

# Semi-Annual Environmental Monitoring Report

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Project number: 34304-044

Period: January – June 2017

## NEP: Kathmandu Valley Water Supply Improvement Project – Additional Financing

Prepared by the Project Implementation Directorate (PID), Kathmandu Upatyaka Khanepani Limited (KUKL), Government of Nepal for the Asian Development Bank. This document is made publicly available in accordance with ADB's Public Communication Policy (2011) and does not necessarily reflect the views of ADB.

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# **Environmental Monitoring Report**

## **Nepal: Kathmandu Valley Water Supply Improvement Project**

**ADB Loan no 3255**

### **Bi-Annual Report (January to June 2017)**

Prepared by the Government of Nepal for the Asian Development Bank.

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## 1. Introduction

### 1.1. Background

The Kathmandu Valley Water Supply Improvement Project (KVWSIP) known as Melamchi Subproject-II has implemented its programs and activities as different components to support ongoing efforts of the Government of Nepal towards improving water supply services and waste water management system in Kathmandu Valley. The project is under implementation since September 2012, aims to create an efficient water distribution system by improving the water supply services of the Kathmandu Valley. Project Implementation Directorate (PID) under Kathmandu Upatyaka Khanepani Ltd. (KUKL) has been executing different projects to improve regular water supply and sewerage management in the project area. The project is mainly working on establishing several layers of distribution network such as Bulk Distribution System (BDS), Distribution Network Improvement (DNI), District Metering Area (DMA) and Service Reservoir Tank (SRT) and completing previously ongoing projects. The resultant synergy is expected to increase efficiency, greater improvement in service delivery, higher impact on health outcomes and quality of life for inhabitants of the Kathmandu valley.

Kathmandu consists of Kathmandu Metropolitan City at its core and its sister cities Patan, Kirtipur, Thimi, and Bhaktapur. The metropolitan city area has 50.67 square kilometers and has a population density of 19,250 persons per km<sup>2</sup>. The city is located at an elevation of approximately 1,400 meters (4,600 ft) in the bowl-shaped Kathmandu Valley. The city has insufficient urban infrastructure facilities: water supply, sewerage and sanitation, drainage, solid waste management, roads, electricity and street lighting. The existing water supply system is managed by Kathmandu Upatyaka Khanepani Limited (KUKL). The water supply system in Kathmandu Valley is dependent partly on ground water and partly on surface water sources. At present, water is drawn from 31 surface sources and 75 deep tube wells located in different parts of the valley. The total water production from these sources put together is about 100 MLD (dry season) to 150 MLD (monsoon). These sources supply water to 21 Water Treatment Plants (WTPs) with a total treatment capacity of 85 MLD.

The additional financing of the Kathmandu Valley Water Supply Improvement Project (the project) Loan 3255AF will support the ongoing efforts of the Government of Nepal (the government) towards improving the water supply services by developing reliable, equitable and sustainable water supply system in Kathmandu Valley. The project will invest in water treatment plant capacity, bulk water transmission, distribution network improvement and reservoirs in addition to reduction of non-revenue water and improvement of efficiency and service delivery to citizens. The project will complement other ongoing ADB supported investments.

## 1.2. Loan received from ADB

Kathmandu Valley Water Supply Improvement Project - Additional Financing, the Project Implementation Directorate (PID), under the Ministry of Water Supply and Sanitation (MoWSS) through the government of Nepal has received the loan from Asian Development Bank (ADB) Loan No. 3255. PROJECT AGREEMENT dated 7 December 2015 between ASIAN DEVELOPMENT BANK ("ADB") and KATHMANDU VALLEY WATER SUPPLY MANAGEMENT BOARD ("KVWSMB"); MELAMCHI WATER SUPPLY DEVELOPMENT BOARD ("MWSDB"); and KATHMANDU UPATYAKA KHANEPANI LIMITED ("KUKL"). The Asian Development Bank (ADB) has approved loan of \$ 90 million for the KVWSIP-AF. Government of Nepal (GON) will contribute US\$ 45 million totaling the project cost US\$ 135 million.

The project Area under Kathmandu Valley Water Supply & Sanitation Project (Melamchi Water Supply Project- Subproject 2) under ADB Loan No. 3255 lies in BDS package 2 and BDS package 4.

PID has appointed a consulting firm DOHWA in association with ERM, BDA and TAEC (DSC-05) for design and supervision of the contracts of on-going works under the KVWSIP-AF (L-3255). DOHWA Engineering Co. Ltd in association with ERM, BDA and TAEC (KUKL/DSC-05) has mobilized its working team and commenced its services from December 01, 2016. DSC-05 started preparing inception report and design works under the scope. Ongoing works were taken over in phased manner. None critical works that were supervised by DSC-03

under Loan-2776 were took over from February 1, 2017 and all critical and remaining works/contracts under Loan-2776 were taken over from April 2017. Now all works/contracts under L-2776 and other loans are being supervised by DSC-05.

### 1.3. ADB Policy

As per ADB's Safeguard Policy Statement Guideline (2009) and Operations Manual section on Safeguard Policy (OM F1), Borrowers/clients are required to submit following monitoring reports for ADB review.

Project Category	Frequency of Reports
Environment Category A	<ul style="list-style-type: none"><li>• Semi annual monitoring reports during project construction</li><li>• Annual monitoring reports during project operation</li></ul>
Environment Category B	<ul style="list-style-type: none"><li>• Periodic monitoring reports as deemed appropriate</li></ul>
Involuntary resettlement category A and B	<ul style="list-style-type: none"><li>• Semi-annual monitoring reports</li></ul>
Indigenous people's category A and B	<ul style="list-style-type: none"><li>• Semi-annual monitoring reports</li></ul>
Highly complex and sensitive deemed by ADB	<ul style="list-style-type: none"><li>• Quarterly monitoring reports</li></ul>

Hence, this Bi-Annual Environmental Monitoring Report is prepared for ADB review and it covers the projects supervised by the Design and Supervision Consultants, DSC-05 for the period of January-June 2017. DSC

ADB's Environment Policy is to consider environmental issues in all aspects of the Bank's operations. ADB requires environmental assessment of all project loans, program loans, sector loans, sector development program loans, financial intermediation loans and private sector investment operations.

The nature of the assessment required for a project depends on the significance of its environmental impacts, which are related to the type and location of the project, the

sensitivity, scale, nature and magnitude of its potential impacts, and the availability of cost-effective mitigation measures. Projects screened for their expected environmental impacts are assigned to one of the following categories:

- **Category A:** Projects that could have significant environmental impacts. An Environmental Impact Assessment (EIA) is required.
- **Category B:** Projects that could have some adverse environmental impacts, but of less significance than those for Category A. An Initial Environmental Examination (IEE) is required to determine whether significant impacts warranting an EIA are likely. If an EIA is not needed, the IEE is regarded as the final environmental assessment report. A Category B project may be classified as B-sensitive if it involves environmentally sensitive activities. Such projects require IEEs, but have the same requirements for disclosure and Environmental Management Plans as Category A.
- **Category C:** Projects that is unlikely to have adverse environmental impacts. No EIA or IEE is required, although environmental implications are reviewed.
- **Category FI:** Projects that involve investments of ADB funds to, or through, financial intermediaries.

The Project comprises water supply and wastewater infrastructure improvements. Project classified by ADB as Category B and following normal procedures for project loans, an IEE was conducted.

An Initial Environmental Examination (IEE) was done to examine the proposed infrastructure components for the year 2012-2016 to ensure that it will not damage the environment and provide guidance for planning, construction and operation. In environmental assessment, potential environmental impacts are identified, their significance assessed and strategies devised to avoid those impacts or reduce them to the acceptable level. The strategies called mitigation measures are carried forward into Environmental Management Plan (EMP). This EMP assigns responsibilities, timescales and performance indicators/standards for each mitigation measure- to make sure that they are implemented and not ignored. The

Environmental Impacts along with its mitigation measures and EMP are explained in next Section.

Studies were conducted according to ADB's Safeguard Policy Statement 2009 (which came into effect on 20 January 2010) and GON's Environmental Protection Rules (1997) and Amendment of 20 August 2007.

## **2. Environmental Impacts, Mitigating Measures and Environment Management Plan (EMP)**

### **A. Resettlement Action Plan**

- ***Land and property acquisition and compensation***

There is no land acquisition under the proposed project. All land for service reservoirs were previously acquired under the ongoing project loan. Thus, the impacts are limited to the following:

1. Temporary disruption of business activities and income
2. Temporary shifting of vendors and hawkers during construction works within the right of way (RoW) for the Distribution Network Improvement (DNI).
3. Temporary impact on blockage of access to house or business location
4. Accidental injuries to public

Temporary disruption for DNI pipe laying works will be for 1 or 2 days and not more than 4 days depending on unforeseen circumstances. Trench sections for DNI connection works will be 300 meters (m) in length for secondary/tertiary line and 10-50 m for primary lines. Contractors are required to maintain access to shops to avoid and/or limit the disturbance to extent possible. Mitigation measures are incorporated into their contracts, as outlined in the Environmental Management Plan (EMP), and will be monitored by the construction supervision consultants. In the event roads are fully closed with access to shops disrupted for 5 days, as per the approved Resettlement plan of this project, only then, the compensation for lost income will be made for the time of disruption.



B. Environment Management Plan

• ***Environmental and social impacts and mitigation***

The environmental impacts due to the laying of pipes for the distribution of drinking water are discussed in this section.

Environmental impacts on the physical, biological, and socio-economic and cultural environments during the pre-construction, construction and operation and maintenance phases are discussed in detail with the mitigating measures.

The summary of the anticipated impacts and the mitigation measures are given in Tables 1 and 3 in Chapter 2. Further the technical specification to the contract is required to be referred for compliance as well.

**1. Pre-construction Phase:**

One of the most important aspect before construction is the Identification of the likely adverse impacts and their mitigation measures before the commencement of construction works. Also important is to establish an efficient and working environmental safeguards assurance mechanism with sufficient inputs of environment specialists in consultant and contractor's team. This is the stage of work when internal and external communication and consultation, and grievance redress mechanisms shall be established. Safeguard reporting mechanism among the employer, consultant and contractor also needs to be established at this stage of work. Also, the field environmental compliance monitoring checklist and the template of quarterly and semi-annual environmental compliance monitoring report shall be prepared.

Haphazard constructions of camps for workers without basic amenities could result in social stress and the degradation of the local environment. Therefore it is very important that workforce camps with sanitary amenities at designated areas should be established.

An employment policy should be prepared so that the local people may not be deprived of the opportunities, thereby raising tensions and dissatisfaction. The local people, especially SPAF, PAF and women above the age of 16 should be employed and given first preference

(Nepal Citizenship Act, 2006). Wages should be settled based on DWEC (District Wage Evaluation Committee) with the list of employees.

- Obtain letters of approval and agreements for (i) temporary acquisition of land and properties for use by contractors, (ii) construction in UNESCO recognised heritage sites, such as, Durbar Squares of Patan and Hanumandhoka from the Department of Archaeology, (iii) digging of roads from the concerned authorities i.e. Department of Roads, Lalitpur Metropolis, Kathmandu Metropolis, Bhaktapur Municipality, Madhyapur Thimi Municipality and Kirtipur Municipality (iv) construction and cutting trees (if required) in Balaju from the Shivapuri Nagarjun National Park is not required for the works are in the road area.

Detailed traffic plans should be prepared to help in mitigating traffic congestions and menaces to pedestrians and businesses. Traffic Plan approval is the responsibility of the bidder/contractor.

Prepare training in Nepali (or local languages) with notes and sketches on Community Health and Safety and Occupational Health and Site Safety.

*Since our project is in construction phase activities mentioned here are not applicable for this quarter.*

## **2. Construction Phase**

### **a. Soil management and slope stability due to excavation**

Impacts likely to occur from the improvement and construction of water distribution will include trench excavations and topsoil stripping which may induce air pollution, muddy roads and slope instability. Haphazard disposal of spoil materials may create erosion problems, mitigating measures to be used are

- Separate stockpiling of topsoil in a safe yard for further use,
- Spoil disposal at designated and stabilized sites,
- Compaction of the backfill of excavated areas including replacement of topsoil;
- Avoiding work during the rainy season as much as possible.

***b. Pollution (air, noise and vibrations)***

Earth excavation, scarifying and road clearing for priming will produce dust (TSP, PM<sub>10</sub>), hydrocarbons (CO, CO<sub>2</sub>, CH<sub>4</sub>), SO<sub>2</sub>, NO<sub>x</sub>, H<sub>2</sub>S, etc., noise and vibrations. This will increase noise levels to above 90 dBA affecting health. The national ambient air quality standards for Nepal and noise exposure limits are given in annex.

- Water sprinkling: Dust suppression on roads or at open sites by sprinkling water as required at regular intervals; covering earth stockpiles using plastic sheets or cement jute bags; routine monitoring of dust (TSP, PM<sub>10</sub>)

***c. Occupational health and safety***

The potential occupational health and safety impacts/hazards and mitigation measures for the laying of drinking water pipes trenches is given in Table 2 of Chapter 2.

Before construction begins the contractor will inform and provide training to its workers on the potential occupational health and safety impacts/hazards and mitigation measures to be used during construction. The training must be done in Nepali (or local language of the workers) with handouts distributed and information posters. As most of the workers would be uneducated, pictorial presentations should be used during the training depicting the hazards and the mitigation measures. In order to guarantee environment, public safety from and around the work and to improve the general vehicular traffic condition,

- Maintain site safety, hard barricading, flexible green net, signboards, and temporary day/light traffic diversions throughout the construction activities.
- Safety supervisor employed at all designated sites until the road is reinstated.
- All project sites shall have a help desk placed in an easily visible area with first aid kit, grievance register and a helper at all times during the working hour until the road is reinstated.
- All project sites shall have well equipped and updated first aid kits every day.

- All labours shall be provided with safe drinking water at all times during working hour.
- All labours shall be equipped with PPE (Personal Protective Equipment) at all times in working hour.

Contractor must take special precautions for public safety to minimize the scale and extent of disruption to public and commercial life.

***d. Damaged Utility Repair***

Relocation and repair of damage to the utility is the responsibility of the Contractor to coordinate the relocation and repair with the concerned Authority.

C. Mitigation and Monitoring:

Anticipated environmental impacts and mitigation measures have been dealt in detail in Table 1 and 2. A detailed self-explanatory environmental monitoring program is presented in Table 3. The Table lists the environmental impact, its mitigating measures; the parameters to be monitored (including location, measurement and frequency) and the party responsible for the cost. The program will evaluate:

- (i) the extent and severity of the adverse environmental impacts as compared to what was predicted,
- (ii) how effective the mitigating measures were and compliance with the regulations and the
- (iii) Overall effectiveness of the EMP.

