

Environmental Compliance Monitoring Report

Semi-Annual Report No. 1

Grant Number: G0157-NEP
January-June, 2016

Nepal: Second Small Towns Water Supply and Sanitation Sector Project

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

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ENVIRONMENTAL MONITORING REPORT

Project Number: Grant 0157

Semi - Annual Report (January – June 2016)

NEP: Second Small Towns Water Supply and Sanitation Sector Projects

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|----------------------|--------------|----------------|--------------------------|
| 1. Karahiya-Makrahar | 2. Indrapur | 3. Lamahi | 4. Sandhikharka |
| 5. Damak | 6. Baglung | 7. Shivanagar | 8. Phidim |
| 9. Bhasi | 10. Meghauli | 11. Kakadvitta | 12. Darakh-Sukhad |
| 13. Mukundapur | 14. Vyas | 15. Letang | 16. Narayan Municipality |
| 17. Khandbari | 18. Duhabi | 19. Dhankuta | 20. Rampur |
| 21. Baitadi | | | |

Prepared by the Department of Water Supply and Sewerage, Ministry of Urban Development for the Asian Development Bank.

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Abbreviations

ADB	:	Asian Development Bank
SSTWSSSP	:	Second Small Towns' Water Supply and Sanitation Sector Project
EMP	:	Environmental Management Plan
DSC	:	Design and Supervision Consultant
DWSS	:	Department of Water Supply and Sewerage
WUSC	:	Water User's and Sanitation Committee
IEE	:	Initial Environmental Examination
PMO	:	Project Management office
MOUD	:	Ministry of Urban Development
TOR	:	Term of Reference
ZOI	:	Zone of Influence
OSE	:	Occupational Safety Equipment
PPE	:	Personal Protective Equipment
RE	:	Resident Engineer
DDR	:	Due Diligence Report
GRC	:	Grievance Redress Committee
BOQ	:	Bill of Quantity
Govt	:	Government
EA	:	Executing Agency

1 Introduction

This report summarizes the environmental compliance and monitoring for the period January to June 2016.

The Project has three components. Component 1 will develop an efficient, effective, and accountable urban water supply and sanitation sector by establishing and implementing policies, establishing service standards, and enhancing sector coordination. Component 2 will entail development of safe, accessible, and adequate water supply and sanitation facilities in 21 small towns. Component 3 will strengthen governance and capacity for project management and operation.

Project progress and development is occurring in accordance with the objectives set forth in Project Documents and there does not seem to be any major deviations. Similarly, the proposed implementation arrangements are completely in place and functioning, as desired and envisaged. There does not seem to be any need to modify the implementation arrangement, as proposed, at the moment.

The Project has an objective to a) develop an efficient, effective, and accountable urban water supply and sanitation sector by establishing and implementing policies, establishing service standards, and enhancing sector coordination; b) develop safe, accessible, and adequate water supply and sanitation facilities in 21 small towns; and c) strengthen governance and capacity for project management and operation.

The Project is striving towards achieving these objectives and no major hindrances at this juncture are foreseen, which could possibly stall achieving these major project objectives. Therefore, considering that the project objectives are on course there is no need to revisit these objectives at this juncture.

The security situation has improved considerably and the risk of delay in subproject design and construction due to difficulties in fielding the Government staff, consultants, and contractors is greatly reduced. The Project implementation schedule has taken into account some potential delay, but experiences in the previous project show that, due to the nature of the Project—which is provision of water supply and sanitation services to communities—risks for disturbance are expected to be much smaller than projects in other sectors.

The major risks and assumptions largely hold true even now, but there are some improvements with respect to the security situation and the political parties towards finalizing a political solution to the present impasse. These are positive aspects, which will translate into more focus on development works. In spite of the transitional phase and fluid political scenario, the Government has not moved away from its sectoral commitments especially with reference to water and sanitation. Thus, the assumptions envisaged at the time of Project inception holds true even now and mentioned risks are still within manageable limits.

The sub-projects consist of surface water and ground water based water supply systems and sanitation (including construction of toilets and wastewater treatment/septage management systems, surface water drainage and solid waste management in some selected towns). All the sub-projects have been classified as Category B and only IEEs are sufficient.

The Environmental Specialists of the DSCs (Design and Supervision Consultants) are responsible for environmental monitoring.

The IEE documents (with the EMPs) are part of the contractual documents and are provided to the Contractors, DSCs and the Water Supply and Sanitation Division/Sub-division Offices.

There was minimal progress in the construction activities in almost all projects due to shortage of fuel and strikes organized by various groups in Terai in the last reporting period. The situation has improved and most of the projects are performing well except few.

2 Compliance with Environmental Covenants

PMO with the support of DWSS and MOUD has been striving to adhere and meet all the Environmental Covenants stipulated in the Project Documents. The sub-projects have met all the compliance requirements of the Government of Nepal as the TORs and IEEs have to be approved by MOUD. Table 1 summarizes the status of the major project covenants and their compliances. Table 2 and 3 show the status of Environmental safeguards during planning and implementation stages.

Table 1: Grant Covenants and Status of Compliance

S. No	Covenant (with reference to Grant Agreements)	Responsibility	Period/ Deadline	Current Status
A.	Environmental			
A.1	<p>GA, Schedule 4, para 22: The Recipient shall ensure, and shall cause DWSS and WUSCs to ensure that: The Project is undertaken and all Project facilities are designed, constructed, implemented, operated, and maintained in accordance with the Borrower's applicable laws and regulations, ADB's <i>Environment Policy</i> (2002) and all assessments and examinations shall be undertaken and prepared in accordance with the EARP. Any mitigation measures set out in any EIA, EMP or an IEE are carried out; and</p> <p>All contractors are provided with the EIA, IEE and EMP, and that (i) the contractors implement the required mitigation measures as described in the EMP in a satisfactory manner, and report the implementation of the EMP in accordance with the EARP, along with any deviation from the IEE; (ii) the bidding documents include the requirement to comply with the EMP; and (iii) closely monitor environmental impact and compliance by the contractors with the EMP and ensure that results of such monitoring are incorporated in the QPR</p>	Govt/EA	<p>Before contract</p> <p>Item(iii) during implementation.</p>	Complied with.
A.2	<p>GA, Schedule 4, para 23: The Recipient shall ensure that prior to issuance of bidding documents for a Subproject, ADB shall have reviewed and cleared all EIAs for category A Subproject and IEEs for all category B sensitive Subprojects [(as these categories are determined under the EARP and ADB's <i>Environment Policy</i> (2002)) including and EMP or any updated or revised versions thereof. All environmental mitigation measures required for a Subproject shall be incorporated in the relevant contract for civil works.</p>	Govt/EA	Before bidding	Complied with.

