FOR SOCIOECONOMIC SURVEY

Date Surveyed 03-09-16
Name of HH head M. Ibraheem
House Hold ID PT52
Location Patrind Headpond-AJK

Sr. No.	Name	Age	Gender	Relationship to the HH head	Education Attained	Occupation	Income Sources	Annual Income	Vulnerability (Y or N) e.g. physical	Other Parameters
PT52-1	M. Ibraheem	30	Male	Self	B.A	Chemist	Business	1,200,000	Nil	Nil
PT52-2	Farhat Bibi	28	Female	Wife	F.A	House wife	Nil	Nil	Nil	Nil
PT52-3	Razia Widow Shahzaman	65	Female	Mother	Nil	Nil	Nil	Nil	Nil	Nil

Sources of fuel	Wood
Sources of water – potable and other	Spring

Affected Structures of the household

Sr. No.	Type of structure	Area Kanal	Construction Year
	Nil	Nil	
0	Nil	0	Nil
	Total	0	

Affected land parcels of the household

Sr. No.	Area Kanal	Classification	Beneficial Carpet
1	0.77	Farm/Waste land	Sons
Total	0.77		

Other household land holdings

Sr. No.	Type of land	Area Kanal	Productivity
1	Farm land	2	Agriculture
2	Waste land	5	Nil
	Total	7	

Note: Interviewee (should) sign/thumb mark on the sheet

ANNEX-3
SURVEY QUESTIONNAIRE

ANNEXURE - 3

پرینڈ بجلی گھر پراجیکٹ

سوالنامہ برائے معاشرتی ومعاشی کوائف

1. علاقہ بند/بجلی گھر _____
2. گاؤں کا نام _____ پرینڈ
3. جواب دینے والا _____ اورنگزیب، ولد شبیر
4. پیشہ _____ ڈرائیور
5. ذرائع آبپاشی _____ بارانی
6. پینے کے پانی کے ذرائع _____ چشمہ
7. ذاتی جائیداد _____ تقریباً 5 کنال
8. مذہبی سہولیات _____
9. کب سے مقیم ہیں _____ آباؤ اجداد سے
10. گھر سے کتنے فاصلے پر ہے _____ تقریباً 1 فرلانگ
11. گھر کی تفصیلات _____ پکا مکان۔
12. کیا آپ کو پرینڈ پراجیکٹ کے بارے میں علم ہے

☑ ہاں ☐ نہیں

13. اس پراجیکٹ کے کیا فوائد ہیں
- ✓ نوکریاں
- ✓ بجلی پیدا کرنا
- ✓ علاقے میں ترقی ہونا
- ✓ ٹیکٹریاں وغیرہ لگنا
- ✓ یا کوئی اور ۔

ANNEXURE - 3

14. اس پراجیکٹ کے کیا نقصانات ہیں
- کوئی نہیں
- زمین زیرِ آب آ جائے گی
- زراعت تباہ ہو جائیں گے

15. اگر آپکو اپنی جگہ چھوڑنی پڑے تو آپ کیا کریں گے کسی نئی جگہ پر آباد ہو جائیں گے۔

16. اگر آپکی زمین خرید لی جائے تو آپ کیا کوئی نیا پیشہ اختیار کریں گے جی ہاں کوئی نیا کاروبار شروع کر دیں گے۔

17. آپ زمین کے عوض کیا چاہتے ہیں حصہ دے

18. اگر پراجیکٹ میں نوکری مل جائے تو کیا آپ کام کریں گے کام مل جائے تو کریں گے۔

19. کوئی تجویز دینا چاہیں موسمی متاثرین کو ملازمتیں دی جائیں اور چھوٹے چھوٹے مسائل حل کیے جائیں۔

20.