The environmental monitoring of the Kathmandu Valley Water Supply System Improvement Project includes field supervision and reporting of project activities prior to and during the project construction and operation in order to ensure that the works are being carried out in accordance to the approved design and that the environmental mitigation measures are fully implemented in accordance with the EMP. To help timely identification of the actions needed for correction, a system of monitoring has been proposed involving i) front line

monitoring ii) monitoring by the government line agencies or independent monitors and iii) auditing through the involvement of government agencies, donor agencies and independent auditors.

The main objective of the environmental compliance monitoring is to monitor the activities during pre-construction and construction phase to ensure that the implementation is carried out in accordance with the approved Environmental Management Plan (EMP). The objectives are to:

- Monitor the overall project implementation as per Environmental Management Plan during each Bulk Distribution System (BDS) and Distribution Network Improvement (DNI) construction work package.
- Assess whether mitigation measures proposed in EMP is being implemented, and reported accordingly.
- Recommend additional or alternative measures needed to assure that environmentally sensitive areas as per the EMP.
- Monitor health and safety (HS) measures adopted during the construction period.
- Provide abatement strategies or control measures.

#### 2.1 Anticipated Environmental Impacts and Mitigation Measures

Table 1: Summary of mitigation measures for water supply components

Project Stage	Project Activity	Potential Environmental Impacts	Proposed Mitigation Measures	Institutional	Cost (Rs.)
Pre-construction phase	1. Construct workforce	Hazardous camps resulting in social stress and degradation of local environment	Establish workforce camps with sanitary amenities at designated sites only	Contractors/ DSC	Contractor cost
	2. Make employment policy for local and affected people as EMP	Local people may be deprived of opportunities, minors may be employed	<ul style="list-style-type: none"> <li>Employ local people (not under 16) especially SPAF, PAF and women in jobs</li> <li>Settle wage rate based on DWEC and provide the list of employees to DSC</li> </ul>	Contractors/ DSC	Contractor cost
	3. Consult relevant persons and submit applications to get approvals. Submit such agreement and permit to DSC for official information	May result in social conflict and legal obstructions resulting in delay of work	<ul style="list-style-type: none"> <li>Obtain letters of approval and agreement for (i) temporary acquisition of land and properties (ii) disruption of water supply and irrigation canals, (iii) get required permits (e.g. cutting trees from the Shivapuri Nagarjun National Park, construction works in Heritage Sites of Palan and Durbar Square from the Department of Archaeology)</li> <li>Ensure consultation with the Department of National Parks and Wildlife Conservation for construction works in Baleju Reservoir and get required clearances</li> </ul>	KUKLUPID	None
	4. Prepare traffic plans	Traffic congestion and public annoyance	Prepare traffic plans to prevent traffic jams and annoyances to the public	Contractors	Contractor cost
	5. Training preparation	Health and safety of community and workers	Prepare training in Nepali (or local languages) with notes and sketches on Community Health and Safety and Potential Occupational Health and Safety	KUKL/DSC/ PID/CAPC and contractor	CAPC and contractor cost

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Construction Phase	1a. soil management due to excavation 1b. slope stability	1a. Improper management of excavated soils resulting in air pollution, muddy roads 1b. Slope instability	1a. Incorporate measures and sites for handling excessive spoil materials 1b. Incorporation of drainage plan in final design	Contractors/ DSC	Contractor cost
Project Stage	Project Activity	Potential Environmental Impacts	Proposed Mitigation Measures	Institutional Responsibility	Cost (Rs)
	2. Movement of vehicles operation of construction machineries and equipment	2. Noise and vibration	- Monitoring of noise levels regularly at site to meet the noise standards (Annex 2) - fit mufflers in vehicles to control noise. Limit speed of vehicles - regular maintenance of equipments	Contractor/ DSC	Contract or cost
	3. Quarrying operations, movement of vehicles, operation of crusher	3. air quality deterioration	- dust suppression on roads or at open sites by sprinkling water as required at regular intervals i.e. 4-5 times in a day - monitoring of air quality standards (Annex 1) before construction commencement to set up the base data and subsequent measurements during the construction phase to compare and establish any impact	Contractor/ DSC	Contractor cost

Table 2: OHS impacts and mitigation measures during pipe laying/operation and maintenance phase

S. No.	Potential Adverse Impact	Mitigation Measures
1	Delivery and unloading of pipes and fittings; pipes may move/roll or be tampered with by others. And removal of excess pipe from the road upon completion of pipe laying for a particular stretch.	<ul style="list-style-type: none"> <li>- Provide secure stockpile for pipes and fittings; unload and stock pipes strictly in accordance the manufacturers' recommendations and minimize height of pallets/stockpile; use correct manual handling techniques and mechanical aids where possible; carry pipes close to the ground while moving and control lifted weights. Contract specifications are also to be referred and no pipes shall be allowed to be stacked on the roads. Only pipes to be installed for that days' work will be kept alongside the road.</li> </ul>
2	Injury to a member of the public during pipe delivery.	<ul style="list-style-type: none"> <li>- Provide fencing and/or barricades as per site risk assessment. Apply signage and pedestrian control.</li> <li>- Develop and implement system for site inspection and security.</li> <li>- Ensure security and equipment necessary to minimize vandalism.</li> <li>- Sufficient lighting during night works inclusive of night blockers.</li> </ul>
3	Traffic can cause personal injury to the public, contractors and employees; and vehicle accidents.	<ul style="list-style-type: none"> <li>- Traffic control plan to be developed, approved by the authority and areas kept clean and clear of obstacles.</li> </ul>
4	Slips, trips and falls, strains and sprains; manual handling injuries such as back damage.	<ul style="list-style-type: none"> <li>- Conduct site inspection to ensure access/spacing is adequate for the activities.</li> </ul>
5	Excavation by plant and equipment will create noise, falling objects, damage to existing surfaces, material spillage and injuries by moving parts.	<ul style="list-style-type: none"> <li>- Operations of plant by licensed personnel. Use personal protective equipment (PPE) -- hardhat, high visibility vest, hearing protection etc.</li> <li>- Maintain a safety working area around the moving plant.</li> <li>- Protect surfaces from plant movements. Ensure plant noise control. Maintain clean-up equipment on site.</li> <li>- Maintain (specified) spillage control equipment.</li> <li>- Employ observers where appropriate.</li> </ul>



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6	Overhead and underground power cables can cause electrocution during excavation.	<ul style="list-style-type: none"> <li>- Determine location of underground services. If underground power cables are located in the vicinity, exercise extreme care while excavating. Consider any restriction on kinds of tools and equipment that may be required and comply with the requirements.</li> </ul>
7	Falling into trenches.	<ul style="list-style-type: none"> <li>- Install a shoring system. Where possible backfill trenches.</li> <li>- Erect 1.8 meter (min) security fence if open excavation is to be left unattended, or cover open excavation with steel plating if left unattended.</li> <li>- No personnel movement across trench.</li> </ul>
8	Personal injury due to working plant and equipment.	<ul style="list-style-type: none"> <li>- Use only maintained equipment fitted with yellow flashing lights and reversing alarms.</li> <li>- Maintain a safe distance from working plant.</li> <li>- Wear PPE including high visibility clothing and hard hat etc.</li> <li>- Perimeter fencing</li> <li>- Place trained personnel on the look-out.</li> </ul>
9	Delivery pipe/joint failure may cause body injuries during pressure testing of pipes.	<ul style="list-style-type: none"> <li>- Use only competent person to perform the task.</li> <li>- Adequately secure connecting pipes (safety pins for lever couplings).</li> <li>- To prevent joint or pipe section failure, fix brackets close enough together to prevent excessive movement.</li> <li>- Don't exceed pipe operating pressure; ensure pipe is of correct diameter.</li> <li>- Ensure pipe is not damaged.</li> </ul>
10	Injury due to failure of existing pipeline under pressure when cutting existing pipelines.	<ul style="list-style-type: none"> <li>- Use PPE.</li> <li>- Ensure adjacent stop valves are operational/ closed.</li> <li>- Secure adjacent valves against movement. Relieve pressure in system.</li> </ul>

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11	Injury from high water pressure. Burns during welding. Electrocutation during house connection services.	<ul style="list-style-type: none"> <li>- Use PPE.</li> <li>- Relieve pressure in system.</li> <li>- Care with torch and PPE.</li> <li>- Earth straps and insulating gloves to be used as services are used for household earthing.</li> <li>- Always ensure pipes are cleaned back to bare metal prior to fitting the bridging straps to ensure a direct electrical contact between the pipes and the strap.</li> </ul>
12	Public hazards due to inadequate compaction; construction refuse; inadequate re-surfacing during site restoration.  High hydraulic/pneumatic pressures during site restoration	<ul style="list-style-type: none"> <li>- Compaction to specified standard; clear site of debris and refuse; re-surface without leaving gaps or uneven surfaces and erect fence around hazardous areas until they are safe and restored.</li> <li>- Ensure plugs and compressors are installed and secured against movement; release air before removing plugs and clears area of pipe ends being tested.</li> </ul>
13	Inadequate training, consultation, planning and improvisation can cause task specific injuries due to inexperience, inadequate consultation or failure to provide appropriate equipment.	<ul style="list-style-type: none"> <li>- All personnel on-site to be trained and kept aware should be suitably qualified and competent supervision to be provided on-site.</li> </ul>
14	Misuse of equipment/fire hazards can cause fire/explosions.	<ul style="list-style-type: none"> <li>- Care to be taken when refueling machinery with petrol to ensure engines aren't running and there are no naked flames in the vicinity; oxy-acetylene and gas equipment must be used strictly in accordance with the manufacturer's safe operating procedures.</li> <li>- All personnel working on the site are to be trained in the correct operation of the tools and equipment they are using.</li> </ul>
15	Weather conditions (e.g. hot, cold, wet, flooding/inundation, electrical storms, high winds) can cause dehydration and dizziness.	<ul style="list-style-type: none"> <li>- Supply adequate drinking water in work area.</li> <li>- Provide protection from UV rays. Use of PPE.</li> </ul>
16	Slippery and untidy site surfaces can cause slips and falls.	<ul style="list-style-type: none"> <li>- Non-slip safety footwear to be worn on all work sites.</li> <li>- Extreme care when working in wet and slippery areas.</li> <li>- Personnel should never run on worksite.</li> </ul>

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17	Public safety make be at risk due to pipes or drums accidentally rolling onto the roadway causing an accident or may be rolled by unauthorized persons particularly when site is unattended causing injury to persons.	<ul style="list-style-type: none"> <li>- All materials to be secured by blocks or wedges, sandbags or other means.</li> <li>- All pipes not laid during the course of a day are to be returned to the stockpile and secured appropriately.</li> </ul>
18	Workers and the public are at risk from accidents on site	<ul style="list-style-type: none"> <li>- Prepare and implement a site health and safety plan that includes measures to:               <ul style="list-style-type: none"> <li>o exclude the public from all construction sites</li> <li>o ensure that workers use protective equipment</li> <li>o provide health and safety training for personnel</li> <li>o follow documented procedures for site activities</li> <li>o keep accident reports and records</li> </ul> </li> </ul>
19	Local residents and sites of social/cultural importance may be disturbed by noise, dust and impeded access	<ul style="list-style-type: none"> <li>- carry out the work as quickly as possible to minimize disturbances</li> <li>- Consult residents; inform them of work in advance.</li> <li>- Notify all concerned people/authority timely</li> </ul>

Table 3: Monitoring mechanism

Impacts / Project Activities		Monitoring Plan					
Environmental Impact	Mitigating Measures	Parameters to be monitored	Location	Measurement	Responsibility	Frequency	Cost
<b>Design Phase</b>							
1a. Soil erosion	1a. N/a	1a. N/a					
1b. soil management	Incorporate suitable measures and sites for handling excessive soil materials	Review if provisions for proper disposal of excess materials have been incorporated in the design	Design document, Technical specifications	None	DSC/KUKL/PID and Contractor	Once	Contractor
1c. slope instability		Review suggested sites					
	Incorporation of measures to stabilize unstable areas	Review if measures to stabilize unstable areas have been incorporated in the design	Design document, Technical specifications	None	DSC/KUKL/PID and Contractor	Once	Contractor
2. Vegetation clearance	N/a	N/a					
3. Design for sludge disposal	n/a						

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<b>4. Health and safety of community and workers</b>	Prepare training in Nepali (or local languages) with notes and sketches on Community Health and Safety and Potential Occupational Health and Safety	Review information for errors and quality	None	CAPC/Contractor	Once	CAPC and contractor cost
<b>Pre-Construction Activities</b>						
<b>1. Delineating of Project area</b>	Delineate project land and prepare the list of project affected people (squallers) and resources	Review records of loss of private properties, affected people and resources and cost implications	All the project sites	Area of land, number of affected people, houses and resources and total costs	Once	Contractor
<b>2. Acquisition Compensation on Resettlement</b>	Prepare RP Notify the people Provide compensation Implement RP	Number of SPAF and PAF Compensation payment Resettlement and rehabilitation - based on RP	All project sites	See if all payments and arrangements have been made to the satisfaction	Once	KUKL/PID

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3. Approval of temporary site	Prepare the details of contractor's temporary land use and other private properties and discuss with owners Submit to DSC	Details of acquisition needs approval from DSC Compensation based on RP	Project Office/site office	See if contracts have been signed with the land owners to their satisfaction	Contractor	Once	Contractor Cost
4. Permits and Approval	Consult with the people/VDCs/land other committees and obtain required permits and approval and Agreement for (i) temporary acquisition of land and properties (ii) disruption of water supply (v) cutting trees	Letters of Approval, Permits and submitted to DSC for information /action	Project Office/ Site Office	Whether approvals have been received from authorities	KUKL/PID/DSC/Contractors	Once	None
5. Pegging of project area	pegging of all constructions site and labor camp Maintain records of trees and other properties likely to be affected	Correct pegging according to design  Records of vegetation and other properties maintained	Project site	Demarcation done	Contractors and DSC	Once	Contractor cost

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Monitoring Plan							
Impacts / Project	Mitigating Measures	Parameters to be monitored	Location	Measurements	Responsibility	Frequency	Cost
6. Workforce camps	Establish workforce camps with sanitary amenities at designated sites only  With separate toilets for male and female.	Ensure workforce camps are established within designated area with sanitary facilities and first aid facilities	Project site	Visual inspections of wastewater disposal, solid waste management, noise and air pollution, health of workforce, potable drinking water, kerosene availability	Contractors and DSC	Monthly	Contractor's cost
7. Job opportunity	Employ local people (not under age 16) especially SPAF, PAF and women in jobs  Settle wage rate based on DINEC and provide the list of employees to DSC	Number of SPAF, PAF, local persons employed number of under-aged people employed.  Whether the wage rate is at par with DWEC	Project site	List of employees (SPAF, PAF, local people), age of employees, wages	Contractor and DSC	During construction every month	None