Table 2: Status of Environmental Safeguards during Planning Stage

S. No.	Name of Project or Subproject	Environmental screening is carried out? (Yes or No)	Environment category of the project / subproject (A/B/C/FI)	EARF is prepared (if applicable) (Yes/No)	EIA/IEE/DD R with EMP is prepared (Yes/No)	ADB approved EIA/IEE with EMP (Yes / Under Review / Not Yet Due/Over Due)	Government approved EIA/IEE with EMP (Yes / Under Review / Not Yet Submitted)	Safeguard monitoring and coordination mechanism established (Yes/No)	GRC is established (Yes/No)	Automated safeguard monitoring system customized (Yes/No)	EMP cost in approved document is included in BOQ as an individual item (Yes/No)
1	Karahiya-Makrahar	Y	B	Y	Y	Y	Y	Y	Y	N	Y
2	Indrapur	Y	B	Y	Y	Y	Y	Y	Y	N	Y
3	Lamahi	Y	B	Y	Y	Y	Y	Y	Y	N	Y
4	Sandhikharka	Y	B	Y	Y	Y	Y	Y	Y	N	Y
5	Damak	Y	B	Y	Y	Y	Y	Y	Y	N	Y
6	Baglung	Y	B	Y	Y	Y	Y	Y	Y	N	Y
7	Shivanagar	Y	B	Y	Y	Y	Y	Y	Y	N	Y
8	Phidim	Y	B	Y	Y	Y	Y	Y	Y	N	Y
9	Bhasi	Y	B	Y	Y	Y	Y	Y	Y	N	Y
10	Meghauli	Y	B	Y	Y	Y	Y	Y	Y	N	Y
11	Kakadvitta	Y	B	Y	Y	Y	Y	Y	Y	N	Y
12	Darakh-Sukhad	Y	B	Y	Y	Y	Y	Y	Y	N	Y
13	Mukundapur	Y	B	Y	Y	Y	Y	Y	Y	N	Y
14	Vyas	Y	B	Y	Y	Y	Y	Y	Y	N	Y
15	Letang	Y	B	Y	Y	Y	Y	Y	Y	N	Y
16	Narayan Municipality	Y	B	Y	Y	Y	Y	Y	Y	N	Y
17	Khandbari	Y	B	Y	Y	Y	Y	Y	Y	N	Y
18	Duhabi	Y	B	Y	Y	Y	Y	Y	Y	N	Y
19	Dhankuta	Y	B	Y	Y	Y	Y	Y	Y	N	Y
20	Rampur	Y	B	Y	Y	Y	Y	Y	Y	N	Y
21	Baitadi	Y	B	Y	Y	Y	Y	Y	Y	N	Y

Note: EIA- Environmental Impact Assessment; IEE- Initial Environmental Examination; DDR- Due Diligence Report; EMP- Environmental Management Plan; GRC- Grievance Redress Committee; BOQ- Bill of Quantity

Table 3: Status of Environmental Safeguards during Implementation Stage

Name of Project: Second Small Town Water Supply and Sanitation Sector Project

S.N	Name of Sub-Project	Compliance to Environmental Management Plan*														Grievances			Corrective Action Plans are prepared and implemented (Y/N)	Env compliance reporting is maintained (Y/N)
		Physical				Biological			Socio-economic											
		Spoil Management Compliance in % **	Landslide protection with Bio-engg	Drainage Management (compliance in %)**	Others as per EMP (specify)	Compensatory Plantation		Firewood is used for cooking and heating	Others as per EMP (specify)	Occupational Health and Safety			Community structures are compensated/ reconstructed (progress in % of total)	Others as per EMP (specify)						
						Target (Nos)	Re-Planted (No.)			Safety Gears are sufficient and used (Y/N)	Labors are insured (Y/N)	Labor and work camps are healthy and have sanitary facilities (Y/N)			Structure 1	Structure 2				
1	Karahiya-Makrahar	Y	NA	Y		NA	NA	N		Y	Y	Y	NA	NA		NA	NA	NA	Y	Y
2	Indrapur	Y	NA	Y		NA	NA	N		Y	Y	Y	NA	NA		NA	NA	NA	Y	Y
3	Lamahi	Y	NA	Y		NA	NA	N		Y	Y	Y	NA	NA		NA	NA	NA	Y	Y
4	Sandhikharka	Y	Y	Y		NA	NA	N		Y	Y	Y	NA	NA		NA	NA	NA	Y	Y
5	Damak	Y	NA	Y		NA	NA	N		Y	Y	Y	NA	NA		NA	NA	NA	Y	Y
6	Baglung	Y	Y	Y		NA	NA	N		Y	Y	Y	NA	NA		NA	NA	NA	Y	Y
7	Shivanagar	Y	NA	Y		NA	NA	N		Y	Y	Y	NA	NA		NA	NA	NA	Y	Y
8	Phidim	Y	Y	Y		NA	NA	N		Y	Y	Y	NA	NA		NA	NA	NA	Y	Y
9	Bhasi	Y	NA	Y		NA	NA	N		Y	Y	Y	NA	NA		NA	NA	NA	Y	Y
10	Meghauli	Y	NA	Y		NA	NA	N		Y	Y	Y	NA	NA		NA	NA	NA	Y	Y
11	Kakadvitta	Y	NA	Y		NA	NA	N		Y	Y	Y	NA	NA		NA	NA	NA	Y	Y
12	Darakh-Sukhad	Y	NA	Y		NA	NA	N		Y	Y	Y	NA	NA		NA	NA	NA	Y	Y
13	Mukundapur	Y	NA	Y		NA	NA	N		Y	Y	Y	NA	NA		NA	NA	NA	Y	Y
14	Vyas	Y	Y	Y		NA	NA	N		Y	Y	Y	NA	NA		NA	NA	NA	Y	Y
15	Letang	Y	NA	Y		NA	NA	N		Y	Y	Y	NA	NA		NA	NA	NA	Y	Y
16	Narayan Municipality	Y	Y	Y		NA	NA	N		Y	Y	Y	NA	NA		NA	NA	NA	Y	Y
17	Khandbari	Y	Y	Y		NA	NA	N		Y	Y	Y	NA	NA		NA	NA	NA	Y	Y
18	Duhabi	Y	NA	Y		NA	NA	N		Y	Y	Y	NA	NA		NA	NA	NA	Y	Y
19	Dhankuta	Y	Y	Y		NA	NA	N		Y	Y	Y	NA	NA		NA	NA	NA	Y	Y
20	Rampur	Y	NA	Y		NA	NA	N		Y	Y	Y	NA	NA		NA	NA	NA	Y	Y
21	Baitadi	Y	Y	Y		NA	NA	N		Y	Y	Y	NA	NA		NA	NA	NA	Y	Y

3 Approach and Methodology for Environmental Monitoring

The present environmental monitoring report has been prepared based on the environmental management plan (EMP) described in the IEE report of the project which has been approved by the Ministry of Urban Development, Government of Nepal. The major activities undertaken during the preparation of the environmental monitoring report are outlined below.

3.1 Desk Review

The project engineering report, IEE report and other relevant documents were thoroughly reviewed. Policies, legislations and guidelines relevant to the project were also referred to. An environmental monitoring format was prepared to fill the implementation status of the Environmental Management Plan and monitoring methods adopted in the project.

3.2 Collection and review of secondary sources of information from various sources

Secondary information was collected through the monthly progress reports that are submitted by DSCs. Information was also collected from the contractor records, DSCs technical documents, etc. Other information was collected from WUSC, DSC, Contractor, DWSS and PMO.

3.3 Compilation of existing information, implementation status and monitoring methods

All the information and data regarding monitoring works and implementation status of EMP was done with reference to the IEE report, design reports, contractor records, and monthly progress reports. Qualitative as well as quantitative analysis of monitoring parameters, reports from site inspectors and subjective judgments. Thus the information collected from different sources was processed and analyzed according to the physical, biological, socioeconomic and cultural environments within the zone of influence.