	آپکی زمین کتنی ہے	پراجیکٹ شروع ہونے سے پہلے	پراجیکٹ ختم ہونے کے بعد میں
-	نہری 15 کنال		
-	ٹیوب ویل		
-	دریائی		
-	بارانی 45 کنال		

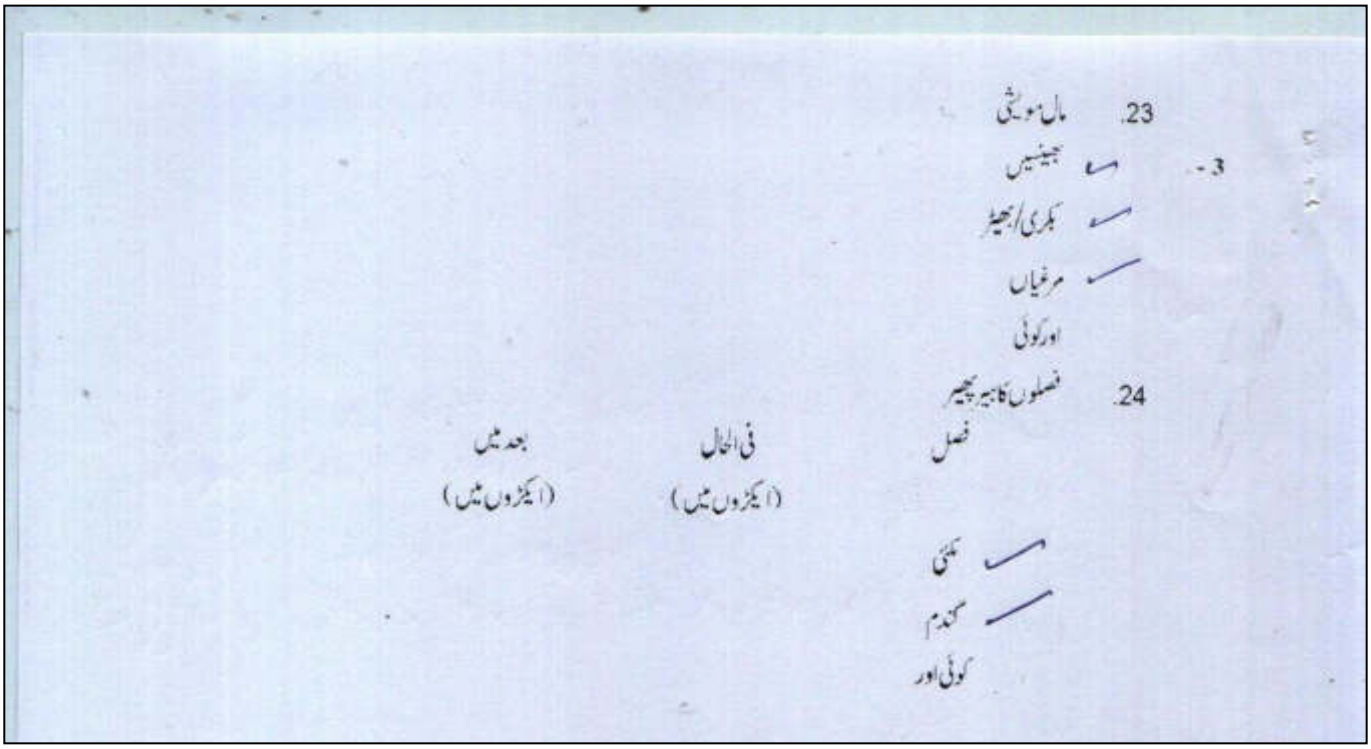
21. آپ کا کیا خیال ہے آپ کو فائدہ ہے یا نقصان؟

فائدہ ہے تو کتنے کا جی فائدہ بھی ہے نقصان ہے تو کتنے کا _____

وجہ بتائیں چونکہ نوعیت کا یہ پروجیکٹ ہے نقصان یہ ہے کہ زمین سکون ختم ہو جاتا ہے

22. پراجیکٹ مکمل ہونے کے بعد زمین کی قیمت بڑھ جائے گی۔

مختلف قسم کی زمین کی قیمت	روپوں میں
رہائشی	1500000/=
تجارتی	2000000/=
نہری	
دریائی	
بارانی	1000000/=



23. مال مویشی

3- ـــــ بھینسیں

ـــــ بکری/بھیڑ

ـــــ مرغیاں

اور کوئی

24. فصلوں کا بیر پھیر

فصل	فی الحال (ایکڑوں میں)	بعد میں (ایکڑوں میں)
ـــــ مکئی		
ـــــ گندم		
کوئی اور		