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<b>Construction Phase: Physical Environment</b>						
<b>1. Soil management and slope stabilization</b>	<p>Separate stockpiling of topsoil for further use; spoil disposal at designated and stabilized sites; excavated areas backfill to be compacted and include replacement of topsoil; adopt cut and fill approach; avoid work during the rainy season as much as possible; mulching to stabilize exposed areas</p>	<p>-Cut and fill balance Drainages systems Stockpiling of top soil for its re-use Bio-engineering measures  Management of excessive spoil materials</p>	Project Site	<p>Visual inspections and the local people's views if excavation and other site works have been taken offsite immediately and whether spoils have been disposed in approved areas or not and whether the contractor has taken mitigation measures or not..</p>	Contractor/DSC	<p>During construction (Daily/ Weekly)</p> <p>Contractor cost</p>



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<b>2. Water pollution</b>	<b>Avoid camping facilities within the drainage area. Provide designated areas with collection bins for wastes. Provide toilet facilities and prohibit open defecation in open areas. Storage of construction aggregates, hazardous, and toxic materials in safe areas and proper disposal of chemical containers, packaging materials, plastic bags etc. Provide training to workforce on safe handling of toxic materials and OHS measures during construction</b>	<b>Water quality and health status of workers before and during construction.</b>	<b>Streams and rivers of project site</b>	<b>Baseline water quality of receiving water (complete physical, chemical and bacteriological tests). Health of workers in camp.</b>	<b>KUKL/PID/Contractor/ DSC</b>	<b>Once in a month</b>	<b>Contractor's cost</b>

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Impacts / Project Activities		Monitoring Plan					
Environmental Impact	Mitigating Measures	Parameters to be monitored	Location	Measurement	Responsibility	Frequency	Cost
3. Effect in Air Quality	Dust suppression on roads/open sites by sprinkling water as required at regular intervals.	Air quality analysis	Project location	PM10, SPM	Contractor/ DSC	During construction/ every week	Contractor cost
	Cover earth stockpiles using plastic sheets or cement jute bags.	Implementation of dust control procedures	Project location	Visual inspection if water is sprinkled or not.	Contractor/ DSC	During Construction/ every day	
	Routine monitoring of dust (TSP). Limit vehicle speed. See that vehicles comply with the National Vehicle Mass Emission Standards, 2008 BS. Regular maintenance of vehicles. Provide proper ventilation in confined working areas.	Vehicle maintenance records: renewal of "green stickers".	Project location	Check maintenance records and "green stickers".	Contractor/DSC	Before construction and during construction (half yearly)	

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Monitoring Plan							
Impacts / Project	Mitigating Measures	Parameters to be monitored	Location	Measurement	Responsibility	Frequency	Cost
Environmental Impact 4. Noise Level and vibration	Monitoring of noise levels regularly at site.	Baseline noise level	Project Site	Sound level (dBA): feedback from nearby residents.	Contractor/ DSC	Quarterly	Contractor cost
	Fit mufflers in vehicles to control noise.  Limit the speed of vehicles.  Ban the use of power horns in vehicles.  Regular maintenance of equipment.	Adoption of noise level control measures as specified	Project Site		KUKL/Contractor/ DSC		
	Prohibit the operation of crushing plants and construction vehicles between 7 PM to 6 AM.				KUKL/PID Contractor /DSC	Before and During Construction	Contractor cost

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<b>5. Solid Waste Problem</b>	Store all materials, toxic, non-toxic and hazardous materials in safe place (warehouse). Collect, segregate and dispose waste at designated areas	Production and management of solid waste	Project site	Check amount of solid waste generated and if solid waste management is carried out efficiently.	KUKL/Contractor/DSC	Monthly during the construction period	Contractor cost
<b>Impacts / Project Activities</b>	<b>Monitoring Plan</b>						
<b>Environmental Impact</b>	<b>Mitigating Measures</b>	<b>Parameters to be monitored</b>	<b>Location</b>	<b>Measurement</b>	<b>Responsibility</b>	<b>Frequency</b>	<b>Cost</b>
<b>Construction Phase: Biological Environment</b>							
<b>1. Vegetation Clearance</b>	Plant and rear free saplings at the rate of 25 saplings for each felled tree. Provide LPG/Kerosene to workforce	Cutting of only the specified and marked trees plantation @ 25 tree saplings per cut tree availability of LPG/Kerosene	Project Site	Check records of trees cut and planted; whether LPG/kerosene is available in camp sites.	Contractor/DSC	Regularly	None except for the cost of planting saplings and to be nurtured during contract period

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<b>Construction Phase: Socio-economy</b>						
<b>1. Compensation to affected people</b>	<b>Avoid involuntary displacement. Provide employment opportunity to the affected people.</b> <b>Provide all possible assistance to the displaced people until they are settled.</b> <b>Provide disturbance and rehabilitation cost.</b> <b>Resettlement according to agreed Entitlements Policy and RP.</b> <b>Arrangement of a "grievance redress committee". Protect traditional rights of locals. Compensate for any loss of crops, trees and other natural resources.</b>	<b>Compensation and Rehabilitation measures as specified implemented or not.</b>	<b>Project Site</b>	<b>Check records of payments and discuss with affected people.</b>  <b>Verify record of employment.</b>	<b>As required</b>	<b>CAPC cost</b>
		<b>Employment of affected people.</b>	<b>Project Site</b>			

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Monitoring Plan								
Impacts / Project Activities	Environmental Impact	Mitigating Measures	Parameters to be monitored	Location	Measurements	Responsibility	Frequency	Cost
		Establish technical committee to assess compensation for damages caused by vibration.						
		Temporary sites should be restored to natural or stable conditions as per agreement with land owner. Exposed areas of temporary sites planted with endemic vegetation. Proponent report in writing that temporary areas have been vacated and restored to pre-project conditions before acceptance of the works	Construction sites utilized.	Project site	Visual inspection of restored sites and reaction of the local people/landowner as to whether satisfactorily done or not.	KVWSMB/KUKL / PID/Contractor /DSC	End of construction/lease hold	Contractor cost

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<b>2. Reinstatement of damaged infrastructures and services</b>	Compensate or reinstale/relocate community assets that are disturbed such as Irrigation canals, electricity poles, telephone lines, drinking water pipes, sewerage lines, roads, etc. to the satisfaction of the people.	Reinstatement of damaged infrastructures	Project Site	Field observation to visually assess if disturbed community assets are reinstated.	Contractor /DSC/	Once construction in the area/ stretch is over.	KUKL/PID cost
<b>3. Crime and community stress</b>	Prohibit gambling and alcohol consumption in camp sites. Instruct the outside workforce to respect the local cultures, traditions, rights etc. Provides security in camps.	Situation of social disharmony Awareness program	Project Location	Crime records and causes; camp issues; enforcement of remedies; security situation in camps.	Contractor /DSC	Once a month	None

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4 Health and hygiene	Provide regular health checkups, proper sanitation and hygiene, training in community health and safety, OHS measures, health care, and control of epidemic diseases to the workforce.  Launch awareness programs concerning human trafficking and the possibility of spread of STDs and HIV/AIDS using brochures, posters, and signboards.	The use of safety equipment by workforce  The provision of health measures and training  Awareness program Signs and posters Compensation for health	Project Site	Health records; records of outbreak of diseases; maintenance of health clinic; health complaints; number of awareness programs launched; number of persons trained.	CAPC	Annually	Contractor cost
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Impacts / Project Activities		Monitoring Plan					
Environmental Impact	Mitigating Measures	Parameters to be monitored	Location	Measurements	Responsibility	Frequency	Cost
	Make available first aid kits, ambulance and fire extinguishers in camp sites. Make available Help Desk, First Aid Kits, Register and Drinking water in active sites as well as reinstatement work area.						

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<b>5. Archaeological and cultural heritage sites</b>	<p>a. Protect archaeological and cultural heritage sites</p> <p>In case of relocation, consult local community</p> <p>b. Inform the Chief District Officer who has to report the findings in writing to the Department of Archaeology within 35 days, according to the Ancient Monuments Protection Act, 1956 and Rules, 1989.</p> <p>c. Use manual labor for digging trenches and avoid heavy equipment</p>	<p>Protection of cultural heritage sites</p> <p>Involvement of local people</p>	Project site	Field observation of archaeological and cultural sites and number of chance finds to proper authorities.	KUKL/PID/DSC/C contractor	Once	None
<b>6. Demolition</b>	<p>Remove all unnecessary structures and reinstake the area to its original condition</p>	<p>Removal of temporary facilities Reinstall to original condition</p>	Project site	Visual field observation and feedback from the locals.	Contractor/ DSC	Once before commencement of construction	KUKL/PID

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7. Traffic Management	Develop a traffic plan to minimize traffic flow interference from construction activities. Advance local public notification of construction activities, schedule, routing, and affected areas including road closures via VDCs.	Working schedules and traffic plans. Information about construction schedule to the local people	Project site	Visual observation of traffic; complaints from travelers and locals; existence of signage and effectiveness of speed control and diversion measures.	CAPC/DSC/Contractor	Daily	Contractor cost
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	<p>Erect signage in Nepali and English languages.</p> <p>Use of steel plates or other temporary across trench facilities in key areas such as foot trails or livestock routes; arrange for pedestrian access and sidewalks and parking areas.</p> <p>Arrange for night-time construction for activities in congested/ heavy day-time traffic areas.</p> <p>Undertake trench closure and facilitate rehabilitation as quickly as feasible.</p>						
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### 3. Monitoring Data

#### 3.1 Safety, Environmental and Social Safeguard (SESS) Checklist

The SESS Checklist was finalized after various review and follow-up meetings during development and preparation of Safety, Environmental and Social Safeguards (SESS) checklist in the project work. Safeguard compliance at NRM ADB, finalized the SESS checklist, Project Board, Safety Signage and Barricades in presence of ADB/PID/DSC-3 and CAPC on following agenda.

- Finalization of field SESS checklist
- Finalization of Work Implementation Procedural Framework (WIPF)
- Maintaining the uniformity among the Project Board, Safety Barricades and Signage used by all contractors at the construction sites under the different contract packages.
- Joint Spot check of working environment of DSC-3 work site at Kathmandu

On other hand, various follow up meeting with all contractors was also done at DSC-3 to get commitment and agreement to provide all required PPEs to workers and supervisors and display safety signage and barricades, project board and implementation of SESS checklist at each construction site of different packages.

Likewise, A Management Meeting: Safeguard Compliance was also apprehended with all contractors' authorized representative with his project manager in presence of ADB/PID/DSC-3 and CAPC on following agenda.

- Commitment and agreement to comply with the SESS checklist developed in consultation with ADB/PID/CAPC
- Commitment and agreement to provide and install all safeguard items indicated in the SESS checklist
- Commitment and agreement to provide an independent team of workers managed by safety officer to install and remove the safeguard items indicated in the SESS checklist.

PID has mobilized the Community Awareness and Participation Consultant (CAPC) and Design and Supervision Consultant (DSCOS) for the monitoring of compliance status at different construction sites on different dates.

The checklist has been divided into 5 main themes i.e., monitoring parameters/indicators. They are signage, health and safety, grievances redress mechanism, traffic and pedestrians access without obstruction and housekeeping of work area and damage/repairs in service sector. Based on these themes the ongoing work will be marked in 100. Scoring of marks below 60 will result in stopping of the work.

The quantitative monitoring data are obtained from the SESS Checklist where as the qualitative data are obtained through observations of various sites.

#### **4. Monitoring Results**

##### **4.1 Monitoring result based on EMP**

As all our activities were in construction phase for this quarter, hence, pre- construction phase activities were not applicable. In reference to the monitoring mechanism presented in Table 3 of Chapter 2, following Environmental Impacts in construction phase were monitored and its status is:

#### **A. Physical Environment**

##### **1. Soil Management and Slope Stabilization:**

According to inspection, the excavated soils were stockpiled near to trench at all inspected locations and barricading was done through green nets. Immediate backfilling along with temporary reinstatement was done in most of the sites.

##### **2. Water Pollution**

Clean Drinking water has been provided to the workers at all inspected sites. Since none of the site works were nearby rivers or streams, Drainage related problems were not observed.

### **3. Effects in Air Quality**

Dust control measures such as sprinkling of water; covering of earth stockpiles through green nets was done as per the requirement.

### **4. Noise Level and Vibration**

Noise level was maintained by regularly maintaining the equipments. The crushing works were done during daytime to avoid noise pollution.

### **5. Solid Waste Problem**

The only waste produced during the construction phase was excavated soil; this was reused to backfill and to reinstate the same excavated trench.

## **B. Biological Environment**

### **1. Vegetation Clearance**

No any vegetation was cleared during the construction phase, as our project was mostly done in blacktopped roads or gullies and pavements with no trees in it.

## **C. Socio-Economic Environment**

### **1. Compensation to Affected People**

Compensation is the responsibility of contractors and compensations were immediately provided to all affected people. Its record and detail information is available in the Bi-Annual Social Safeguards report.

### **2. Reinstatement of Damaged Infrastructures and Service**

Any damage done to electricity poles, telephone lines, drinking water pipes, sewerage lines and roads were coordinated to with related department and immediately reinstated to the satisfaction of people. Daily work schedules of each package are sent to the relevant departments to keep them updated and process the development work smoothly.

All grievances of locals were recorded in the grievance register and addressed accordingly. The details related to it are available in the Bi-Annual Social Safeguards report.

### **3. Crime and Community Stress**

There have been no any crimes at the project sites.

### **4. Health and Hygiene**

The site supervisors, workers were given orientation on environmental and social safeguards issues multiple times by environmental expert.

In terms of occupational health and safety, there has been improvement in PPE use by the workers however the site supervisors are highly recommended to use PPE by them as well. Similarly, First aid box is also present at most construction sites but its contents needs to be regularly updated/re-equipped. The site supervisor and contractors are informed about it and are asked for 80% compliance.

### **5. Archaeological and Cultural Heritage Sites**

Chief District Officer along with Department of Archaeology is informed prior to the start of any construction works at archaeological and cultural heritage sites. During the construction work at all heritage sites for this semester, official from the department of archaeology was always present so that any valuable items if found can be handed over to them and recorded.

### **6. Demolition**

No any demolition was done in this semester.

### **7. Traffic Management**

Traffic police were informed prior to and during construction work regarding our activities. The presentation given to traffic officers is attached in Annex. Alternate route signage and information boards were seen in almost all sites for proper traffic management.



#### 4.2 Monitoring result based on SESS checklist

**Table 4: Average Environmental and Social Safeguards Compliance status for the Month January-June, 2017**

S N	Name of Contractor	Loan No.	Package	Score /month						Average of 6 months	Remarks of 6 months
				Jan	Feb	Mar	Apr	May	Jun		
6	JWIL SCPL	3255	2, BDS	-	-	-	-	76	-	76	Good
8	Hangzhou Ashish	3255	4, BDS	-	78.8	63	90.5	88	-	80.1	Very Good

As seen in above table 4, on an average, both packages have complied with SESS Checklist.