4 Summary of Environmental Mitigation and Compensation Measures Implemented

4.1 Compliance status with National/State/Local statutory environmental requirements

S.No.	City/ Town	Work (package no.)	Applicable legislation/type of clearance	Clearance given by and date	Subject/ issue	Remarks/action needed
1	Karahiya and Makrahar	Batch I, Package II SSTWSSSP/ICB-01/Karahiya-Makrahar	NA	NA	NA	-
2	Indrapur	Batch I, Package III SSTWSSSP/ICB-02/Indrapur Morang	NA	NA	NA	-
3	Lamahi (Chailahi VDC)	Batch I, Package II SSTWSSSP/ICB-03/Lamahi_Dang	N/A	N/A	N/A	-
4	Sandhikharka	Batch I, Package II SSTWSSSP/ICB-04/ Sandhikharka_Arghakhanchi	Land ownership at underground reservoir and sump well site	VDC	Handover of landownership to WUSC	
5	Damak	SSTWSSSP/ICB-05/ Damak_Jhapa	N.A	N.A	N.A	
6	Baglung	Batch I, Package II SSTWSSSP/ICB-06/Baglung_Baglung	N/A	N/A	N/A	-
7	Shivanagar	Batch I (Package I) Contract No- SSTWSSSP/ICB-07 /Shivanagar_Kailali	NA	NA	NA	-
8	Phidim	SSTWSSSP/ICB-08/ Phidim_Panchthar	NA	NA	NA	
9	Bhasi (Bhimdutta Municipality and Suda VDC)	Batch 1 (Package I) Contract No- SSTWSSSP/ICB- 09/Bhasi_Kanchanpur	N/A	N/A	N/A	
10	Meghauli	Batch II, Package III SSTWSSSP/ICB-10/Meghauli_Chitwan	N/A	N/A	N/A	-
11	Kakarvitta (Mechinagar municipality)	Batch II,Package IV SSTWSSSP/ICB-11/Kakarvitta_Jhapa	Land ownership at overhead tank generator house, guard houses at Surendranagar, Bermeli, Shantiramailo, Bazar Area, deep tube well	Mechinagar Municipality	Handover of land ownership to Kakarvitta Drinking water users' and sanitation	

S.No.	City/ Town	Work (package no.)	Applicable legislation/type of clearance	Clearance given by and date	Subject/ issue	Remarks/action needed
			site		organization	
12	Darakh Sukhad (Sukhad & Sadepani)	Batch I, Package II SSTWSSSP/ICB-012/Darakh-Sukhad_Kailali	N.A	N.A	N.A	
13	Mukundapur	Batch II, Package II SSTWSSSP/ICB-13/Mukundapur-Nawalparasi	N/A	N/A	N/A	-
14	Vyas	Batch II, Package II SSTWSSSP/ICB-14/Vyas_Tanahu	N/A	N/A	N/A	-
15	Letang	Batch II, Package IV SSTWSSSP/ICB-15/Letang_Morang	N.A	N.A	N.A	
16	Narayan Municipality	Batch I, Package I, Contract No : SSTWSSSP/ICB-16/Narayan Municipality_Dailekh	N/A	N/A	N/A	
17	Khandbari	Batch II, Package III SSTWSSSP/ICB-18/Khanbari_Sankuwasabha	N.A	N.A	N.A	-
18	Duhabi	Contract No : SSTWSSSP/ICB-19 /Duhabi_Sunsari	N/A	N/A	N/A	
19	Dhankuta	Batch II, Package IV SSTWSSSP/ICB-20/Dhankuta_Dhankuta	N.A	N.A	N.A	-
20	Rampur	Batch II, Package II SSTWSSSP/ICB-21/Rampur-Palpa	Bushes and Shrubs Clearance	Ministry of Forest, through district level office (DFO)	NA	Forestation and greenery of the area after completion of component like reservoir. Stabilization work of slope cutting area
21	Baitadi (Dashrathchand Municipality)	Batch I, Package I SSTWSSSP/ICB-22/Baitadi_Baitadi	N.A	N.A	N.A	

4.2 Sub-project Progress and Status

S.No.	Towns	Name of the contractor	Listing of works under the package	Starting date (land clearance) and schedule date of completion	What type of works continue at present	Progress % (as of June, 2016)	Expected changes from approved scope	Fulfillment of objectives- Type of remedial measures needed	Key assumptions and risks that affect attainment of the objectives
1	Karahiya-Makrahar	M/S Sichuwan-Chandra & Basanta JV	Deep tube well -2 Nos. Pump house cum generator house – 1 No. Institutional/school toilets – 2 Nos. WUSC office building: 1 No. Pipeline: Distribution – 56,860.66 m Transmission – 627.68 m	Starting date: December 29, 2011 Completion date: January 19, 2015	Defect Liability Period (Ending on 16 Oct 2016)	100 %	Safe and Adequate Water Supply	-	-
2	Indrapur	Tandia Tundi	OHT 450m3:1no. CWR-2nos. Deep tubewell-4nos. Mechanical Treatment Plant -2nos. Pipeline :80km Office Building, Electro mechanical work:1nos	Starting date Jan 20,2012 Completion date May 14, 2016	Defect Liability Period (Ending on 14 May 2017)	100%	Safe and Adequate Water Supply	-	-
3	Lamahi	Sichuwan-Chandra & Basant-Nagarjun (JV)	Civil work Pipeline works and fittings in Transmission main, distribution main,	Starting date: January 08, 2011	Defect Liability Period (Ending on	100 %	Safe and Adequate Water Supply	-	-

			household connection Electrical works and electromechanical works at deep tube well and reservoir site Environmental mitigation works Public toilet, institutional toilet works Operation and maintenance works	Date of completion: January 31, 2015	28 January 2017)				
4	Sandhikharka	Tantia- Tundi JV	Ground reservoir tank 200, 100 cu.m, Sump well 2 Nos. Slow sand filters 2 Nos. Sedimentation tank 2Nos. Pipeline works 32 km	Starting date: January 20, 2012 Date of completion: January 19, 2015.	Stage II-O&M	99.58%	Transformation of WUSC building due to congested site condition	-	No risk measured
5	Damak	Tantia- Tundi JV	Overhead Water Tank 450Cum – 2 Nos Deep Tube well – 5 Nos Mechanical Treatment Units – 2Nos Guard Houses – 2 Nos. Pipeline – 180 km Compound Wall – 500m Electro-Mechanical Works – 2 Nos	Starting date: January 20, 2012 Date of completion: January 19, 2015	Stage II-O&M (Ending on 29 Sept. 2016)	99.50%	Safe Water Supply	-	-
6	Baglung	Tantia Tundi (JV)	Civil work Pipeline works and fittings in Transmission main, distribution main, household connection Sanitary and electrical	Starting date: December 29, 2011 Date of completion:	Likely to enter Stage II – O&M by end of July 2016	96.90 %		-	No risk measured

			works in laboratory building Environmental mitigation works Operation and maintenance works	January 19, 2015					
7	Shivanagar	Sichuwan-Chandra & Basant-Nagarjun JV	Overhead tank 450 m3 1No Underground water tank (300 m3) 1 No Sumpwell – 3 sets Institutional latrine – 6 No Pressure filter – 3 sets Valve chamber -32 nos. Distribution pipeline network – 36 km	Starting Date- December 29, 2011 Date of Completion – January 19, 2015	Stage II – O&M	97.79%	-	-	-
8	Phidim	M/S Sharma-Mahadev Khimti	Storage tank: (2Nos- 50 m3; 2Nos – 30 m3; 1 Nos – 20 m3) Total Length of pipe: Distribution - 26.52 Km Transmission - 26.47Km Treatment Unit: Conventional Treatment Plant with grit chamber, Sedimentation Tank, Slow sand filtration and chlorination.	Starting date 12 Dec 2012 Completion date 28 Dec 2014	Stage II –O&M (Started from 18 May 2016)	94.38%	-	-	-
9	Bhasi	Sumec-Chandra & Basant –AM JV	Overhead tank (450 m3)- 1 No. Valve chamber -35 No. Deep tube well -1 No. Public toilets – 4No.	Starting Date -September 28, 2012 Date of	Stage II-O&M	97.01 %	-	-	-