PATRIND HYDROPOWER PROJECT
QUESTIONNAIRE FOR CONSULTATION/SOCIO-ECONOMIC SURVEY

1. Project Name
2. Village Name
3. Owner Name
4. Family members
5. Occupation
6. Property/land holding
7. Income
8. Groundwater/Surface Water Quality
9. Residing since
10. Agriculture
11. Livestock
12. Economy
    - Employment Classes
    - Occupations
    - Income
13. Status/type of land
    - Private Land
    - State Owned Land
14. Agricultural Area
    - Irrigated
    - Rain fed
    - Wasteland
    - No. of Trees
15. Information about the project
16. Merits and demerits
    - Power generation
    - Employment
    - Development of area
17. Preference
    - Land for land
    - Cash compensation
18. Use of compensation cost

ANNEX-4
CONSULTATION PICTURES

Consultation meeting/survey with land owner

ANNEX-5
LAND DETAILS

HHID	S.#	Name of Affected Persons	Land Acquisition (Kanal)									
			Farm Land		Riverbed		Wasteland		House Land		Total	
			Kanal	Marla	Kanal	Marla	Kanal	Marla	Kanal	Marla	Kanal	Marla
Reservoir Impounding (AJK)- Patrind												
PT44	1	Aurangzaib S/O Muhammad Suleman	0	0	0	0	1	2	0	0	1	2
PT45	2	Muhammad Riaz S/O Gul Zaman	0	0	0	0	0	9	0	0	0	9
PT46	3	Muhammad Shabir S/O Qalander Khan	0	0	0	0	1	17	0	0	1	17
PT47	4	Nisar Rafiqe S/O Muhammad Rafique	0	0	0	0	5	3.4	0	0	5	3.4
PT48	5	Khalil -u-Rehman	0	0	0	0	1	3	0	0	1	3
PT49	6	Banaras S/o Shahzaman	0	0	0	0	0	15.44	0	0	0	15.44
PT50	7	M. Haroon	0	0	0	0	0	15.44	0	0	0	15.44
PT51	8	M. Arshad	0	0	0	0	0	15.44	0	0	0	15.44
PT52	9	M. Ibraheem	0	0	0	0	0	15.44	0	0	0	15.44
	10	Common Land	0	0	0	0	0	17.89	0	0	0	17.89
	11	Govt. Land	0	0	0	6	0	0	0	0	0	6
Total			**0**	**0**	**0**	**6**	**13**	**14**	**0**	**0**	**14**	**0**

Annex-14

Complaint Log

Sr. No	Date	Issue	Plaintiff	Response		Status
				OE	EPCC	
Labour Issue Monitoring Log						
1.	1-Apr-16	Two labors were terminated by Chinese company for dispute among Chinese supervisor and workers	Maqsood Butt and Nazeer Ahmad (Terminated Laborers) (GDYT)	OE forward the matter to EPCC and requested to solve the problem	EPCC has investigated the matter and offered labors to recommence the work. However, the labors by their own will have not resume the work.	**Closed**
2.	18-Apr-16	CNEC driver complaint on weir site OE's office regarding misbehavior of sungbo PM and use of abusive language during work hours	Sajad (CNEC Driver)	Complaint forwarded to EPCC with request to find out cause. Moreover, EPCC was requested to counsel both parties to avoid misconduct and improve behavior and working relation at site.	Corrective action has been taken by EPCC as per OE's recommendations	**Closed**
3.	20-May-16	Electric fans/exhausts are not properly working and needs repair. Additional fans are also required in some areas of both camps.	KD & CNEEC labour jointly brought up the matter during a visit to the camp	OE forwarded the complaints received and its observations to EPCC for corrective action	On 24th June 2016 EPCC replied we are still working on it. On 24th July 2016 EPCC replied All required items are installed. Please see attachment 1	**Closed**
4.		In some areas the lightning system is not working properly and additional lights are also required in both camps.		On 20th June 2016 OE send an email to EPCC requesting an Update on these issues.	On 24th June 2016 EPCC replied we are still working on it. On 24th July 2016 EPCC replied All required items are installed. Please see attachment 1	**Closed**
5.		In wash rooms, water tabs are out of order and need to be replaced/repair.		On 20th July 2016 OE send an email to EPCC requesting an Update on these issues.	On 24th June 2016 EPCC replied we are still working on it. On 24th July 2016 EPCC replied All required items are installed. Please see attachment 1	**Closed**