Although there are not many site visits for BDS 2 and BDS 4, they have complied to Environmental and Social Safeguards issues.

The detailed scoring of all packages from January-June, 2017 is presented in the table 5 below.

**Table 5: Detail scoring of each months**

##### Detail Scoring of February, 2017

S N	Date	Location	Name of contractor	Package	Achieved score %	Compliance status	Remarks
1	8/2/2017	Tyanglaphant, Kirtipur	Hangzhou Ashish JV	BDS	98	Excellent	OK
2	9/2/2017	Jorpati	Hangzhou Ashish JV	BDS	70	Good	OK
3	12/2/2017	Tyanglaphant, Kirtipur	Hangzhou Ashish JV	BDS	85	Very Good	OK
4	15/2/2017	Handigaun Height	Hangzhou Ashish JV	1, DNI-2	65	Good	OK
5	22/2/2017	Baba Chowk, Mulpani	Hangzhou Ashish JV	BDS	62	Good	OK

##### Detail Scoring of March, 2017

S N	Date	Location	Name of contractor	Package	Achieved score %	Compliance status	Remarks
1	26/3/2017	Chundevi, Bhaktapur	Hangzhou Ashish JV	BDS 4	63	Good	OK

##### Detail Scoring of April, 2017

S N	Date	Location	Name of contractor	Package	Achieved score %	Compliance status	Remarks
1	23/4/2017	Sita Petrol Pump	Hangzhou Ashish JV	4, BDS	90	Excellent	OK
2	23/4/2017	Kirtipur	Hangzhou Ashish JV	4, BDS	91	Excellent	OK

### Detail Scoring of May, 2017

S N	Date	Location	Name of contractor	Package	Achieved score %	Compliance status	Remarks
1	21/5/2017	Kirtipur	Hangzhou Ashish JV	4, BDS	88	Very Good	OK
2	22/5/2017	Basundhara	JWIL SCPL	2, BDS	76	Good	Ok

The following graph illustrates the status of each month's Environmental and Social Safeguards Compliance with respect to Occupational Health and Safety, Public Concerns, Environmental Safeguards, Working Safety and Traffic Related Status. In both Jan and Jun there was no any inspection.

### **1. Occupational Health and Safety**

It is observed that PPE has been taken seriously in this loan. The workers are found wearing safety vests, helmets and canvas shoes.

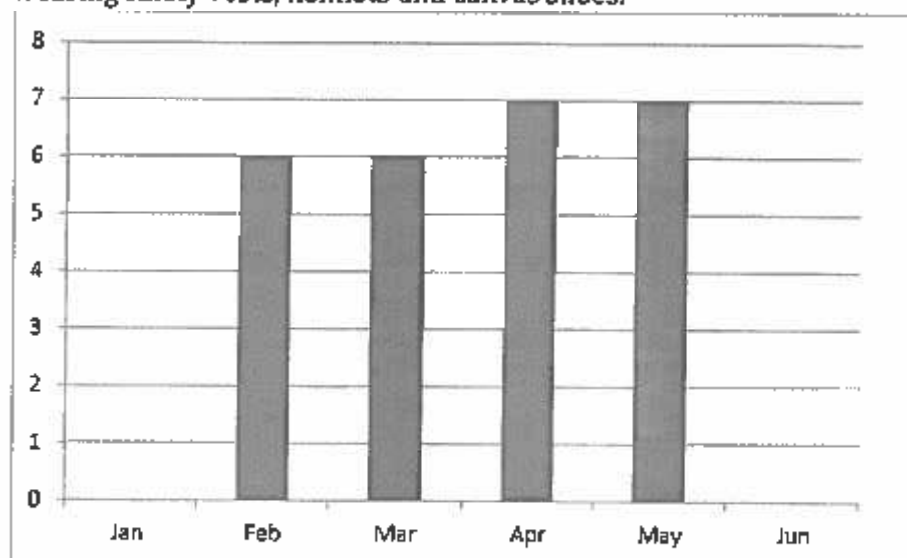
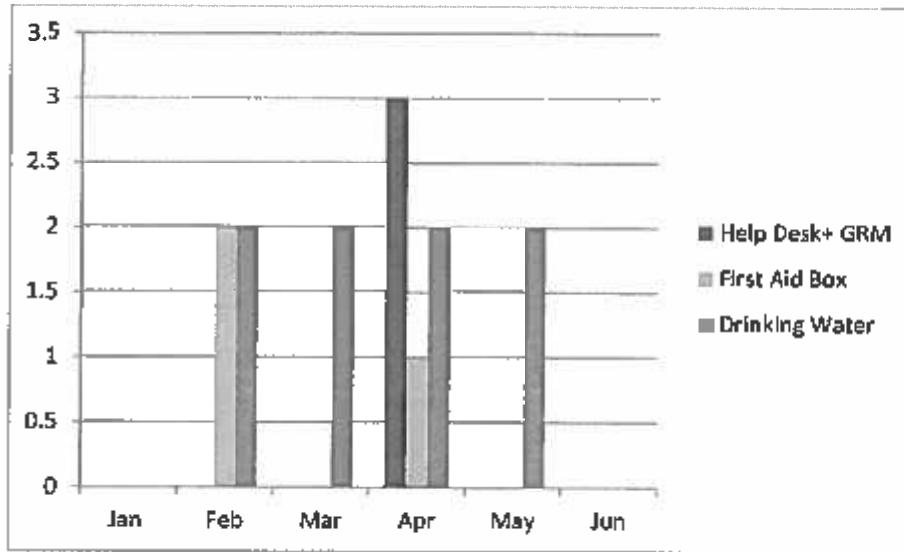


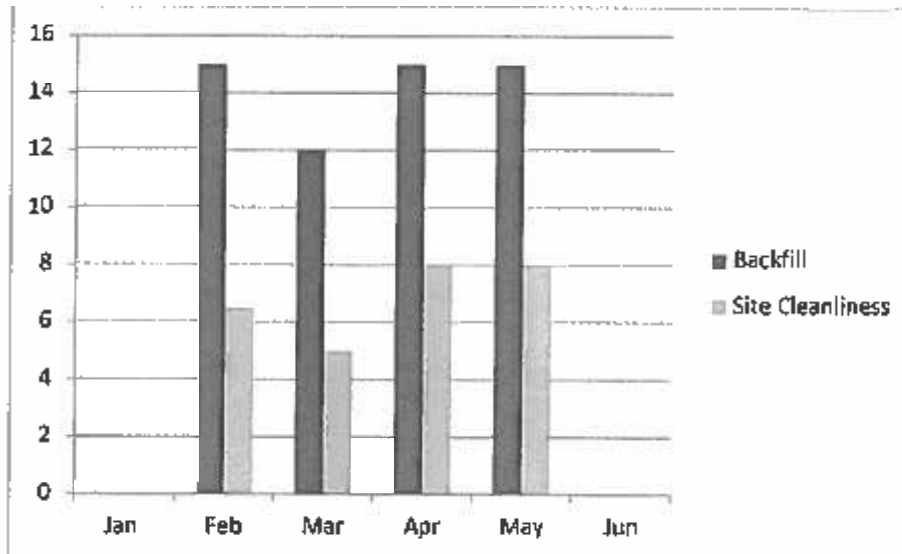
Figure 1 shows that use of PPE in the first semester of the year is good on an average for each month.

## 2. Public Concerns



It was observed that first aid box was not available at the site most of the times, whereas drinking water was provided at all times. The contractors have been informed to comply 80% in public concern issues.

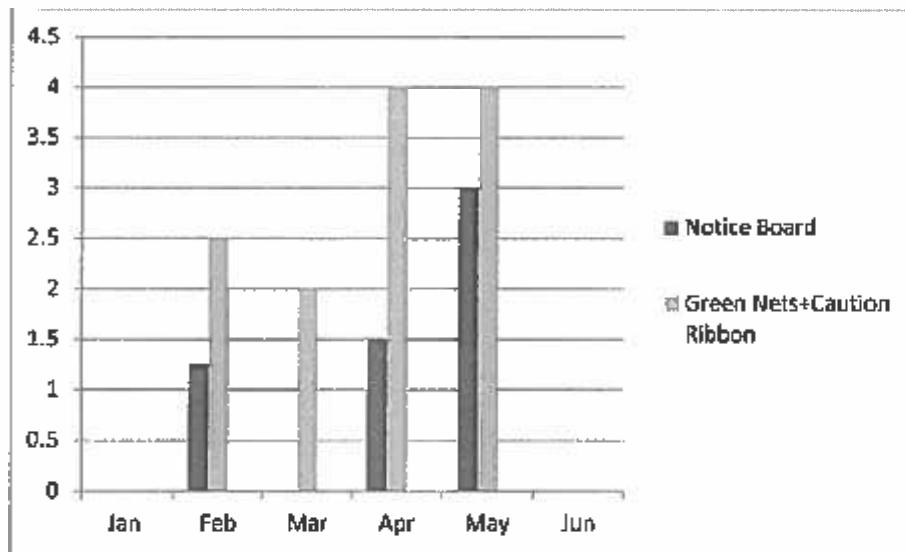
## 3. Environmental Safeguards



Backfilling and site cleanliness is seen satisfactory at most of the sites, however most sites were also visit to SRTs whose detail inspection has been reported below.

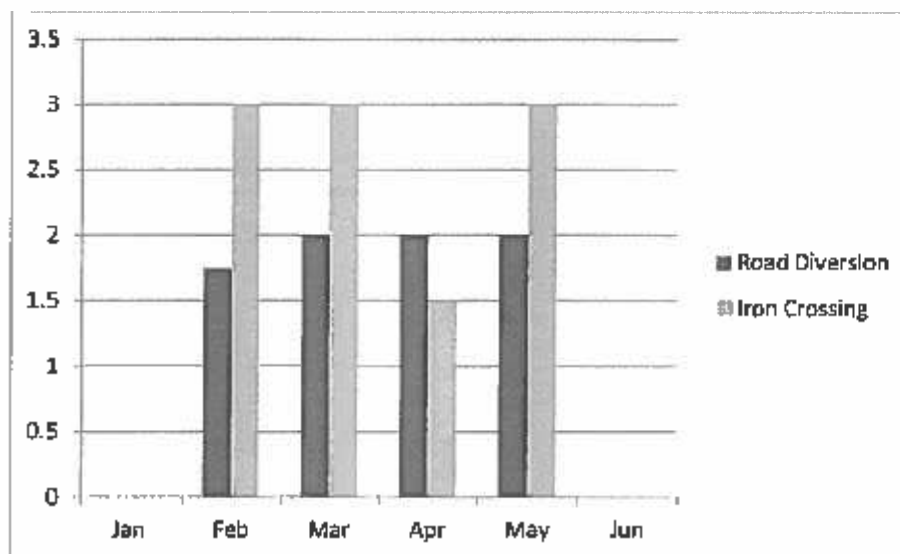
#### 4. Working Safety

In terms of working safety, information board and caution ribbon/green nets was seen satisfactory at most of the months.



#### 5. Traffic Related Status

It was seen that in most of the sites road diversion boards and iron crossing were placed at construction sites.



### 4.3 Environmental and Social Safeguard Compliance monitoring of Service Reservoir Tanks

#### 1. Khumaltar SRT

<b>Kathmandu Valley Water Supply Improvement Project</b>					
<b>Project Implementation Directorate, Kathmandu Upatyaka Khanepani Limited</b>					
<b>Name of Work: Service Reservoir Tank</b>					
<b>Name of Contractor:</b>					
<b>Location: Khumaltar SRT</b>					
<b>Contract No:</b>			<b>Date</b>	18 May, 2017 Thursday	
<b>Total Number of Workers</b>		43	<b>Time</b>	3.30 PM	
<b>Female workers</b>		2			
<b>Site Engineer</b>		Mr. Naresh Dhakal	<b>Contact No.</b>	9801808060	
<b>S. N</b>	<b>Subject</b>	<b>Activities</b>	<b>Yes</b>	<b>No</b>	<b>Remarks</b>
1	Occupational Health and Safety	First Aid box with a complete set of supplies		✓	
		Helmets, jackets and boots		✓	Available at site but not in use (workers/drivers)
		Safety Officer		✓	
2	Signage	Project Notice Board		✓	
		Men at work		✓	
		No Entrance		✓	
3	Community Health and Safety	Entrance of unauthorized people		✓	
		GRM Register		✓	
4	Sanitation	Toilet with water supply	✓		No. of toilet =7
		Proper wastewater discharge system	✓		
		Separate toilet for male/female		✓	
5	Noise Level and Vibration	Regular maintenance of machine/equipments	✓		
		Complain on disturbance due to noise		✓	
6	Solid Waste	Waste collection bins	✓		Waste dumped outside the bin
		Specified waste disposal system	✓		Organic waste taken as

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					feedstock Recyclable waste sold to scavengers
7	Vegetation Clearance	Use of firewood for cooking		✓	Gas used as fuel
8	Drinking water	Water supply through Jars, water bottle	✓		
9	Hazardous chemical	Proper storage of diesel	✓		
		Proper handling of diesel		✓	Spillages observed
10	Emergency plan	Emergency evacuation plan		✓	

## 2. Kirtipiuur

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Kathmandu Valley Water Supply Improvement Project					
Project Implementation Directorate, Kathmandu Upatyaka Khanepani Limited					
Name of Work: Service Reservoir Tank					
Name of Contractor: Hangzhou Ashish JV					
Location: Kirtipur SRT					
Contract No:			Date	21 <sup>st</sup> May, 2017 Sunday	
Total Number of Workers			Time	3.08 PM	
Female workers					
Site Engineer		Er. Subash Tiwari		Contact No.	9841649645
S. N	Subject	Activities	Yes	No	Remarks
1	Occupational Health and Safety	First Aid box with a complete set of supplies		✓	
		Helmets, jackets and boots	✓		Proper use of helmets, jackets, boots and gloves by all labors
		Safety Officer	✓		
2	Signage	Project Notice Board	✓		
		Men at work	✓		
		No Entrance	✓		
3	Community Health and Safety	Entrance of unauthorized people		✓	
		GRM Register		✓	
4	Sanitation	Toilet with water supply	✓		No. of toilet =2, tap water is not available at the toilets; workers need to take water in containers to the toilet.
		Proper wastewater discharge system	✓		Safety tank
		Separate toilet for male/female		✓	
5	Noise Level and Vibration	Regular maintenance of machine/equipments	✓		
		Complain on disturbance due to noise		✓	
6	Solid Waste	Waste collection bins	✓		Waste dumped outside the bin, but the bins are not enough

		Specified waste disposal system	√		Organic waste is fed to dogs or dumped within the site, Recyclable waste's do not have specific system
7	Vegetation Clearance	Use of firewood for cooking		√	LPG is used, but firewood is used for cooking meat
8	Drinking water	Water supply through Jars, water bottle	√		
9	Hazardous chemical	Proper storage of diesel	√		
		Proper handling of diesel	√		No any spillages observed
10	Emergency plan	Emergency evacuation plan	√		Standby vehicles

Besides the monitoring, Environment Management Plan and Resettlement Action Plan was also prepared in the month of May, 2017 for additional financing under Loan 3255. The EMP and RAP report of Packages 7a, 7b and 7c has been sent to ADB and it can again be provided upon request.