			Pressure filter 2 sets Softner filter 2 sets Distribution pipeline network- 46 km	Completion- October 15, 2015					
10	Meghauli	Sharma- Chandra & Basanta –AM JV	Civil work Pipeline, pipe fitting and Other Pipe line related works Electrical and mechanical works Environmental mitigation works Borehole drilling and installation of 300/200 mm dia. deep tube well Sanitation component work Operation and maintenance works	Starting date : January 01, 2013 Date of completion: July14, 2015	Stage II-O&M	99.76 %	-	-	No risk measured
11	Kakarvitta	Hangzhou – Kankai JV	Overhead reservoir tank - 1, Deep tube well-3, Transmission/distribution water supply pipe line- 120.5 km, Guard quarter-2, Boundary wall, Transformer-3, Stabilizer -3, Treatment plant-4, Submersible pump, Generator -3 sets	Starting Date January 15,2013 Completion date July 14,2015	Defect Liability Period (Ending on 17 Oct. 2016)	100%	Addition of electricity stabilizer due to low voltage quality	-	No risks
12	Darakh Sukhad	Sumec- Chandra & Basant	Access road improvement with Gravelling	Starting date July 1, 2013 Date of	Stage I (Construction)	99.72%	Improveme nt of in road surfaces to	Side drains and Retaining wall needed	To protect RCC culvert over drain line from collapsing due

				Completion: July. 14, 2015			easily drain off rain water		to further land slide around the culvert. Possibility of water logging during heavy rains
13	Mukundapur	CTCE-Kalika- Raman (JV)	Surface sources and intakes, Deep boring and pumping system, Generator and Generator shed, Transmission mains, treatment facilities, reservoirs, Distribution mains, house connection, water quality testing facility, office building, guard/operator house, boundary wall construction	Starting date: December 23, 2012 Date of completion: July 15, 2015	Stage II – O&M	99.5%			
14	Vyas	Multipower- Amar- Mritsanjibani (JV)	Civil work Pipeline, pipe fitting and other pipe line related works Electrical and mechanical works Environmental mitigation works Borehole drilling and installation of 300/200 mm dia. deep tube well Sanitation component work Operation and maintenance works	Starting date : July 08, 2013 Date of completion: Jan 31, 2016	Land development work at treatment plant site, Soil soling with sand and PCC of PST, HRF and slow sand filter treatment plant, RCC work in progress	91.08%	Soil erosion, change in land use pattern	The location of treatment site has been selected so as to avoid forests. CFUs will be supported in afforestation	
15	Letang	Raman-	OHT-2, deep tube well-4,	Starting Date	Defect Liability	100%	-	Not needed	No risk

		Ningshing-Diwa JV	transmission / distribution water supply pipe line-95 Km, RVT-2, generator-3, boundary wall, transformer-3, treatment plant-2, submersible pump, Infiltration wells, office building, generator operator house etc	Aug.01, 2013 Completion Date Jan. 31, 2016	Period (Ending on 29 June 2017)				measured
16	Narayan municipality	Sumec-Chandra & Basanta JV	Intake structures – 1 proposed and 2 rehabilitation Underground water tank 3 Nos. Treatment plant and sedimentation tank Transmission main pipeline 28.88km Distribution pipeline – 60.88 km	Starting Date –July 14, 2013 Date of Completion – January 31 , 2016	Pipeline, Civil Wok, Fitting works	78.63 %	-	-	-
17	Khandbari	M/S Sinotec-Ashish JV	Intake structure-1 Nos Collection chamber-1 Nos Roughening Filter (Set) -1 (4 unit) Roughening Filter -1 (1 unit) Slow Sand Filter (Set)- 3 (2 unit) Reservoir Tank (100 Cum)- 2Nos Reservoir Tank (75 Cum) – 1Nos Reservoir Tank (50 Cum) – 3Nos Laboratory Building – 1Nos	Starting date 1 st August, 2013 Completion date 31 st January,2016	Realignment of Transmission Pipeline, House Connections, SSF etc.	92 %	-	-	-

			Guard house – 1Nos Public Toilet- 3Nos Pipeline: Transmission main - 13,870m Branch transmission main- 24,912m Distribution main new - 53,384m						
18	Duhabi	Hangzhou Kankai JV	Deep Tube Wells:2 nos.(New) Deep Tube Wells:1 nos. (Test Borehole) Office Building :1 no Mechanical Treatment Plant Unit: 2 Guard /Operator House:2 Distribution pipe line:31.24km Transmission pipeline :680m OHT inlet DI flange pipe: 60m Valve Chamber: 39 nos. Electromechanical works: 3 nos. House Connections: 3000 nos. Surface Drain :5.28 km Public toilet with septic tank: 2 nos.	Starting date August 01,2013 Completion date Jan31 ,2016	Public toilet construction works including additional HDPE pipe line jointing ,laying and filling in distribution line on going	94.50%	-	-	-
19	Dhankuta	M/S Hangzhou- Kankai JV	Pumping station -3 Nos (50 m3 Ground reservoir (300m3)	Starting date 1 st Sep,2013	Stage II – O&M (Ending on 30 Sept.	98.50%	-	-	-

			<p>-1 Nos; (125 m³ -1 Nos) ;(20 m3-1 Nos) Stream intake-2 Nos Electrical : Generator-3, Transformer-3, 11 Kv Transmission 2.1 Km Pipeline: Existing: 41 km Pumping mains GI(150 mm dia) = 2.2 Km Tankhuwa to Nibuwa (HDPE 6kg class) : 7.85 km Distribution : 57.85 Km Treatment Unit: Grit chambers, Sedimentation, Roughening filters are proposed using existing SSF at Schooldanda for pumping scheme.</p>	<p>Completion date 30 June ,2016 (EOT Stage 2)</p>	2016)				
20	Rampur	Dinesh Chandra-Nagarjun (JV)	<p>Civil work Pipes and fittings Electrical and mechanical works Environmental mitigation works Borehole drilling and installation of 300/200 mm dia. deep tube well Water laboratory Multi grade pressure filter Sanitation component work Operation and</p>	<p>Starting date : August 15, 2013 Date of completion: February 15, 2016</p>	<p>Pipeline work. Crossing & Valve chamber works, finishing works, electrical & Mechanical works etc.</p>	94.24%	<p>Soil Erosion, Change in Land use pattern, Change in quantity of pipeline</p>	<p>The Location of reservoir and treatment site has been situated at and nearby forest area. CFUs will be supported in afforestation</p>	<p>No Major landslide occurs during excavation. Minimum destruction of forest area due to construction activities.</p>

			maintenance works						
21	Baitadi	Sharma- Chandra & Basant-Kumar JV	Intake structure -1 No. Collection chamber – 1 No. Sedimentation tank – 1 No. Roughening filter – 1 No. Slow sand filter – 1 No. Underground water tank (50 cu. m – 2 Nos) , (150 cu. m – 1 No) Public toilet – 6 Nos. WUSC office building: 1 No. Pipeline: Distribution -34.46 km Transmission – 5.27 km	Starting date: July 29, 2013 Completion date May 11, 2016	Construction of RVT tank, sedimentation tank and Intake structures	86.22 %			

5 Compliance Status with the Environmental Management and Monitoring Plans

The Environmental Management and Monitoring Plans are being implemented with respect to the guidelines defined in the Initial Environmental Examination (IEE) Report of **Second Small Town Water Supply and Sanitation Sector Project (ADB Loan Grant-0157- NEP: Second Small Towns Water Supply and Sanitation Sector Project)**.

As the work progresses, environmental quality monitoring in terms of air quality, water quality, noise level, and other parameters with ecological aspects is in progress at a qualitatively acceptable scale with a few exceptions. The contractor's personnel and site staff from the Consultant, were oriented/trained and made aware of their responsibility towards Environmental Safeguard issues, during construction works, such as:

- Adhering to the relevant adverse environmental impacts mitigation measures that are set out in the EMP while carrying out construction activities of the sub-project; and
- Assessing the conditions of surrounding environmental conditions, status of adjacent cleared area and other infrastructure, prior to construction commencement and upon completion of construction and thereby fully reinstate the environment to at least their pre-project conditions.