Sr. No	Date	Issue	Plaintiff	Response		Status
				OE	EPCC	
6.		There is no fence around Chinese labor camp and we suggest of installation of fence in order to ensure the security of workers. (According to the submitted drawing EPCC must install fence around the Chinese camp).			On 24th June 2016 EPCC replied we are still working on it. On 24th July 2016 EPCC replied Installed Please see attachment 2.Local labor camp of CNEEC/GDYT is adjacent to main camp police base. 3 CCTVs are installed nearby. We don't think security fence is essential	**Closed**
7.	14-Jun-16	Complaints are noted from Kyung Dong labor regarding salary and termination issue. it was informed that the salary of some staff was not given by admin department based on the reason of fake attendance. Moreover, the aforementioned staff was also terminated from Job. Labors are giving the justifications for not faking the attendance but admin dept. is threatening them to leave the site otherwise they would be handed over to police.	Waheed, Sayed Arif Hussain Shah, Noman, Imran Fareed, Syed Ihsan Naqvi, Syed Imraz Naqvi, Syed Imtiyaz Hussain, Majid Kazmi.(KD Labors)	OE forwarded the complaint to EPCC and requested EPCC to sort out the matter and convey its findings to OE.	KD labors fake attendance turned out to be true.KD were trying to accuse them to Police, but labors admitted their faults and they decided to quit the job.(Kyung Dong is keeping the actual attendance record). All of them got salary as per their actual working days	**Closed**
8.	23-Jun-16	A labour approached PES office regarding misbehavior of Mr. Choe (Welder foreman) and termination from job.	Hassan bin Abdul Aziz (KD Labor)	Complaint forwarded to EPCC with request to find out cause. Moreover, EPCC was requested to reinstate the labor and counsel both parties	Corrective action has been taken by EPCC as per OE's recommendations	**Closed**

Sr. No	Date	Issue	Plaintiff	Response		Status
				OE	EPCC	
				to avoid misconduct and improve behavior and working relation at site.		
9.	27-Jun-16	KD laborers started the strike on 26-Jun-2016 because of salary amount in Ramdhan. As conveyed by labors, it was agreed by KD management to pay 14 hrs. salary during Ramadhan but the actual payment is made of 12 hrs. The work has been stopped by KD's labors and strike is still in progress. Negotiations are in progress with local administration for solving the dispute	As noted during routine site visit	OE is continuously monitoring the situation and asked EPCC's management to sort out the issue as soon as possible	The issue has been discussed with local administration (Deputy commissioner) in the presence of labor and KD representative. A mutual agreement is been made between labor and KD in the presence of local administration and the issue is resolved. Agreement b/w KD management and Labor is; 1 :Lump sum Rs.875 will be considered for the previous days of Ramadan on the written recommendations of Private Power Cell (PPC). 2: Lump sum Rs.875 will be paid for the remaining days of Ramadan with the condition of one hour additional work. 3: Company will pay 14 hours 28/06/2016 as per decided Labors rates for 9 hours. 4: No punitive action will be taken against the labors on the basis of strike.	**Open**

Sr. No	Date	Issue	Plaintiff	Response		Status
				OE	**EPCC**	
				On 20/07/2016 OE asked EPCC to furnish details regarding the implementation of the commitments made during the strike	On 27/7/2016 EPCC replied that they received a letter regarding this issue from SHPL as well. On the issue of payment of full salary for the month of Ramadan it was agreed that this will be further discussed and there was no such commitment that EPCC Sub-con (Kyung Dong) will pay the labours full salary. The same response has been sent to SHPL via letter.	