#### 5. Conclusion and Recommendation

Regular monitoring of sites under Loan 3255 shows that they have complied most of the issues highlighted on SESS checklist, however, the SRT monitoring shows that, there has been negligence on safety issues.

Following actions can be taken to make environment and safeguards compliance stronger:

- Orientation on Occupational Health and Safety needs to be given to both workers and site supervisors more often.
- There needs to more coordination amongst supervisors and contractors regarding re-supply of damaged green nets, PPEs and First Aid equipments. This is because in most of the sites Green nets are found old and torn, PPEs are not available to all workers and First Aid box are not well equipped.



- Contractors must employ safety supervisors. The safety supervisors need to visit all their sites more often and guide site supervisors on Occupational Health and Safety.

**6. Annex**

(All documents under Annex available in Hard copy)

**Kathmandu Valley Water Supply Improvement Project**  
**Project Implementation Directorate, Kathmandu Upatyaka Khanepani Limited**

**Name of Work:**

**Name of Contractor:**

**Contract No:**

**Monitoring  
Date**

**Time**

**Place:**

SN	Subject	Activities	Yes	No	Full Score	Achieved Score	Remarks
			✓	X			
1	Signage	Available Sign Board with the Name of Project & Contractor			3		
		Available Visible Sign Board for Traffic Alternative Route			2		
2	Health & Safety	Available of authorized representative of contractor at work site (Engineer/Supervisor)			3		
		Regular visit of work area for supervision by contractor's Safety supervisor			3		
		Hard Barricading for Working Area: Minimum 4 ft. high Metal posts with Nylon Ropes/Green net in 3 rows for BDS/DNI works and danger light (for night work) on Non-Black topped Roads (Primary line)			4		
		Metal hoarding/Sheet fence (Safety Barrier) for BDS & DNI Primary line works on Black topped Roads Available			4		

		Hard Barricading for Working Area: Minimum 4 ft. high Metal posts with Nylon Ropes in 3 rows for DNI works on Non-Black topped/Black topped Roads Available			4		
		Entry of Non-Authorized Person Inside the area of Safety Barriers			3		
		Trench Shoring for BDS & DNI Primary line Available			4		
		Use of Personnel Protective Equipments (PPEs) by Workers i.e. hard helmets, PPE vest, Gloves, Safety Glasses, Boots, Masks etc and mention in remarks the % of use and which PPEs is not used.			7		
		Grant of Permission for entry inside the work areas with safety barrier to the site engineer and other construction personnel without the use of PPEs such as Hard helmets and Reflector Jacket.			2		
		First Aid Box at Working Area Available			4		
		Drinking Water at Working area Available			2		
3	Grievances Redress Mechanism	Help Desk: Table, Chair and First Aid with Grievance Register Available visible by Public			3		
		Helper at Help Desk Available			2		
4	Traffic and Pedestrians Access without obstruction and Housekeeping of work area	Cross over metal platforms on trench of BDS & DNI Pipeline work Available			3		
		Availability of platforms on loose soil and Pit for safe pedestrians Access			3		

		On basis of width of Road, Availability of half portion of road is open for Traffic and Pedestrians Access during construction			5		
		Cleanliness of Working Area and Access Road by immediate removal of loose soil, dust, aggregated and excavated soil			8		
		Excess soil to be removed after the laying pipe in trench with house connection, backfilling and compaction in BDS and DNI Work on any Road			15		
		Availability of Safety Barrier at Pits excavated for house connection and Pressure test, If work is not immediately completed			5		
5	Damages/Repairs in Service Sector	Availability of record keeping system for damages in private and social structure			3		
		Leaving pipe laying area clean with compaction in previous condition after pipe laying in road for each 30 m stretch			5		
		Temporary reinstatement of black topped road shall be done within 2 days in BDS & DNI Pipeline work			3		
		<b>TOTAL</b>			<b>100</b>		

<b>Monitored By</b>	<b>Monitored By</b>	<b>Construction Representative who has accepted the above referred monitoring work</b>
DSC: Name:	CAPC: Name:	Name:
Signature:	Signature	Signature:
Date:	Date:	Date:
Mob. No:	Mob. No:	Mob. No

**Note:** a) If assign score is not fully applicable, will be added to total achieved score

b) Inspector may stoppage the work if achieve is less than 60 during inspection

**CC:**

a) Project Implementation Directorate

b) Design and Supervision Consultant

c) CAPC

d) Contractor

समाधानपूर्ण सम्बन्धित जानकारी तथा विवरण सहित जानकारी  
आयोगको कार्यालयमा उपस्थित राख्नुपर्नेछ। एकात्मिक समन्वयक समितिको निर्देश

सम्झौता नं:

निर्माण व्यवसायीको नाम: JwTL SCPL

BDS 2

स्थान: Basundhara

कागको विवरण: 1100 mm pipe laying (BDS)

निरीक्षण मिति: 22<sup>nd</sup> May 2017

समय: 12:00

दिने	विषय	कार्यहरू	छ	छैन	अधिकतम अंक (Full Score)	प्राप्त (Achieved Score)	कैफियत
१	संकेत चिन्ह	आयोजना सम्बन्धी तोकिए अनुसारको सूचना बोर्ड राखिएको छ/छैन	✓	✓	3	3	
		सवारीको वैकल्पिक बाटोको व्यवस्था तथा प्रस्टसँग देखिने साईनबोर्ड राखिएको छ/छैन	✓		2	2	
	स्वास्थ्य र सुरक्षा	कार्यक्षेत्रमा निर्माण व्यवसायीको अधिकार प्राप्त प्रतिनिधिको उपस्थिति छ/छैन। (इन्जिनियर/सुपरभाइजर)	✓		3	3	
		कार्यक्षेत्रमा निर्माण व्यवसायीको "सुरक्षा अधिकृत" निरीक्षणको लागि नियमित आउने गरेको छ/छैन	✓		3	1	sometimes
		कालोपत्रे नमएको सडकमा BDS/DNI को ग्राइमरी लाइनको काम गर्दा कार्यक्षेत्रमा लगाइने कडा घेरा (कम्तीमा ४ फीटको फलामको पोष्टमा जोडेर गहलन डोरी/थ्रीन नेट- तीनवटा तह) र छतराको बत्ती (रातीको लागि) राखिएको छ/छैन			4	4	N/A
		कालोपत्रे सडकमा BDS/DNI को ग्राइमरी लाइनको कामका लागि फलामे पाता (सुरक्षा घेरा) राखिएको छ/छैन			4	4	N/A
		कालोपत्रे भएको र नभएको सडकमा DNI कार्यका लागि कडा खालको बारको व्यवस्था -कम्तीमा ४ फीट उचाइको भेटल पोष्ट र तीन तहको प्लाष्टिक डोरी राखिएको छ/छैन	✓		4	4	
		सुरक्षा घेरा राखिएको छैन भित्र श्रमाधिकृत व्यक्तिको प्रवेश छ/छैन		✓	3	3	
		खाडलमा बढ्याउने रस्ता (Shoring) प्रयोग गरिएको छ/छैन (BDS/DNI Primary Line)	✓		4	4	
		कामदारले व्यक्तिगत सुरक्षाका उपकरणहरू हेलमेट, ज्याकेट, पञ्जा, चस्मा र बुट आवश्यकता अनुसार लगाएर काम गरेका छन्/छैनन् (कति % ले प्रयोग गरेका छन् र कुन उपकरण प्रयोग गरिएको छैन कैफियतमा देखाउने)	✓		7	7	
		सुपरभाइजर, इन्जिनियर तथा अरु नियमित निर्माण सम्बन्धित व्यक्तिहरूलाई सुरक्षाको न्यूनतम उपकरण जस्तै हेलमेट तथा ज्याकेट लगाई काम भइरहेको सुरक्षित क्षेत्रमा प्रवेश गर्न दिइएको छ/छैन		✓	2	0	
		काम भइरहेको अर्न्तमा प्राथमिक उपचारको आकलन छ/छैन		✓	4	0	
		काम भइरहेको स्थानमा खानेपानीको व्यवस्था गरिएको छ/छैन	✓		2	2	

३	गुनासो मुनुवाइ संयन्त्र	सहयोग डेस्क : टेवल र कुर्ती साथै प्राथमिक स्वास्थ्य भवनमा र गुनासो पुस्तिका साइटमा सधैंले देखेजस्तै राखिएको छ/छैन	✓		3	2	reg GRM register miss
		सहयोग डेस्कमा सहयोगीको उपस्थिति छ/छैन	✓		2	2	
४	मोटर तथा पैदल यात्रुको नियन्त्रण गर्न आवश्यक तथा कार्य क्षेत्रको सफाई	पाइप लाइनको क्षति गरी आवतजावतको लागि BDS र DNI मा खनिएको ट्रिन्च माथि राख्न भेट्न कसिकको उपलब्धता छ/छैन			3	3	N/A
		हिलो तथा खान्दो माथिबाट पैरल यात्रु सुरक्षित रूपमा आवत जावत गर्न अभिनवमा माथि प्लेटफर्म राखिएको छ/छैन			3	3	N/A
		निर्माण कार्य गरी सडकको चौडाई हेरी वहीमा आधारित मात्र ओभरही बर्को आधार भाग मोटर, मोटरसाइकल, साइकल तथा अन्य पैदल यात्रुको लागि सफा गरी सुला गरीएको छ/छैन	✓		5	0	
		काम भइरहेको क्षेत्र वरपर हिलो, धुलो, गिट्टी, खनिएको माटोलाई तुरुन्त जठार्छ, बाटो सफा राख्ने काम भइरहेको छ/छैन।			8	8	N/A
		कुनै पनि सडक BDS/DNI को काम गरी ट्रिन्च खने पछि पाइप बिछ्याई house connection गरि back filling Compaction गरी रोकी भएको माटो उठाइएको छ कि छैन ?	✓		15	10	
		Pressure test तथा house connection को लागि खान्दो क्षेत्र तत्काल काम गर्न नप्याइएमा सुरक्षा घेरा बनिपार्य राखिएको छ कि छैन ?			5	5	N/A
५	सेवाक्षेत्रमा क्षति तथा पुनर्स्थापना	रेकर्ड पुस्तिकामा तत्काल निजी तथा सामाजिक संरचनाहरूमा भएको क्षतिको विवरण रेकर्ड गरेको छ/छैन	✓		3	0	None of the situation is no,
		हरेक ३० मीटर सडकमा पाइप बिछ्याएपछि सो क्षेत्र सफा र पुरानै स्थितिमा Compaction सहित छाडिएको छ/छैन	✓		5	3	
		BDS र DNI को लागि पाइप बिछ्याउँदा कालोपथ सडक क्षेत्रको दुई दिनाभित्र त्यसको अस्थायी पुनर्स्थापना भएको छ/छैन	✓		3	3	
		जम्मा			100	76	

माथि उल्लेखित विवरणहरू नदेखिएको आधारमा वातावरण सुधार निर्माण गरिने

क.) माथि उल्लेखित सुरक्षा र वातावरण सम्बन्धी कार्यहरू अति राखी तथा निर्वाधरूपमा भएकोले निर्माण कार्य अघि बढाउने।

ख.) उपरोक्त अनुसारका सुरक्षा र वातावरण सम्बन्धी कार्यहरू सन्तोषजनक नदेखिएकोले निम्न कार्यहरू तत्काल सुधार गरेर मात्र निर्माण कार्य गनुपर्ने देखिन्छ।

१. ....

२. ....

३. ....

ग.) उपरोक्त अनुरारका सुरक्षा र वातावरण सम्बन्धी मापदण्डहरूको पालना नभएको देखिएकोले निर्माण कार्य तत्काल रोकी तल उल्लेखित बूदाह व्यवस्थापन गरेर मात्र पुनः स्वीकृति लिएर निर्माण कार्य अघि बढाउने।

१. ....

5

2

Overall Grading	
Excellent	Above 90
Very Good	80-89
Good	60-79
Poor	Below 60

निरीक्षक	निरीक्षक	माध्यम/उल्लेखित निरीक्षण कार्य मनासिने छ सोलाह श्रम विभाग, व्यवसायीको प्रतिनिधि
DSC:	CAPC	
नाम: Swati Sharma	नाम:	नाम: Er. Hiraaj kr. Gyaoti
हस्ताक्षर: Swati	हस्ताक्षर:	हस्ताक्षर: Er. Hiraaj
मिति: 22nd May, 2017	मिति:	मिति: 8/2/2074
मोबाइल नं: 9841427813	मोबाइल नं:	मोबाइल नं: 9801808062
समय: 12:08 PM	समय:	समय: 12:10 PM

व्य: १:सोलाह श्रम भार पूर्णरूपमा लागू नभएको खण्डमा सो अंक स्वतः जोडिने छ।

२:यदि निर्माण कार्यको निरीक्षण क्रममा ६० भन्दा कम प्राप्त छुट्टी आएमा निरीक्षकले काम रोकन सक्नेछ।

माथि:

१. आयोजना कार्यान्वयन निर्देशनालय

२. डिजाइन तथा सुपरभिजन कन्सल्ट्यान्ट

३. सामुदायिक सचेतना तथा सहभागिता परामर्शदाता

४. निगम व्यवसायी



काठमाण्डौ उपत्यका खानेपानी तथा वितरण सुधार आयोजना  
आयोजना कार्यान्वयन निर्देशनालय, काठमाण्डौ उपत्यका खानेपानी लिमिटेड

सम्झौता नं.