Detailed Compliance Status with EMP and Monitoring Plans of the project are presented in Tables below.

Table 5.1: Compliance with Environmental Management Plan (Karahiya Makrahar)

SN	Description of Impact	Mitigation measures proposed	Implementation status	Details/remarks on implementation	Monitoring methods and frequency	Monitoring conducted by	Monitoring remarks (Excellent/Satisfactory/Partially Satisfactory/Below Satisfaction/Poor/Very Poor, Not applicable)	Remarks and actions taken to improve implementation
	Pre-Construction Phase	Review of Design/Estimate	Completed					
		Review of specification of work	Completed					
Physical Environment								
Construction Phase								
1	Soil erosion and soil stability	Excavated soil placed safely against erosion	Completed		Stacking of soil Quantity of soil remaining Twice a week	Contractor/WSS DO/DSC	Not Applicable	
		Reuse of excavated soil properly during backfilling the pipe line trench and well compacted	Completed			Contractor/WSS DO/DSC	Not Applicable	
2	Air Quality (Dusty Environment)	Frequent sprinkling of water	Ongoing	Dust during construction was within the tolerance limit	Dust in Air Every day	Contractor/WSS DO/DSC	Not Applicable	
		Visual monitoring of air quality	Ongoing				Not Applicable	
		Use of masks	Ongoing				Not Applicable	
3	Noise and Vibration	Restriction on unnecessary honking of horn from the vehicles used for construction purpose	Ongoing	Drivers are instructed not to use pressure horns as far as possible	Control on use of blowing horns Daily during construction	Contractor/WSS DO/DSC	Satisfactory	No Complaints from community on high noise level during night time.
		Regular maintenance of equipment	Ongoing	Equipment are regularly maintained so as to produce less noise and vibration	Periodic maintenance record	Contractor/WSS DO/DSC	Satisfactory	

SN	Description of Impact	Mitigation measures proposed	Implementation status	Details/remarks on implementation	Monitoring methods and frequency	Monitoring conducted by	Monitoring remarks (Excellent/Satisfactory/Partially Satisfactory/Below Satisfaction/Poor/Very Poor, Not applicable)	Remarks and actions taken to improve implementation
		Mufflers fittings on noisy equipment	Ongoing	High noise producing equipment was not used so mufflers fittings were not required	Observation	Contractor/WSS DO/DSC	Satisfactory	
		Speed restriction	Ongoing	No major accident records found due to vehicle speed	Speed Control	Contractor/WSS DO/DSC	Satisfactory	
Biological Environment								
Construction Phase								
4	Impact on natural vegetation and ecology (Disturbance and loss of natural vegetation and ecology)	Restricting use of fuel wood in labor camp.	Ongoing	Haphazard cutting down of trees was not found	Smoke observation at labor camp Biannually	WSSDO/WUSC	Satisfactory	
		Provision of minimization of vegetation clearance	Completed	Pipeline has been located so as to minimize vegetation clearance	Cleared area Afforested area Biannually	WSSDO/WUSC	Not Applicable	
5	Loss of flora & fauna due to project sitting & related activities	Provision of minimization of vegetation clearance	Ongoing	No major loss of habitat was observed due to project related activities	Appearance of fauna Biannually	WSSDO/WUSC	Satisfactory	
		Environmental awareness program	Ongoing	Local community forest committee monitor and conduct programs for protection of forest habitat			Satisfactory	

SN	Description of Impact	Mitigation measures proposed	Implementation status	Details/remarks on implementation	Monitoring methods and frequency	Monitoring conducted by	Monitoring remarks (Excellent/Satisfactory/Partially Satisfactory/Below Satisfaction/Poor/Very Poor, Not applicable)	Remarks and actions taken to improve implementation
		Restricting use of fuel wood in labor camp.	Ongoing	Wood given by the community forest (twigs and branches) used as the major source of fuel in the labor camp			Satisfactory	
Socio-Economic and Cultural Environment								
Construction Phase								
6	Impairment to infrastructure (Construction activities may impair some of the existing community infrastructure such as road, foot trail etc.)	Proper precaution to be taken at the time of construction	Completed	Necessary precaution taken to minimize impairment of existing community infrastructure like road, foot trail, etc.	Uninterrupted human movement Daily	Contractor/ WSSDO/DSC	Satisfactory	
		Any damages to the existing infrastructure has to be repaired	Completed	No major existing infrastructure has been damaged by project activities			Satisfactory	
7	Law and Order issue and disturbance on social structure & culture	Instruction to all workers to act in a responsible manner	Ongoing	Workers were acting in a responsible and disciplined manner	Behavior of local People Weekly	Contractor/ WSSDO/DSC	Satisfactory	Provide awareness program
		Prohibition of use of alcohol and gambling	Ongoing	No records of fight and use of alcohol found			Satisfactory	
		Cultural awareness of local communities to	Ongoing	No awareness program provided			Satisfactory	

Second Small Town Water Supply and Sanitation Sector Project

SN	Description of Impact	Mitigation measures proposed	Implementation status	Details/remarks on implementation	Monitoring methods and frequency	Monitoring conducted by	Monitoring remarks (Excellent/Satisfactory/Partially Satisfactory/Below Satisfaction/Poor/Very Poor, Not applicable)	Remarks and actions taken to improve implementation
		outside work force		to workers however no violence due to cultural differences recorded				
		Orientation to outside workers	Ongoing	Separate orientation for outside work force not provided			Below Satisfaction	Provide Orientation and instruction program
8	Employment of local people (Economic condition of local people increases)	Positive impact on the project and community	Ongoing	Economic condition of local people uplifted	Appearance of local people in work force Weekly	Contractor/WSS DO/DSC/WUSC	Satisfactory	
9	Occupational Health and safety	Instruction to adopt safety measures	Ongoing	No formal awareness and instruction program held however no records of major accident found	Use of safety measures e.g. helmets, safety shoes, etc. Biweekly	Contractor/WSS DO/DSC/WUSC	Satisfactory	Continue providing formal awareness programs
		First aid to be easily accessible	Ongoing	Neither Health nor accident case recorded during this period			Satisfactory	

SN	Description of Impact	Mitigation measures proposed	Implementation status	Details/remarks on implementation	Monitoring methods and frequency	Monitoring conducted by	Monitoring remarks (Excellent/Satisfactory/Partially Satisfactory/Below Satisfaction/Poor/Very Poor, Not applicable)	Remarks and actions taken to improve implementation
10	Pollution from outside work force	Proper sanitary condition to be maintained in the labor camp (sanitary toilet, safe drinking water)	Ongoing	Sanitary condition in toilet maintained and safe drinking water provided to workers	Sick labor Waste and cleanliness of area Biweekly	Contractor/WSS DO/DSC/WUSC	Satisfactory	
		Collection of solid waste in fixed place	Ongoing	Place for solid waste collection not allocated			Partially Satisfactory	
		Periodic cleaning	Ongoing	No adverse environmental condition found at project site			Satisfactory	

Table 5.2: Compliance with Environmental Management Plan (Indrapur)