Community Issue Monitoring Log						
Sr. No	**Date**	**Issue**	**Plaintiff**	**Response**		**Status**
				OE	**EPCC**	
1.	3-Apr-2016	Local community of thuri complaint about open sewerage pits requesting for proper cover and barricade in order to avoid any accident	Local community of Thuri village	OE conveyed the concerns to EPCC and request to solve the issue accordingly	EPCC has solved the issue as per request of community	**Closed**
2.	2-May-2016	A retaining wall in between Korean Mess and my house is needed as there were symbols of cracks, because of excavation during the construction of camp building by the contractor, and this may cause heavy loss to my house if happen heavy rain. For this I had already informed the contractor but they ignored and the facts happened accordingly and heavy cracks appeared in these heavy rains of March, not only a slid in the land but heavy cracks in my house.	Ali-Ur-Rehman Weir Site Korean Camp Owner	OE asked EPCC to check the stability of the slope through its construction team and if deemed necessary than retaining wall shall be considered.	We could not find any clues or signs of collapse and sliding in this slope area. We answered the same way before. However, he is still showing the same concerns without any supporting data. Cracks were caused by differential settlement. But it does not mean necessity of a retaining wall. Moreover, it is his own issue.	**Closed**
				OE asked EPCC to furnish the survey report from its technical team.	The material claimed to be sliding behind Korean mess and other areas is actually the cut material that was left there during construction of camp and was not disposed off. It carries no hazards of sliding of collapse. The only danger to the slope in that area is the water coming down from the	

					owners house, during rain etc. we demand the owner to make proper drainage for the water to eliminate this hazard. Cracks in the owner's house are due to poor construction of the house rather then due to construction of the camp buildings. The soil beneath the owners house was insufficiently compacted resulting in cracks appearing now due to settlement of soil. this is a normal issue in most constructed houses not adhering to standards of good construction practices.	
3.	2-May-2016	Supporting wall behind the mosque is very essential to be complete/Extended to protect the building of residential block	Ali-Ur-Rehman Weir Site Korean Camp Owner	Received Application was forwarded to EPCC for action	We do not think it is risky area. The retaining wall that has already been installed is what Daewoo has done in 2015	**Closed**
				OE does not agree with EPCC's stance and asked EPCC to extend the wall.	We will complete extension, but we are not obliged to make the wall higher. And we don't see any safety hazards here. He is asking this for future benefits because he is the one who will take over Daewoo camp building.	
4.	2-May-2016	No Proper system to control the overflow of camp water tank.	Ali-Ur-Rehman Weir Site Korean Camp Owner	Received Application was forwarded to EPCC for action	It is not true we have a switch system that can stop and resume water flow	**Closed**
5.	2-May-2016	The sewerage line hanged with the wall laid totally open along with the road side, which must be covered by concreting around the pipe.	Ali-Ur-Rehman Weir Site Korean Camp Owner	Received Application was forwarded to EPCC for action	We have been working on this work.	**Closed**

6.	2-May-2016	No proper maintenance of camp building is being carried out, which will damage the life of building.	Ali-Ur-Rehman Weir Site Korean Camp Owner	Received Application was forwarded to EPCC for action	Maintenance of camp building is our own concern, not his business. However cleaning affects our neighbor environment, so we will focus only on this issue.	**Closed**
7.	2-May-2016	Unnecessary plants are not being removed which will cause dangerous, in security point of view for the camp.	Ali-Ur-Rehman Weir Site Korean Camp Owner	Received Application was forwarded to EPCC for action	We will remove unnecessary plants step by step. We have cut all the unnecessary plants. Please see photos attached in the updated survey report.	**Closed**

Annex-15

Fatality Incident Report

DAEWOO E&C
Daewoo Camp, Lower Chatter Opposite, ThoriPark,Muzaffarabad, AJK, Pakistan Tel:(92) 058-2243-9496 Fax :(92) 058-2243-2657

Contract Affairs
Office of Chief Resident Engineer,
(OE) Pakistan Engineering Services,
Ward No.2, Old ISI Building, Thuri Park,
Lower Chatter, Muzaffarabad-AJK-Pakistan
Tel. No. +92 5822 432486

Date: 22nd Jun, 2016
Our Ref:Patrind-16-590

Attention: **Mr. Ali Hassan**
The Acting Chief Resident Engineer

Subject: **Submission of Initial Incident Report**
150MW Pakistan Patrind Hydro Power Project

Dear Sir,

With reference to the above mentioned subject, please find the enclosed incident report that occurred on 2[1st] June 2016 at Power intake (Weir Site). This is for information and record at your end please.