निर्माण व्यवसायीको नाम: Hanezhan Ashish JV

BDS 4

स्थान:

Sita Petrol Pump

कामको विवरण:

DI pipe laying

निरीक्षण मिति: 23/04/2017

समय: 3:09 pm

क्र	विषय	कार्यहरु	छ	छैन	अधिकतम बंक (Full Score)	प्राप्ताङ्क (Achieved Score)	वैकल्पिक
9	संकेत चिन्ह	आयोजना सम्वन्धी तोकिए अनुसारको सूचना बोर्ड राखिएको छ/छैन		✓	3	0	
		सवारीको वैकल्पिक बाटोको व्यवस्था तथा प्रस्टसँग देखिने साईनबोर्ड राखिएको छ/छैन	✓		2	2	
5	स्वास्थ्य र सुरक्षा	कार्यक्षेत्रमा निर्माण व्यवसायीको अधिकार प्राप्त प्रतिनिधिको उपस्थिति छ/छैन (इन्जिनियर/सुपरभाइजर)	✓		3	3	
		कार्यक्षेत्रमा निर्माण व्यवसायीको "सुरक्षा अधिकृत" निरीक्षणको लागि नियमित आउने गरेको छ/छैन	✓		3	3	frequently vis
		कालोपत्रे नमएको सडकमा BDS/DNI को प्राइमरी लाइनको काम गर्दा कार्यक्षेत्रमा लगाइने कडा घेरा (कम्तीमा ४ फीटको फलामको पोष्टमा जोडेर टाडलन होरी/रीन नेट- तीनवटा तह) र खतराको बच्ची (रातीको लागि) राखिएको छ/छैन	✓	✗	4	4	N/a
		कालोपत्रे सडकमा BDS/DNI को प्राइमरी लाइनको कामका लागि फलामे पाता (सुरक्षा घेरा) राखिएको छ/छैन	✓		4	4	
		कालोपत्रे भएको र नमएको सडकमा DNI कार्यका लागि कडा खालको बारको व्यवस्था -कम्तीमा ४ फीट उचाइको भेटल पोष्ट र तीन तहको प्लाष्टिक होरी राखिएको छ/छैन			4	4	N/a
		सुरक्षा घेरा राखिएको क्षेत्र भित्र अनाधिकृत व्यक्तिको प्रवेश छ/छैन		✓	3	3	
		बाडलमा थड्याउने पाता (Shoring) प्रयोग गरिएको छ/छैन (BDS/DNI Primary Line)	✓		4	4	
		कामदारले व्यक्तिगत सुरक्षाका उपकरणहरु हेलमेट, ज्याकेट, पञ्जा, कस्मा र बूट बाध्यकता अनुसार लगाएर काम गरेका छन्/छैनन् (कति % ले प्रयोग गरेका छन् र कुन उपकरण प्रयोग गरिएको छैन कैफियतमा देखाउने)	✓		7	7	
		सुपरभाइजर, इन्जिनियर तथा अरु नियमित निर्माण सम्बद्ध व्यक्तिहरुलाई सुरक्षाको न्यूनतम उपकरण जस्तै हेलमेट तथा ज्याकेट नलगाई काम भइरहेको सुरक्षित क्षेत्रमा प्रवेश गर्न दिइएको छ/छैन	✓		2	2	
		काम भइरहेको ठाउँमा प्राथमिक उपचारको बाक्स छ/छैन	✓		4	2	Not well equipped
		काम चलिरेको स्थानमा खानेपानीको व्यवस्था गरिएको छ/छैन	✓		2	2	

३	गुनासो सुनुवाइ समन्व	भक्त्योग डेस्क : टेबल र कुर्सी साथै प्रथमिक स्वास्थ्य सामग्री र गुनासो पुरितक साइटमा सवैले देखेगरी राखिएको छ/छैन	✓		3	3	
		सहयोग डेस्कमा सहयोगीको उपस्थिति छ/छैन		✓	2	0	
४	मोटर तथा पैदल यात्रुको निर्बाध आपस जावत तथा कार्य क्षेत्रको सफाई	पाइप लाइनको कार्य गर्दा आवश्यकताका लागि BDS र DNI मा छानेको ट्रैन्च माथि राख्न गेटल कसिडको उपलब्धता छ/छैन		✓	3	0	
		हिजो तथा खान्दो भाथिबाट पैदल यात्रु सुरक्षित रूपमा जावत जावत गर्न जमिनभन्दा माथि प्लेटफर्म राखिएको छ/छैन	✓		3	3	
		निर्माण कार्य गर्दा सडकको चौडाइ हेरी बढीमा बाधा क्षेत्रमात्र ओगटी अर्को बाधा भाग मोटर, मोटरसडकल, साइकल तथा अन्य पैदल यात्रुको लागी सफा गरी खुला गरीएको छ/छैन			5	5	N/A
		काम भइरहेको क्षेत्र वरपर हिजो, घुसो, गिरी, छानेको माटोलाई सुरक्षित उठाई, बाटो सफा राख्ने काम भइरहेको छ/छैन ।	✓		8	8	
		कुनै पनि सडक BDS/DNI को काम गर्दा ट्रैन्च खाने पछि पाइप विछ्याई house connection गरि back filling Compaction गरी बाँकी भएको माटो उठाइएको छ कि छैन ?	✓		15	15	
		Pressure test तथा house connection को लागि खान्दो खनेर तत्काल काम गर्न नभ्याइएमा सुरक्षा घेरा अनिवार्य राखिएको छ कि छैन ?			5	5	N/A
५	सुरक्षाक्षेत्रमा क्षति तथा पुनर्स्थापना	रेकर्ड पुस्तिकामा तत्काल निजी तथा सामाजिक संरचनाहरूमा भएको क्षतिको विवरण रेकर्ड गरेको छ/छैन	✓		3	3	
		हरेक ३० मीटर सडकमा पाइप विच्छ्याएपछि सो क्षेत्र सफा र पुरानै स्थितिमा Compaction सहित छाडिएको छ /छैन	✓		5	5	
		BDS र DNI का लागि पाइप विछ्याउँदा क्लोपत्रे सडक खनेको दुई दिनभित्र त्यसको यस्तो पुनर्स्थापना भएको छ/छैन	✓		3	3	
		जम्मा			100	90	

माथि उल्लेखित विवरणहरु र दिइएको भारका आधारमा तपसिल अनुसार निर्देशन गरिन्छ :

क.) माथि उल्लेखित सुरक्षा र वातावरण सम्बन्धी कार्यहरु अति राम्रो तथा निर्वाधरूपमा भएकोले निर्माण कार्य अघि बढाउने ।

ख.) उपरोक्त अनुसारका सुरक्षा र वातावरण सम्बन्धी कार्यहरु सन्तोषजनक नदेखिएकोले निम्न कार्यहरु तत्काल सुधार गरेर मात्र निर्माण कार्य गर्नुपर्ने देखिन्छ ।

1. .... First aid box <sup>to be</sup> required / updated ...
2. ....
3. ....

ग.) उपरोक्त अनुसारका सुरक्षा र वातावरण सम्बन्धी मापदण्डहरुको पालना नगरेको देखिएकोले निर्माण कार्य तत्काल रोकी तल उल्लेखित धुँदाहरु व्यवस्थापन गरेर मात्र पुनः स्वीकृति लिएर निर्माण कार्य अघि बढाउने ।

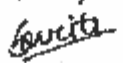
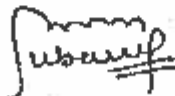
१. ....

२. ....

३. ....

### Overall Grading

Excellent	Above 90
Very Good	80-89
Good	60-79
Poor	Below 60

निरीक्षक	निरीक्षक	मिति उल्लेखित निरीक्षण कार्य मनासिब छ भ स्वीकार गर्ने निर्माण व्यवसायीको प्रतिनिधि
DSC:	CAPC	
नाम: Smriti Sharma	नाम:	नाम: सुवास तिवारी
हस्ताक्षर: 	हस्ताक्षर:	हस्ताक्षर: 
मिति: 23/04/2017	मिति:	मिति: 23-04-2017
मोबाइल नं: 9841427813	मोबाइल नं:	मोबाइल नं: 9841649645
समय: 3:20 PM	समय:	समय: 3:25 PM

व्य: १) तोकिएको भार पूर्णरूपमा लागू नभएको छण्डमा सौ अंक स्वतः जोडिने छ ।

२) यदि निर्माण कार्यको निरीक्षण क्रममा ६० मन्दा कम प्राप्त भएमा निरीक्षकले काम रोक्न सक्नेछ ।

पार्थ :

भ्राम्योजना कार्यान्वयन निर्देशनालय

डिजाइन तथा सुपरभिजन कन्सल्ट्यान्ट

सामुदायिक सचेतना तथा सहभागिता परामर्शदाता

निर्माण व्यवसायी



Proper reinstatement at Sita Petrol Pump, BDS 4



Help desk along with water and first aid box at Sita Petrol Pump, BDS 4



Use of PPE by the workers at Kirtipur, site for SRT installation, BDS 4



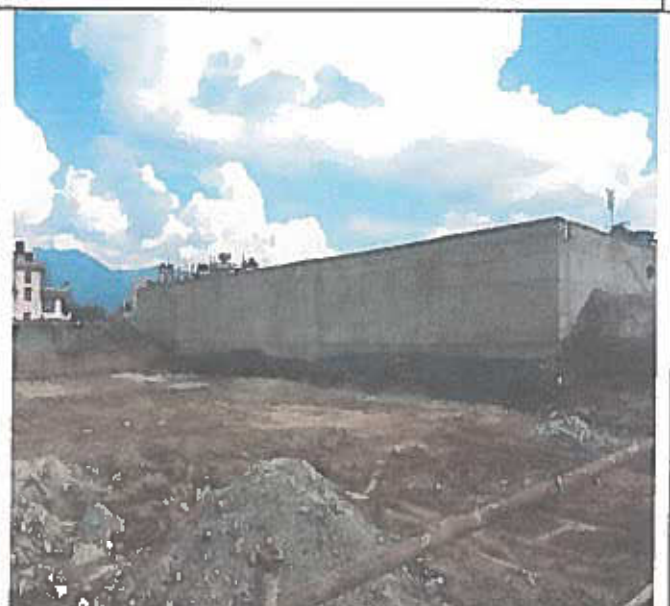
Use of green net at Basundhara, Pkg 2, BDS





Proper use of PPEs at Basundhara, BDS 2

### Pictures of SRT, Khumaltar



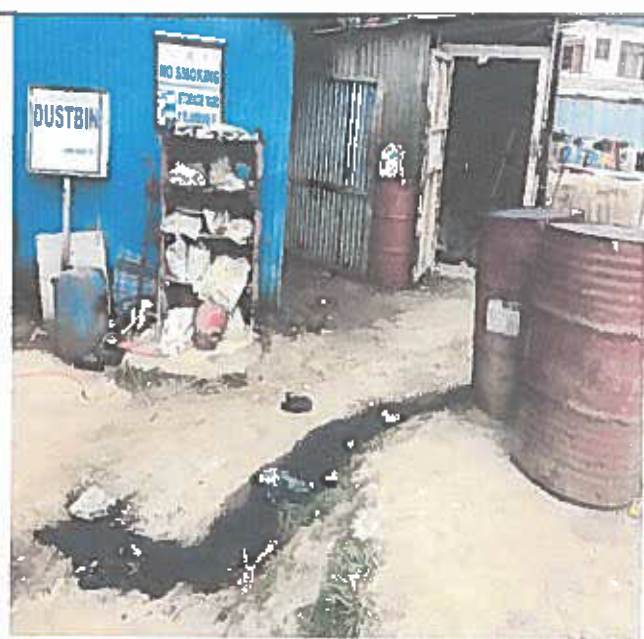
SRT Construction Site



**Labours without complete safety gears**



**Storage of Diesel**



**Spillage of Diesel**



## Pictures of SRT, Kirtipur



Information board at SRT Construction Site



Laborers with complete safety gears





**Workers' kitchen.**



**Clean toilet**



**Construction work**



Kathmandu Valley Water Supply Improvement Project  
Kathmandu Metropolitan City, Nepal  
(LOAN No. 3255, CONTRACT No. DSC05)



Dohwa Engineering Co., Ltd.  
In Association with ERM, BDA and TAEC

Letter No.: DSC5/276/2017

Date: 8<sup>th</sup> May, 2017

To,  
Project Director  
Project Implementation Directorate,  
Anamnagar, Kathmandu

Subject: Minutes of Meeting (MOM) – Environment Safeguards Improvements to Bid Documents

Dear Sir,

In reference to the meeting held on 5<sup>th</sup> April, 2017, please find attached the MOM associated with Environmental Safeguards Improvements to Bid Documents for Packages 7b and 7c an ensuring adequate EMP implementation for Package 7a for your consideration.

Yours Sincerely,

Tharloak S. Bhatt  
Team Leader



Att: MOM (1pg)

CC: ADB: Ms. Vivian Castro-Wooldridge  
Mr. DB Singh

## Minutes of Meeting (MOM)

**Date:** 5 April 2017

**Venue:** ADB Offices

**Time:** 8.30am

**Attendees:** Ms Vivian Castro-Wooldridge (ADB), Mr D B Singh (ADB), Mr Tresh P Khatri (PID), Mr Anil B Khanal (PID), Mr Tharloak S Bhatt (DSC 5), Mr Chudaman Bhandari (DSC 5)

**Purpose:** Environmental Safeguards Improvements to Bid Documents of Package 7b and 7c and ensure adequate EMP Implementation for 7a

### Meeting Notes

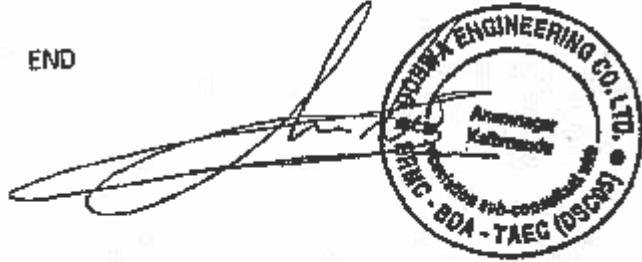
- ADB concurred that the attached specific environment safeguards plan with comments from ADB could be attached with the Bid Documents of 7b and 7c in lieu of the generic IEE and RP plans.
- ADB concurred with the provision of the updated IEE and RP previously provided for the omitted DMA's i.e. Package 7a for the CA. However requested that the pre agreement MOM should address the water sprinkling and road cleaning if possible (insisting and reminding contractor of their responsibility in this regards, and penalties) considering that other safeguard concerns of green netting etc, excavated earth removal and the temporary road black topping have been addressed in the contract documents.
- Cleaning of roads items to be included in Bill of Quantities for Package 7b and 7c
- Water Sprinkling Item to be included in Bill of Quantities for Package 7b and 7c
- Full width road blacktopping requirement- cost analysis to justify, if not trench width is acceptable for Package 7b and 7c; ADB requested that MOF clear cost of full width road blacktopping (if pursued)
- Include in preamble for Package 7b and 7c:
  - i. All costs associated with the specific environmental safeguards plan is deemed included/ apportioned in the bid/ contract price irrespective if there was no BOQ item in the BILL.
  - ii. Withhold payment –

eg. Inadequate cleaning	10% of pipe installed cost
eg. Inadequate watering	5% of pipe installed cost
- Include in PCC for Package 7b and 7c:
  - Notice from Engineer/Employer for non compliance with safeguards and back charge cost to Contractor to make good failure;
  - Instruction/ notice to make good failure- telephone sms to the PM followed with written notice to confirm the sms notification.
  - Notice Validity: 2 days.
  - If non compliance failure is not make good and/or not commenced by day 3 day, the Engineer/ Employer can engage /instruct others to make good the failure at cost to the Contractor from day 4.
- Optional provision for Package 7b and 7c:

## Minutes of Meeting (MOM)

The CAPC with additional responsibility or other party can be deputed for water sprinkling, road cleaning and information campaign for addressing any failure to comply with said work activities following the above said notice/ notification.