SN	Description of Impact	Mitigation measures proposed	Implementation status	Details/remarks on implementation	Monitoring methods and frequency	Monitoring conducted by	Monitoring remarks (Excellent/Satisfactory/Partially Satisfactory/Below Satisfaction/Poor/Very Poor, Not applicable)	Remarks and actions taken to improve implementation
	Pre-Construction Phase	Review of Design/Estimate	Completed					
		Review of specification of work	Completed					
Physical Environment								
Construction Phase								
1	Soil erosion and soil stability	Excavated soil placed safely against erosion	Completed		Stacking of soil Quantity of soil remaining Twice a week	Contractor/WSS DO/DSC	Not Applicable	
		Reuse of excavated soil properly during backfilling the pipe line trench and well compacted	Completed			Contractor/WSS DO/DSC	Not Applicable	
2	Air Quality (Dusty Environment)	Frequent sprinkling of water	Ongoing	Dust during construction was within the tolerance limit	Weekly	Contractor/WSS DO/DSC	Satisfactory	
		Visual monitoring of air quality	Ongoing				Satisfactory	
		Use of masks	Ongoing				Satisfactory	
3	Noise and Vibration	Restriction on unnecessary honking of horn from the vehicles used for construction purpose	Ongoing	Drivers are instructed not to use pressure horns as far as possible	Control on use of blowing horns Weekly	Contractor/WSS DO/DSC	Satisfactory	No Complaints from community on high noise level during night time.
		Regular maintenance of equipment	Ongoing	Equipment are regularly maintained so as to produce less noise and vibration	Periodic maintenance record		Contractor/WSS DO/DSC	Satisfactory

SN	Description of Impact	Mitigation measures proposed	Implementation status	Details/remarks on implementation	Monitoring methods and frequency	Monitoring conducted by	Monitoring remarks (Excellent/Satisfactory/Partially Satisfactory/Below Satisfaction/Poor/Very Poor, Not applicable)	Remarks and actions taken to improve implementation
		Mufflers fittings on noisy equipment	Ongoing	High noise producing equipment was not used so mufflers fittings were not required	Observation	Contractor/WSS DO/DSC	Satisfactory	
		Speed restriction	Ongoing	No major accident records found due to vehicle speed	Speed Control	Contractor/WSS DO/DSC	Satisfactory	
Biological Environment								
Construction Phase								
4	Impact on natural vegetation and ecology (Disturbance and loss of natural vegetation and ecology)	Restricting use of fuel wood in labor camp.	Ongoing	Haphazard cutting down of trees was not found	Smoke observation at labor camp Biannually	WSSDO/WUSC	Satisfactory	
		Provision of minimization of vegetation clearance	Completed	Pipeline has been located so as to minimize vegetation clearance	Cleared area Afforested area Biannually	WSSDO/WUSC	Not Applicable	
5	Loss of flora & fauna due to project sitting & related activities	Provision of minimization of vegetation clearance	Ongoing	No major loss of habitat was observed due to project related activities	Appearance of fauna Biannually	WSSDO/WUSC	Satisfactory	
		Environmental awareness program	Ongoing	Local community forest committee monitor and conduct programs for protection of forest habitat			Satisfactory	

SN	Description of Impact	Mitigation measures proposed	Implementation status	Details/remarks on implementation	Monitoring methods and frequency	Monitoring conducted by	Monitoring remarks (Excellent/Satisfactory/Partially Satisfactory/Below Satisfaction/Poor/Very Poor, Not applicable)	Remarks and actions taken to improve implementation
		Restricting use of fuel wood in labor camp.	Ongoing	Wood given by the community forest (twigs and branches) used as the major source of fuel in the labor camp			Satisfactory	Use of LPG and Kerosene
Socio-Economic and Cultural Environment								
Construction Phase								
6	Impairment to infrastructure (Construction activities may impair some of the existing community infrastructure such as road, foot trail etc.)	Proper precaution to be taken at the time of construction	Completed	Necessary precaution taken to minimize impairment of existing community infrastructure like road, foot trail, etc.	Uninterrupted human movement Daily	Contractor/ WSSDO/DSC	Satisfactory	
		Any damages to the existing infrastructure has to be repaired	Completed	No major existing infrastructure has been damaged by project activities			Satisfactory	
7	Law and Order issue and disturbance on social structure & culture	Instruction to all workers to act in a responsible manner	Ongoing	Workers were acting in a responsible and disciplined manner	Behavior of local People Weekly	Contractor/ WSSDO/DSC	Satisfactory	Provide awareness program
		Prohibition of use of alcohol and gambling	Ongoing	No records of fight and use of alcohol found			Satisfactory	
		Cultural awareness of local communities to	Ongoing	No awareness program provided			Satisfactory	

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SN	Description of Impact	Mitigation measures proposed	Implementation status	Details/remarks on implementation	Monitoring methods and frequency	Monitoring conducted by	Monitoring remarks (Excellent/Satisfactory/Partially Satisfactory/Below Satisfaction/Poor/Very Poor, Not applicable)	Remarks and actions taken to improve implementation
		outside work force		to workers however no violence due to cultural differences recorded				
		Orientation to outside workers	Ongoing	Separate orientation for outside work force not provided			Below Satisfaction	Provide Orientation and instruction program
8	Employment of local people)	Positive impact on the project and community	Ongoing	Economic condition of local people uplifted	Appearance of local people in work force Weekly	Contractor/WSS DO/DSC/WUSC	Satisfactory	
9	Occupational Health and safety	Instruction to adopt safety measures	Ongoing	No formal awareness and instruction program held however no records of major accident found	Use of safety measures e.g. helmets, safety shoes, etc. Biweekly	Contractor/WSS DO/DSC/WUSC	Satisfactory	Continue providing formal awareness programs
		First aid to be easily accessible	Ongoing	Neither Health nor accident case recorded during this period			Satisfactory	
10	Pollution from outside work force	Proper sanitary condition to be maintained in the labor camp (sanitary toilet, safe drinking water)	Ongoing	Sanitary condition in toilet maintained and safe drinking water provided to workers	Sick labor Waste and cleanliness of area Biweekly	Contractor/WSS DO/DSC/WUSC	Satisfactory	

SN	Description of Impact	Mitigation measures proposed	Implementation status	Details/remarks on implementation	Monitoring methods and frequency	Monitoring conducted by	Monitoring remarks (Excellent/Satisfactory/Partially Satisfactory/Below Satisfaction/Poor/Very Poor, Not applicable)	Remarks and actions taken to improve implementation
		Collection of solid waste in fixed place	Ongoing	Place for solid waste collection not allocated			Partially Satisfactory	
		Periodic cleaning	Ongoing	No adverse environmental condition found at project site			Satisfactory	

Table 5.3: Compliance with Environmental Management Plan (Lamahi)

S/N	Description of Impact	Mitigation measures proposed	Implementation status	Details/remarks on implementation	Monitoring methods and frequency	Monitoring conducted by	Monitoring remarks (Excellent/Satisfactory/Partially Satisfactory/Below Satisfaction/Poor/Very Poor, Not applicable)	Remarks and actions taken to improve implementation
	Pre-Construction Phase	Review of Design/Estimate	Completed	Design/estimation has been reviewed	Technical Design After submission of design report	DWSS/SSTWSSSP / PMC	Satisfactory	
		Review of specification of work	Completed	Work specification reviewed	Technical specification regarding materials and workmanship After submission of design report	DWSS/SSTWSSSP / PMC	Satisfactory	
Physical Environment								
Construction Phase								
1	Soil erosion and soil stability	Excavated soil placed safely against erosion	Completed	Excavated soil not wasted due to flood and erosion	Stacking of soil Quantity of soil remaining	Contractor/WSS DO/ DSC	Satisfactory	
		Reuse of excavated soil properly during backfilling the pipe line trench with well compacted	Completed	Excavated soil was used to fill trenches in the RVT site area	Twice a week	Contractor/WSS DO/ DSC	Satisfactory	
2	Air Quality (Dusty Environment)	Frequent sprinkling of water	Completed	Dust generation from construction materials and trench digging were avoided by sprinkling of water	Dust in Air Every day	Contractor/WSS DO/ DSC	Satisfactory	