If you have any further concerns / recommendations in this regard it would be highly appreciated.

Faithfully Yours,

Chan Young Park
Project Manager
Patrind Hydropower Project, Pakistan

CC: Mr. Waqar Ahmad Khan / Chief Executive officer / Star Hydro Power Limited

Encl: As above

INITIAL AND FINAL ACCIDENT REPORT

JUNE 21, 2016

PAKISTAN PATRIND HYDRO POWER PROJECT

DAEWOO E&C
Patrind Hydro Power Project

INITIAL AND FINAL ACCIDENT REPORT

Name of Immediate Site Construction Manager : Mr. Sung Hoon Kim			
1. Date: 21-06-2016	**2. Time:** 23:15 hrs.	**3. Location :** Power intake(Weir Site)	
4. Type of Incident: Medical Treatment case		**5. Nationality:** Pakistani.	
6. Name of Involved Person: Umer Riaz		**7. Job Title:** Welder	**8. ID:**82203-2108580-7

9. Incident Detailed Description:

Based on the gathered information at the scene of the incident on Tuesday 21 June, 2016 about 11:15 p.m., Mr. Umer Riaz Welder SUNGBO E&C was working at Power intake, as per HSE Rep eye witness the IP was engaged on his cell phone and he failed to watch his footsteps and fell down on ground from height and got injury on his left arm. Immediately rescued and shifted to HSE site clinic. Duty male nurse treated the injured person, and referred to the ABBOTABAD HOSPITAL for further examination, where the hospital doctor advised him necessary treatment and rest

10. Witness of the Incident:

1. Shafique 2. Raja Yasir 3. Sajad

11. Immediate Action Taken:

- Immediately Mr. Umer Riaz was brought to HSE Site Clinic. Duty Doctor treated him and sent to the ABBOTABAD HOSPITAL for further medical checkup.
- An immediate tool box talk was given to all staff and worker at and lesson learned from accident was shared by HSE team.

12. Corrective Action to be taken :

- Work at height procedure must be followed by the all workers
- Disseminate the information about the incident to all staff and workers and the lessons learned from the incident through Tool Box Talks/Meetings
- All the workers on site must wear PPE`s all the time
- Training sessions had arranged for all site workers

REPORTED BY:

Mr. Sundas Tareen

NOTED BY:

Mr. Choi Min Sun

DAEWOO E&C

INDUCTION TRAINING FORM

Employee: نام ملازم	Usama Rauf	Company Name: کمپنی کا نام	Scaffold
Induction date: شامل ہونے کی تاریخ	14/12/2016	Time: وقت	11:40
CNIC NO: قومی شناختی کارڈ نمبر	37405-7108580-7	Blood Pressure:	OK
Next of Kin:		Contact No:	

1.	Project Overview منصوبے کا جائزہ		✓	
2.	Position and Authorities: پوزیشن اور اختیارات		welder	
3.	Working Conditions کام کرنے کے حالات		✓	
4.	Environmental Awareness ماحولیاتی شعور		✓	
5.	Environmental Management Action Plan: ماحولیاتی مینجمنٹ ایکشن پلان		✓	
	• Emergency Preparedness and response ایمرجنسی تیاری اور جواب		✓	
	• Incident reporting حادثے کی اطلاع		✓	
	• Community consultation and complaint handling procedures کمیونٹی کی مشاورت اور شکایات کا طریقہ کار		✓	
	• Site environmental procedures سائٹ کے ماحولیاتی طریقہ کار		✓	
6.	• Road Safety سڑک پر چلنے کے حفاظتی اقدام		✓	
	Sign. دستخط		Employee ملازم	Inductor انڈکٹر

Safety Helmet:	حفاظتی ہیلمٹ	✓		Safety Jacket: حفاظتی جیکٹ	✓	
Safety Shoes:	حفاظتی جوتے	✓		Ankle Band: ٹخنوں کا بیلٹ	✓	

1) In case of loss of PPE's no new PPE's will be issued and the staff/workers will be charged for the loss.
2) In case of damage sub contractors shall be responsible for the replacement of PPE's. Daewoo E&C is responsible to provide PPE's to the new employer only for the first time.
3) Employee will have to return PPE's before leaving the company.