END



A handwritten signature in black ink is written over a circular stamp. The stamp is from Poon Engineering Co. Ltd. and contains the following text: "Poon Engineering Co. Ltd.", "Ammanagar", "Kattamanda", "10/10/2018", "BDA - TAEC (DSCB)", and "10/10/2018".

Letter no: DSC05-2017- 300

16 May 2017

To:

Mr. Deepak Mangla,	CR, JTF Water Infrastructure Limited
Mr. Rajendra Mahaseth,	CR, JWIL-SCPL JV
Mr. Pradyumna Man Chitrakar,	PM, Tianjin-Raman JV
Mr. Karan Vaidya	CR, Hangzhou-Ashish JV

Ref: Laying of Bulk Distribution System and Service Reservoir

Subject: Environmental and Safeguard Compliance Meeting

Dear Sir,

Please be informed that the referred has been called by ADB and the meeting has been scheduled for 19th May, 2017 at 11 am; PID office. We remind that it is compulsory and mandatory for the Contractor's Representative and Project Manager to be present at the said meeting.

Yours Sincerely,

  
Tharloak S. Bhattarai  
Team Leader





CC :

PID: PD, PID/KUKL

ADB: Ms Vivian Castro-Wooldridge  
Mr DB Singh

Letter No.: DSCS / 322 / 2017

Date: 21<sup>st</sup> May, 2017

To:

Mr. Deepak Mangla,	CR, JTF Water Infrastructure Limited
Mr. Rajendra Mahaseth,	CR, JWIL-SCPL JV
Mr. Pradyumna Man Chitrakar,	PM, Tianjin-Raman JV
Mr. Karan Vaidya	CR, Hangzhou-Ashish JV

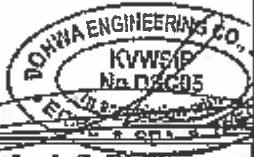
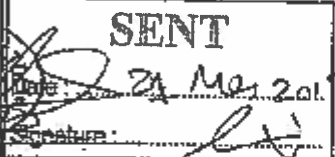
Ref: Laying of Bulk Distribution System and Service Reservoir

Subject: Minutes of Meeting (MOM) and Corrective Action Plan – Environmental and Safeguards Compliance Monitoring

Dear Sir,

In reference to the meeting held on 19<sup>th</sup> May, 2017, please find the attached MOM along with agreed Corrective Action Plan associated with Environmental Safeguards Compliance Monitoring to BDS package for necessary action and compliance.

Yours Sincerely,

   
Tharloak S. Bhatt  
Team Leader

Att: MOM (4 pgs)  
Corrective Action Plan (4 pgs)

CC: PID: PD, PID/KUKL  
ADB: Ms. Vivian Castro-Wooldridge  
Mr. DB Singh

## **Interaction Program on the Environmental and Social Safeguards Compliance Monitoring**

**Date:** May 19, 2017

**Time:** 11.00 AM to 1.00 PM

**Venue:** Project Implementation Directorate Meeting Hall, Anamnagar

An interaction program was conducted with the contractors representing all packages of DNI and BDS to discuss on the Environmental and Social Safeguards Compliance. The representatives of Project Implementation Directorate, Design and Supervision Consultant and Community Awareness and Participation Consultant, and an observer from ADB were also present on the occasion. The program was focused on the following agendas:

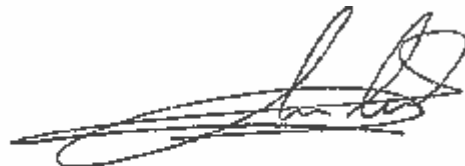
- Dissemination of the comparative performance of contractors with respect to the compliance with environment management plan (EMP) and the safeguards measures agreed by all parties (Employer, consultant and contractors) for improving the work environment.
- Discussion on the Corrective Action Plan (CAP) with deadline for compliance.

### **Detail of Discussion**

- The observations recorded by the safeguards compliance monitoring team of CAPC and DSC 5 were presented. Contractors were requested to improve compliance with various safety requirements including the use of boots, provision of help desk, first aid box, GRM register, proper use of green net, and mandatory requirement to maintain the work sites clean of soil, sand, aggregates, pipes etc. in order to improve overall work environment.
- Discussion on application of penalty for non-compliance on each category of safeguards requirements under which the compliance monitoring is carried out. The issues discussed included :-a) Occupational Health and Safety, b) Community grievances and readiness for accidental injuries, c) Environmental Safeguard d) Safety at work sites, e) Other traffic related issue.
- Strict prohibition on the use of child labor in the project work.
- Sufficient water sprinkling in DNI area at required number of time in order to suppress dust generation and reduce the health risk and hardship borne by pedestrians and other commuters.
- Contractors requested for periodic orientation program on safeguard compliance for their workers on a monthly to bi-monthly basis.
- Inclusion of safeguard components in the future bid documents and BOQs.

#### Action Agreed

- The contractors agreed to fully comply with the corrective action plan by the deadline of June 15, 2017.
- The contractors agreed to provide the safety equipment such as goggles, mask, gloves etc. to the workers by 26 May, 2017 as demanded by the type and nature of work and as advised by the Employer or their representative.
- Since the contractors informed that the workers resist using gumboots while working in hot temperature, it was agreed to allow them to use canvas shoes instead of rubber gumboots while working in a normal working condition. However, proper working boots shall be provided by the contractors while working in high risk condition. .
- The contractors shall keep sufficient good quality Green Net and use them properly on stands to block the visibility of work. They also agreed not to use filthy and torn out old nets and regularly replace the old ones as advised by the Employer or their representatives.
- All contractors agreed to be liable for a penalty of NRs. 15,000/- per month for non compliance on each category of safeguard requirements for which the compliance monitoring is carried out: a) Occupational Health and Safety, b) Community grievances and readiness for accidental injuries, c) Environmental Safeguard, d) Safety at work sites, and e) Other traffic related issue.
- Employer instructed the contractors and the latter agreed to strictly prohibit use of child labor in the project work.
- Contractor agreed to sprinkle water in sufficient number a day at all DNI sites based on requirement and feasibility -and as instructed by the Employer or their representative.
- On the request of contractors, the Employer agreed to organize periodic safeguards orientation to the contractors' staff and workers to keep them aware on the safeguards compliance requirements of the project.
- Contractors requested to include all safeguard requirements in the bid document and BOQ with clear scope and cost. Employer accepted their suggestion in order to enhance the level of compliance of safeguards measures in future contract packages.
- All contractors agreed that by the virtue of receiving the MOM, it is deemed that the contractor has agreed to comply with the CAP.



## Corrective Action Plan – Environment and Social Safeguard Compliance

This Corrective Action Plan has been prepared on the basis of CAPC's daily compliance monitoring at various work site of all BDS Package and score obtained.

Issues/Problem definition	Evaluation	Action steps	Improvement Benchmark	Timeframe
<b>Occupational Health and Safety</b>				
Non compliance in using PPE (especially safety boots)	a) Unaware of its provision b) Not provided by the contractors c) Bruise on leg due to rubber boots	a) Arrange Induction for all employees including labors, site engineers and supervisors prior to their deployment in work site. b) Provide proper PPE to all employees. c) Provide correct size of boots and teach them to wear properly (with socks). d) During normal working condition, Canvas shoes could be used. e) Contractor at all working sites shall make available the required numbers of other safety equipment (goggles, mask, gloves as required by the nature of the work and as instructed by the Employer) – by 26 May, 2017 f) Contractors shall be given a period of 30 days (15 June 2017) to comply with the PPE requirements. g) <i>Contractors have agreed that they will be liable to bear a penalty of NRs.15,000 per month if they are unable to comply with the requirements starting from 19 June 2017.</i>	Compliance should be >80%	15 <sup>th</sup> June, 2017
<b>Community Grievances and Readiness for Accidental Injuries</b>				
Unavailability of Help desk at work site	a) Narrow road b) Insufficient budget c) Not provided by contractors	a) Assign nearby open place b) Cost included in EMP budget, so should not be an excuse c) Help desk is mandatory, provided with drinking water, First Aid Box and GRM register	Compliance should be >80%	15 <sup>th</sup> June, 2017



		<i>d) After the grace period of a month, the contractors shall be liable to bear a penalty of NRs.15, 000 per month for non-compliance recorded over a month.</i>		
First Aid Box – unavailability as well as insufficient supply	a)Lack of Knowledge b)Negligence	a) Clearly define what should be kept in the first aid box, and encourage contractors to mandatorily follow the requirement. <i>b) After the grace period of a month, the contractors shall be liable to bear a penalty of NRs.15, 000 per month for non-compliance recorded over a month.</i>	Compliance should be >80%	15 <sup>th</sup> June, 2017
Unavailability of GRM Register	a)Not provided by contractor b) Negligence	a) Supervisor of the site should ensure the availability of safeguard related supplies before starting work. <i>b) After the grace period of a month, the contractors shall be liable to bear a penalty of NRs.15, 000 per month for non-compliance recorded over a month.</i>	Compliance should be >80%	15 <sup>th</sup> June, 2017
<b>Environmental Safeguard</b>				
Site cleanliness	a)Negligence, though supervisors are aware of the provision	<i>After the grace period of a month, the contractors shall be liable to bear a penalty of NRs.15, 000 per month for non-compliance recorded over a month.</i>		15 <sup>th</sup> June, 2017
Water sprinkling	a)Lack of provision of water sprinkling in DNI area b)Lack of water tanker c)Heavy traffic during day time	a)Make an arrangement with contractors to have provision of water sprinkling in DNI areas as well.(when required and where possible DNI packages should sprinkle water) b) Contractors should have at least one water tanker with proper sprinkling mechanism standby to address dust problem. c) Sprinkle water before office start and end time. <i>d) After the grace period of a</i>	Water sprinkling twice daily	Every day until blacktopping

		<i>month, the contractors shall be liable to bear a penalty of NRs.15, 000 per month for non-compliance recorded over a month.</i>		
<b>Safety at Work Site</b>				
Lack in use of caution ribbon	a)Confusion on its use b)Unavailability of caution ribbon	a)Inform contractors when should we use the caution ribbon b)Encourage them to make it available at the work site	Compliance should be >80%	15 <sup>th</sup> June, 2017
Lack in proper use of green net	a)Not aware of the provision of its use b) Not provided by contractors c)Regular replacement of old/torn green net	a) Contractors should instruct site supervisor/in charge to properly place clean green nets b) Contractors shall ensure that sufficient green nets are available at the work site at all times in case the old and torn green nets require replacement c) Replace old and filthy looking nets with new one and as instructed by the Employer or their representatives <i>d) After the grace period of a month, the contractors shall be liable to bear a penalty of NRs.15, 000 per month for non-compliance recorded over a month.</i>	Compliance should be >80%	15 <sup>th</sup> June, 2017
Use of shoring	a) Negligence	a)Mandatory use of shoring if trench is more than height/soil type <i>b) After grace period, NRs.15, 000 penalty for overall compliance over a month.</i>	Based on height/soil type	15 <sup>th</sup> June, 2017
<b>Others</b>				
Iron crossing	a) Not provided by contractors	<i>a) After grace period, NRs.15, 000 penalty for overall compliance over a month.</i>		15 <sup>th</sup> June, 2017
Child labour	Visible at few sites	a) Contractor shall strictly prohibit the use of child labor <i>b) The contractors shall be liable to bear a penalty of NRs.15, 000 each case for</i>		15 <sup>th</sup> June, 2017

		<i>any non-compliance at any time.</i>		
--	--	--	--	--

A handwritten signature in dark ink, appearing to be "John Doe", written in a cursive style.

**Project Implementation Directorate/Kathmandu Upatyaka Khanepani Limited  
Community Awareness and Participation Consultant**

**Orientation on Environmental and Social Safeguard Compliance**

Date: Jestha 5, 2074 (May 19, 2017) Friday

Time: 11.00 AM to 12.00 noon

Venue: Project Implementation Directorate, Anamnagar

S.No.	Name	Organization	Contact No.	Signature
1				
2				
3	Dr. Siph	ADB	9851036192	<i>[Signature]</i>
4	Rajendra Mahadeth	TWIL-SCPL JV	<del>9801808057</del>	<i>[Signature]</i>
5	Sugat Shaky	Hongzhu - ohaim JV	9801808012	<i>[Signature]</i>
6	Let Bdr. Tameng	" "	9801808013	<i>[Signature]</i>
7	Bimod Subedi	" "	9801808014	<i>[Signature]</i>
8	Niraj Pokrel.	TWIL-SCPL JV	9801808058	<i>[Signature]</i>
9	Jeetendra Puri	GIFF water infra JV	9818059489	<i>[Signature]</i>
10	C.S. Saini	GIFF water infra JV	9808666901	<i>[Signature]</i>
11	VIKAS TYAGI	GIFF water infra JV	9819974377	<i>[Signature]</i>
12	Mukunda Sharma	TWIL-SCPL JV	9851104590	<i>[Signature]</i>

Meeting attendance  
19 May, 2017

13	P. M. Chhabhar	Tianjin Raman JV	9851091870	<i>P. M. Chhabhar</i>
14	Indra Vilas Khandelwal	DSC-05	9841458819	<i>I. V. Khandelwal</i>
15	Sandeep Mishra	DSC-03	9841146753	<i>S. Mishra</i>
16	Rajesh Kumar	DSC-5	9841772832	<i>R. Kumar</i>
17	Satish K. Yadav	DSC-05	9851122120	<i>S. K. Yadav</i>
18	RAJESH K. SHARMA	RAMAN Organization	9864106136	<i>R. K. Sharma</i>
19	Anand Mohan Chatur	RAMAN Organization	9841359068	<i>A. Mohan Chatur</i>
20	Pujan Shrivastha	DSC-05	9841958106	<i>P. Shrivastha</i>
21	Rasanta Choudhary	DSC-05 (BDS-2)	9849377966	<i>R. Choudhary</i>
22	Suresh Mahajan	DSC BCSE BDS-4	9801314674	<i>S. Mahajan</i>
23	Kuram Vaidya	BDS4	985192229-8	<i>K. Vaidya</i>
24	Basu Dev Dahiya	BDS 4	9801314664	<i>B. Dahiya</i>
25	Biraj Ram Lakshman	KWKL/DSC	9841985329	<i>B. Ram Lakshman</i>
26	NABIN SARKOTA	BDS	9861901340	<i>N. Sarkota</i>
27	THARLOM S Bhatt	DSC DS		<i>T. S. Bhatt</i>
28	Giri Sakshi. Sunar	CARE	9851180045	<i>G. Sakshi. Sunar</i>
29	DPS Singh Pawan Mahabadi	Mangurkalika & BDS-03	9851151852	<i>D. P. Singh Pawan Mahabadi</i>
30	Nishant Tandelkar	DSC-05	9851223765	<i>N. Tandelkar</i>

S.N	Name	Address/Designation	Contact No	Email Address	Signature
31	Hari Prasad Pandey	SD-PID	9851121822	pandeyhari@gmail.com	
32	Chandika Bdr Bhatt	PM	9851058899	chandika@gmail.com	
33	Anu Regim	SM / CAPC	9841078917	anu4regim77@gmail.com	
34	Anita Inawali	CME / EASSC-02	9841011462	anawali.anita@gmail.com	
35	Anusuya Joshi	EE / CAPC	9851215888	anusuya.joshi@gmail.com	
36	Swati Sharma	DSC-05	9841427813	swatisharma013@gmail.com	
37	Nandana Kharas	DSC-05	9851101277	nandana.kharas@gmail.com	

Minutes of the Meeting (MOM)

Emergency Safeguards Meeting

Date: 14<sup>th</sup> June, 2017

Time: 2 pm- 2:45 pm

Venue: Project Implementation Directorate (PID) Hall, Anamnagar, Kathmandu

An emergency meeting was held at PID Hall, Anamnagar, with Authorised Representative, Contractor Representatives and Project Managers of all DNI and BDS packages. The meeting was held in presence of all Construction Supervision Engineers (CSEs) to discuss on the corrective action plan immediately needed for the unfortunate "Freak" accident that took place on 14<sup>th</sup> June, 2017 at 1 am, Sitapaila, Kathmandu.