S/N	Description of Impact	Mitigation measures proposed	Implementation status	Details/remarks on implementation	Monitoring methods and frequency	Monitoring conducted by	Monitoring remarks (Excellent/Satisfactory/Partially Satisfactory/Below Satisfaction/Poor/Very Poor, Not applicable)	Remarks and actions taken to improve implementation
		Visual monitoring of air quality	Completed	Air quality monitoring not practiced			Satisfactory	
		Use of masks	Completed	Not strictly implemented			Satisfactory	
3	Noise and Vibration	Restriction on unnecessary honking of horns from the vehicles used for construction purpose	Completed	Drivers are instructed not to use pressure horns as far as possible	Control on use of blowing horns Daily during construction	Contractor/WSS DO/ DSC	Satisfactory	
		Regular maintenance of equipment	Ongoing	Equipment are regularly maintained so as to produce less noise and vibration	Periodic maintenance record	Contractor/WSS DO/ DSC	Satisfactory	
		Mufflers fittings on noisy equipment	Completed	High noise producing equipment was not used so mufflers fittings were not required	Observation	Contractor/WSS DO/ DSC	Satisfactory	
		Speed restriction	Ongoing	No major accident records found due to vehicle speed	Controlling speed	Contractor/WSS DO/ DSC	Satisfactory	

S/N	Description of Impact	Mitigation measures proposed	Implementation status	Details/remarks on implementation	Monitoring methods and frequency	Monitoring conducted by	Monitoring remarks (Excellent/Satisfactory/Partially Satisfactory/Below Satisfaction/Poor/Very Poor, Not applicable)	Remarks and actions taken to improve implementation
Biological Environment								
Construction Phase								
4	Impact on natural vegetation and ecology (Disturbance and loss of natural vegetation and ecology)	Restricting use of fuel wood in labor camp.	Ongoing	Wood used as the major source of fuel in the labor camp, however haphazard cutting down of trees was not found	Smoke, coal observation at labor camp Biannually	WSSDO/WUSC	Satisfactory	
		Provision of minimization of vegetation clearance	Completed	Pipeline has been located so as to minimize vegetation clearance	Cleared area Afforested area Biannually	WSSDO/WUSC	Satisfactory	
5	Loss of flora & fauna due to project sitting & related activities	Provision of minimization of vegetation clearance	Completed	No major loss of habitat was observed due to project related activities	Appearance of fauna Biannually	WSSDO/WUSC	Satisfactory	
		Environmental awareness program	Completed	Local community forest committee monitor and conduct programs for protection of forest habitat			Satisfactory	
		Restricting use of fuel wood in labor camp.	Ongoing	Wood given by the community forest (twigs and branches) used as the major source of fuel in the labor camp			Satisfactory	

S/N	Description of Impact	Mitigation measures proposed	Implementation status	Details/remarks on implementation	Monitoring methods and frequency	Monitoring conducted by	Monitoring remarks (Excellent/Satisfactory/Partially Satisfactory/Below Satisfaction/Poor/Very Poor, Not applicable)	Remarks and actions taken to improve implementation
Socio-Economic and Cultural Environment								
Construction Phase								
6	Impairment to infrastructure (Construction activities may impair some of the existing community infrastructure such as road, foot trail etc.)	Proper precaution to be taken at the time of construction	Completed	Necessary precaution taken to minimize impairment of existing community infrastructure like road, foot trail, etc.	Uninterrupted human movement	Contractor/ WSSDO/DSC	Satisfactory	
		Any damages to the existing infrastructure has to be repaired	Completed	No major existing infrastructure has been damaged by project activities	Daily		Satisfactory	
7	Law and Order issue and disturbance on social structure & culture	Instruction to all workers to act in a responsible manner	Ongoing	Workers were acting in a responsible and disciplined manner	Behavior of local People	Contractor/ WSSDO/DSC	Satisfactory	
		Prohibition of use of alcohol and gambling	Ongoing	No records of fight and use of alcohol found	Weekly		Satisfactory	
		Cultural awareness of local communities to outside work force	Ongoing	No awareness program provided to workers however no violence due to cultural differences recorded			Satisfactory	
		Orientation to outside workers	Completed	Separate orientation for outside work force not provided			Satisfactory	

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S/N	Description of Impact	Mitigation measures proposed	Implementation status	Details/remarks on implementation	Monitoring methods and frequency	Monitoring conducted by	Monitoring remarks (Excellent/Satisfactory/Partially Satisfactory/Below Satisfaction/Poor/Very Poor, Not applicable)	Remarks and actions taken to improve implementation
8	Employment of local people (Economic condition of local people increases)	Positive impact on the project and community	Completed	Economic condition of local people uplifted	Appearance of local people in work force Weekly	Contractor/WSS DO/DSC/WUSC	Satisfactory	
9	Occupational Health and safety	Instruction to adopt safety measures	Ongoing	No formal awareness and instruction program held however no records of major accident found	Use of safety measures e.g. Helmet, safety belt etc. Biweekly	Contractor/WSS DO/DSC/WUSC	Satisfactory	
		First aid to be easily accessible	Ongoing	Not implemented strictly			Satisfactory	
10	Pollution from outside work force	Proper sanitary condition to be maintained in the labor camp (sanitary toilet, safe drinking water)	Ongoing	Sanitary condition in toilet maintained and safe drinking water provided to workers	Sick labor Waste and cleanliness of area Biweekly	Contractor/WSS DO/DSC/WUSC	Satisfactory	
		Collection of solid waste in fixed place	Ongoing	Place for solid waste collection not allocated			Satisfactory	
		Periodic cleaning	Ongoing	No adverse environmental condition found at project site			Satisfactory	
11	Traffic management 11.1 Traffic congestions and disturbance to	Prior notification of construction activities	Completed	Pre-information regarding construction works like during pipe laying works provided	Notice boards Use of diversion sign boards As needed	Contractor/WUSC	Satisfactory	

S/N	Description of Impact	Mitigation measures proposed	Implementation status	Details/remarks on implementation	Monitoring methods and frequency	Monitoring conducted by	Monitoring remarks (Excellent/Satisfactory/Partially Satisfactory/Below Satisfaction/Poor/Very Poor, Not applicable)	Remarks and actions taken to improve implementation
	pedestrians 11.2 Disruption of the local access	Diversion signboards to be provided	Completed	Not strictly implemented		Contractor/WUSC	Satisfactory	Signboard need to be placed strictly
Construction of Drainage Work								
12	Soil erosion, silt runoff and unsettled street surfaces	Excavated soil placed safely against erosion	Completed	Major amount of the excavated soil used for backfilling and remaining soil used to protect against erosion	Stacking of soil Monitoring of soil disposal site. Daily	Contractor/DSC	Satisfactory	Erosion prone sites should be protected by filling soil
		Reuse of excavated soil properly during backfilling with well compacted	Completed	Excavated soil was being used to backfill of trenches			Satisfactory	
		Surplus soil to be disposed in proper places (Arjun Khola and Existing dumping site)	Completed	Surplus earth not yield in considerable amount			Satisfactory	
13	Air, dust and noise pollution	Frequent sprinkling of water	Completed	Dust generation from construction materials and trench digging were avoided by sprinkling of water	Dust in Air	Contractor/WSSDO/DSC	Satisfactory	Sprinkling of water need to be done routinely to minimize the health hazards to workers due to dust generation
		Monitoring of air quantity	Completed	Air quality monitoring not practiced			Satisfactory	Monitoring need to be done if required

S/N	Description of Impact	Mitigation measures proposed	Implementation status	Details/remarks on implementation	Monitoring methods and frequency	Monitoring conducted by	Monitoring remarks (Excellent/Satisfactory/Partially Satisfactory/Below Satisfaction/Poor/Very Poor, Not applicable)	Remarks and actions taken to improve implementation
		Use of tarpaulin to cover loose construction materials (sand and Aggregate) at the time of transportation	Completed	Construction materials covered during transportation using tarpaulin to avoid dust generation			Satisfactory	
		Transportation of construction materials as and when required	Completed	Transportation of construction materials done only in the necessary areas to avoid any unnecessary dust generation			Satisfactory	
14	Disturbance and risk of accidents on site to workers and public	Inform the public in advance	Completed	Prior information to the public given before soil excavation	Use of sign board, diversion board Use of safety gears First aid box	Contractor/DSC	Satisfactory	
		Follow the safety rules for all construction activities	Completed	Not implemented strictly	Daily		Satisfactory	
		Exclude the public from the construction site and use of notice board & diversion signs	Completed	Public are not strictly excluded from construction site			Satisfactory	