پی پی ای گم ہو جانے کی صورت میں دوبارہ پی پی ای کا اجرا نہیں ہوگا اور ورکرز سے جرمانہ وصول کیا جائے گا۔

پی پی ای ناکارہ ہو جانے کی صورت میں سب کنٹریکٹران کی تبدیلی کے ذمہ دار ہوں گے۔ ڈائیو سے نئے ملازمین کو صرف ایک بار پی پی ای دینے کی ذمہ دار ہوگی۔

ملازمین کو کمپنی چھوڑنے سے پہلے پی پی ایز جمع کروانی ہوں گی۔

Prices of the PPE, s provided to the employees. مہیا کردہ پی پی ایز کی قیمتیں

Shoes	بوٹ	2547	Helmet	ہیلمٹ	1000
Helmet (Yellow)	ہیلمٹ (پیلا)	252	Goggles	گوگلز	250
Mask (Dust Protection)	ماسک (ڈسٹ پروٹیکشن)	15	Mask (Respiratory)	ماسک (ریسپائریٹری)	3330
Welding Protection Screen.	ویلڈنگ پروٹیکشن سکرین	1200	Ankle Band	ٹخنوں کا بیلٹ	200
Summer Jacket	گرمیوں کا جیکٹ	1000	Winter Jacket	سردیوں کا جیکٹ	3000
High Vision (Green Jacket)	ہائی ویژن (گرین جیکٹ)	195	High Vision	ہائی ویژن	1200


حکومت پاکستان
82203-2108580-7
16/06/1997

WITNESS STATEMENT

NAME	M. Shafique	TRADE	HSE helper	ID NO.	
SUPERVISOR	Sundar	SECTION	HSE	DATE OF BIRTH	
DATE/TIME	21-06-2016.				11:15 am

BRIEF DESCRIPTION Accoding to 5W1H principle(when,where,who,what,why,how)

میں اپنا بیان اس ٹیپ پر ریکارڈ کروا رہا ہوں
آج - عمر دیال فون سنتا ہوا جا رہا تھا - میں نے
اسے فون بند کرنے اور باڑی بارنس لگانے کو کہا
تھا وہ آگے چلا گیا - فون سنتا ہوا - تھوڑی
دیر میں وہ سلیپ ہو کر گر گیا
میں اور فورمین وہاں موجود تھے -

محمد شفیق

WITNESS STATEMENT

NAME	Sajad	TRADE	Welder	ID NO.	843
SUPERVISOR		SECTION	Shugbo	DATE OF BIRTH	
DATE/TIME	21-6-2016 / 11:15 Pm				

BRIEF DESCRIPTION : Accoding to 5W1H principle(when,where,who,what,why,how)

میں اور عمر پاور انٹیک پر کام کر رہے تھے وہ سلنڈر لانے گیا اور اچانک نیچے گر گیا۔ وہاں ورکرز کام کر رہے تھے انہوں نے اسے نکالا اور گاڑی میں ڈال کر ڈاکٹر کے پاس لے گئے۔

سجاد

13302-7352486-7

WITNESS STATEMENT

NAME	RAJA YASIR	TRADE	WELDER	ID NO.	823
SUPERVISOR		SECTION	SUNGBO	DATE OF BIRTH	
DATE/TIME	21-06-2016 / 11:15PM				

BRIEF DESCRIPTION : Accoding to 5W1H principle(when,where,who,what,why,how)

میں پاور انٹیک پر کام کر رہا تھا کے عمر سلنڈر لانے کیلئے گیا میں اُسے دیکھ رہا تھا کے اچانک وہ نیچے گر گیا۔ وہاں نیچے ورکرز کام کر رہے تھے انہوں نے اسے نکالا اور گاڑی میں ڈاکٹر کے پاس لے آئے۔

راجہ یاسر
82203-6820043-9

Hard barication with green mesh.

Proper life line for anchoring land yard.

Safe access.

More lights installed.

Lifeline installation.