Agenda of the meeting

1. Discussion on Corrective Action Plan

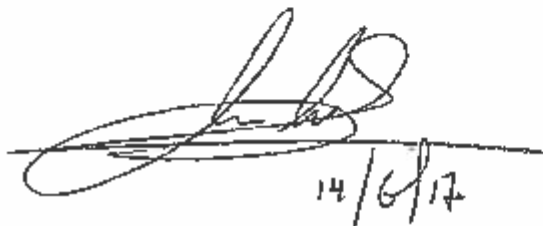
Details of discussion

1. Three innocent individuals lost their lives in an accident today (14<sup>th</sup> June, 2017) at 1 am, Sitapaila, Kathmandu. One of three labours was levelling the sand bedding, one was cleaning the pipes and the third was waiting for the shoring during the incident.
2. It was stressed that the risk for such unfortunate accidents are higher during monsoon and so safeguards issue needs to be taken seriously.
3. Presence of supervising staff at site.

Actions agreed

1. It was agreed that no any individual shall be at the trench without guide rails for the shoring. The shoring shall only be placed from the top and secured in the ground using the excavator.
2. It was agreed that all the preparatory work shall undertake after the shoring is done.
3. All contractors supporting personnel i.e. safety cannot leave the site together even for short time like for tea. At least one supervising staff shall be present at site.
4. The engineers acknowledged that shoring is used however reaffirmed that no work shall be allowed if shoring is not done and injury occurs to any worker.
5. All parties at the meeting agreed that Project Manager shall be removed from site if the shoring is not done.
6. All parties at the meeting agreed that Project Manager and Contractor's Representatives shall be terminated from service in the events similar to i.e. fatality incident occurs, due to inadequate safety.
7. It is deemed that all authorised representative has agreed to the corrective action plan of today's meeting by the virtue of the presence of their representatives at the meeting.

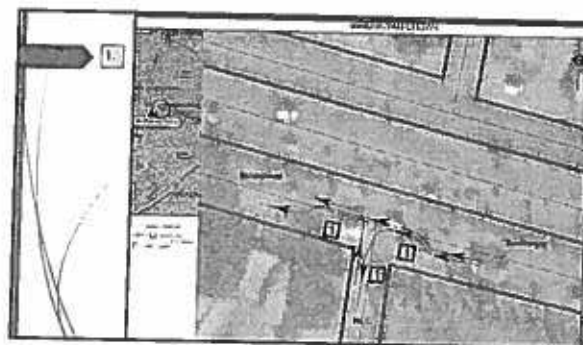
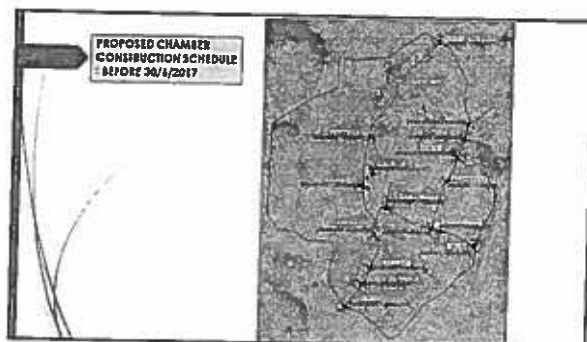
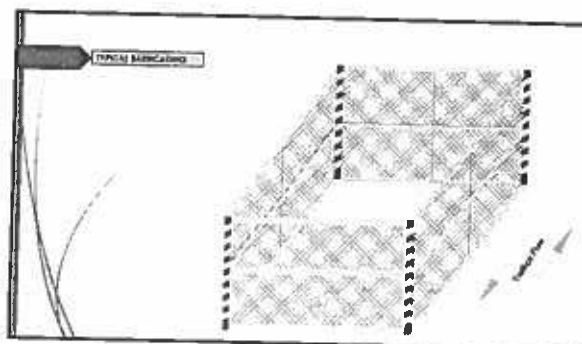
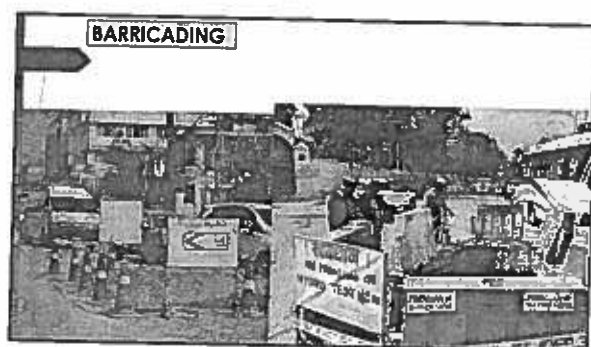
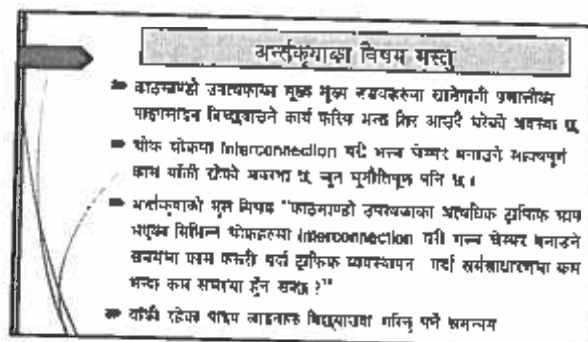
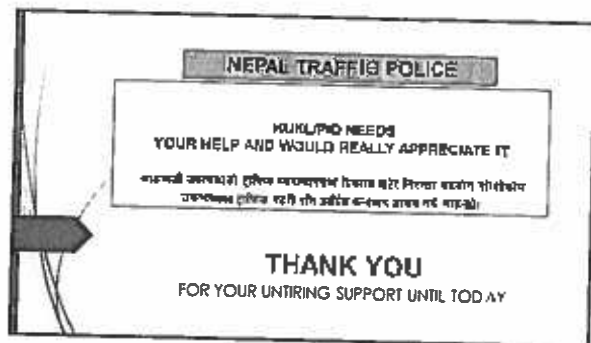
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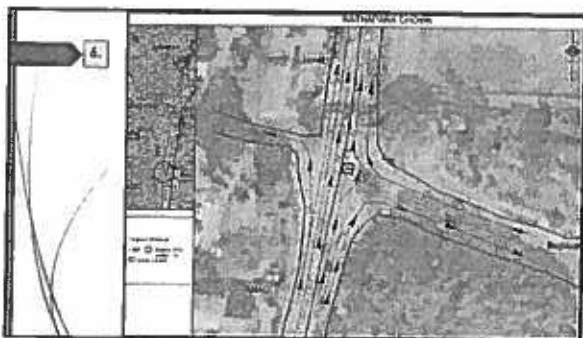
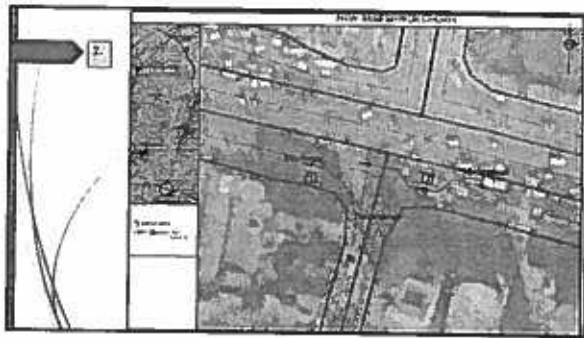
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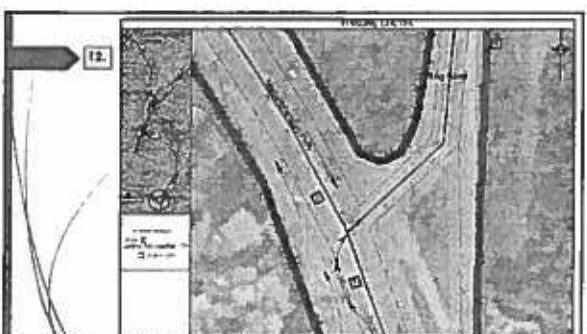
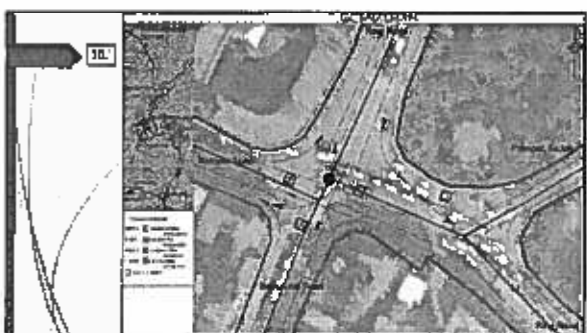
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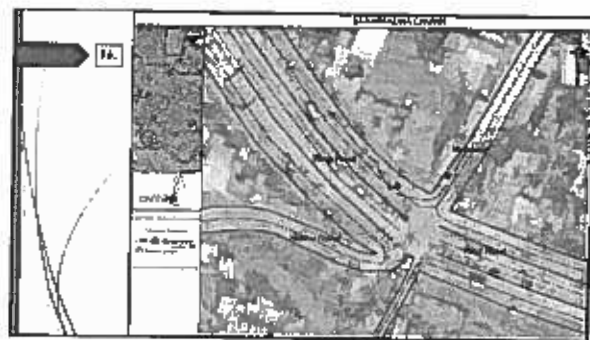
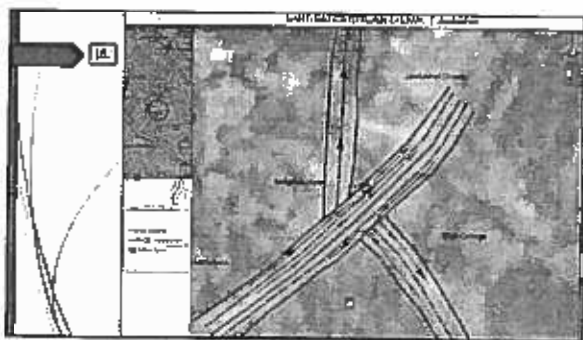
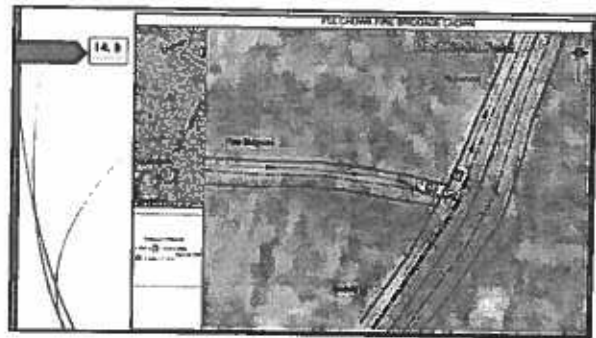
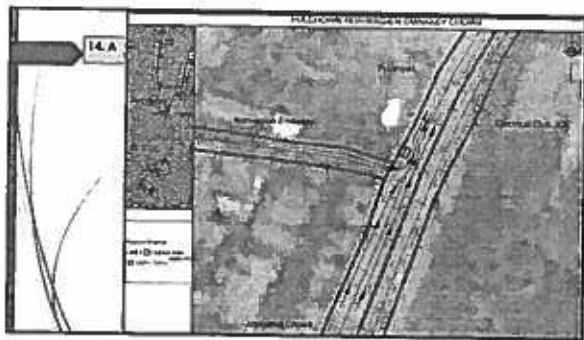
ATTACHMENT 5











General Details of Responsible Parties			
No.	Name	Position	Phone No.
1	Mr. [Name]	Project Manager	[Phone]
2	Mr. [Name]	Engineer	[Phone]
3	Mr. [Name]	Surveyor	[Phone]
4	Mr. [Name]	Inspector	[Phone]
5	Mr. [Name]	Assistant Engineer	[Phone]
6	Mr. [Name]	Assistant Surveyor	[Phone]
7	Mr. [Name]	Assistant Inspector	[Phone]
8	Mr. [Name]	Assistant Engineer	[Phone]
9	Mr. [Name]	Assistant Surveyor	[Phone]
10	Mr. [Name]	Assistant Inspector	[Phone]
11	Mr. [Name]	Assistant Engineer	[Phone]
12	Mr. [Name]	Assistant Surveyor	[Phone]
13	Mr. [Name]	Assistant Inspector	[Phone]
14	Mr. [Name]	Assistant Engineer	[Phone]
15	Mr. [Name]	Assistant Surveyor	[Phone]
16	Mr. [Name]	Assistant Inspector	[Phone]
17	Mr. [Name]	Assistant Engineer	[Phone]
18	Mr. [Name]	Assistant Surveyor	[Phone]
19	Mr. [Name]	Assistant Inspector	[Phone]
20	Mr. [Name]	Assistant Engineer	[Phone]

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18	Mr. [Name]	Assistant Surveyor	[Phone]
19	Mr. [Name]	Assistant Inspector	[Phone]
20	Mr. [Name]	Assistant Engineer	[Phone]