Table 5.4: Compliance with Environmental Management Plan (Sandhikharka)

S/N	Description of Impact	Mitigation measures proposed	Implementation status	Details/remarks on implementation	Monitoring methods and frequency	Monitoring conducted by	Monitoring remarks (Excellent/Satisfactory /Partially Satisfactory/Below Satisfaction/Poor/Very Poor, Not applicable)	Remarks and actions taken to improve implementation
Pre-construction Phase								
1.	Detailed Design	Review of Design / Estimate Completed	Completed					
2.	Pre-Construction	Review of Specification of Work	Completed					
Construction Phase								
Physical Environment								
1.	Soil erosion , soil stability and Geology	Excavated soil placed safely against erosion	Ongoing	No erosion observed	Visual Observation Twice a week	Contractor/ WSSDO/DSC	Satisfactory	
		Reuse of excavated soil properly during backfilling the pipe line trench and well compacted	Ongoing	Compacted by ramming	Visual Observation Twice a week	Contractor/ WSSDO/DSC	Satisfactory	
2	Air quality (Dusty Environment)	Frequent sprinkling of water	Ongoing	As and when required	Visual Observation Every day	Contractor/WSSDO/DSC	Satisfactory	
		Visual monitoring of air quality	Ongoing		Visual Observation Every day	Contractor/ WSSDO/DSC	Satisfactory	
		Use of masks	Ongoing		Visual Observation Every day	Contractor/ WSSDO/DSC	Partial Satisfactory	
3	Noise and Vibration	Provision of restriction on blowing of pressure horn haphazardly for the vehicle involve in construction works	Ongoing	Drivers are instructed not to use pressure horns as far as possible	Observations/ Every day	Contractor/WSSDO/DSC	Satisfactory	
		Regular maintenance of equipment	Ongoing	Regular cleaning by operators and	Periodic Maintenance	Contractor/WSSDO/DSC	Satisfactory	

S/N	Description of Impact	Mitigation measures proposed	Implementation status	Details/remarks on implementation	Monitoring methods and frequency	Monitoring conducted by	Monitoring remarks (Excellent/Satisfactory /Partially Satisfactory/Below Satisfaction/Poor/Very Poor, Not applicable)	Remarks and actions taken to improve implementation
				maintenance in workshop in case of breakdown	record Every day			
		Mufflers fittings on noisy equipment	Ongoing	Mufflers are fitted but will be improved further	Equipment observation Every day	Contractor/WSSDO/DSC	Partially Satisfactory	
		Speed Restriction	Ongoing	Drivers are instructed not to speed	Observation Every day	Contractor/WSSDO/DSC	Partially Satisfactory	
Biological Environment								
4	Impact on natural vegetation and ecology due to: Construction of different components of system like pipe laying, water tank, treatment plant, building,etc.	Restricting use of fuel wood in labor camp,	Ongoing	Limited use of firewood during gas shortages.	Observation of Smoke, Coal Biannually	Contractor/ WSSDO/ DSC	Satisfactory	
		Provision of minimization of vegetation clearance and forestation where ever needed	Ongoing	Labors have been instructed on minimization of vegetation clearance	Visual Observation Biannually	Contractor/WSSDO/DSC	Satisfactory	
5	Impact on flora, fauna and habitat due to project sitting and related activities	Environmental awareness program	Ongoing	Regular programs are being conducted by NGOs	Visual Observation Bi-annually	WSSDO/ WUSC	Satisfactory	
Socio-economic Environment								

S/N	Description of Impact	Mitigation measures proposed	Implementation status	Details/remarks on implementation	Monitoring methods and frequency	Monitoring conducted by	Monitoring remarks (Excellent/Satisfactory /Partially Satisfactory/Below Satisfaction/Poor/Very Poor, Not applicable)	Remarks and actions taken to improve implementation
6	Impairment to infrastructure (Construction activities may impair some of the existing community infrastructure such as road, foot trail etc.)	Proper precaution to be taken at the time of construction	Ongoing	Record of damages to footpath in some places.	Visual Observation Daily	Contractor/WSSDO/DSC	Satisfactory	
		Any damage to the existing infrastructure has to be repaired	Ongoing	Estimate has been prepared for the damages and forwarded for approval	Visual Observation Daily	Contractor/WSSDO/DSC	Satisfactory	
7	Law and order issues due (impact on social structure and cultural aspect) Influx of outside workforce, money and unwanted activities Cultural difference	Instruction to all workers to act in a responsible manner	Ongoing	No case of misbehavior recorded	Observation of the workers Weekly	Contractor/WSSDO/WUSC	Satisfactory	
		Prohibition of use of alcohol and gambling	Ongoing	No records of use of alcohol recorded	Observation Weekly	Contractor/WSSDO/WUSC	Satisfactory	
		Cultural awareness program will be conducted to the outside workforce	Ongoing		Records of awareness programs conducted Weekly	Contractor/WSSDO/WUSC	Satisfactory	
8	Occupational Health and Safety (Impact on health depending upon	Instruction to adopt safety measures	Ongoing	Helmets, Safety Shoes, Gloves etc. are provided to labors	Observations Bi Weekly	Contractor/WSSDO/WUSC	Satisfactory	

S/N	Description of Impact	Mitigation measures proposed	Implementation status	Details/remarks on implementation	Monitoring methods and frequency	Monitoring conducted by	Monitoring remarks (Excellent/Satisfactory /Partially Satisfactory/Below Satisfaction/Poor/Very Poor, Not applicable)	Remarks and actions taken to improve implementation
	working condition) Occupational health and safety (OHS) Public health	First aid at hand in the working area	Ongoing	First aid box kept in the site office	First aid box Weekly	Contractor/WSSDO//WUSC	Satisfactory	
9	Community Health and Safety	Proper sanitation and hygiene to be maintained	Ongoing	Separate toilets for male and female workers constructed at site	Sanitation Weekly	WSSDO, WUSC, Contractor	Satisfactory	
		Quality of drinking water to be monitored	Ongoing	Same drinking water provided at labour camp as that of local consumers	Drinking water quality tests Weekly	WSSDO, WUSC, Contractor	Satisfactory	
		Collection of Solid waste in fixed place	Ongoing	Site has been identified and work being done accordingly	Observation Bi-Weekly	WSSDO/Contractor/DSC	Partially Satisfactory	
		Periodic Cleaning	Ongoing	Periodic Cleaning Done Regularly	Observation / Bi-Weekly	Contractor/WSSDO/DSC	Satisfactory	
		Proper reinstatement of the pavement works including the road and footpath to original state.	Ongoing	Included in the Bill of Quantities and will be done accordingly	Observation / Bi-Weekly	Contractor/WSSDO/DSC	Satisfactory	

Table 5.5: Compliance with Environmental Management Plan (Damak)

S/N	Description of Impact	Mitigation measures proposed	Implementation status	Details/remarks on implementation	Monitoring method and frequency	Monitoring conducted by	Monitoring remarks (Excellent/Satisfactory /Partially Satisfactory/Below Satisfaction/Poor/Very Poor, Not applicable)	Remarks and actions taken to improve implementation
Pre-construction Phase								
1.	Detailed Design	Review of Design / Estimate Completed	Completed					
2.	Pre-Construction	Review of Specification of Work	Completed					
Construction Phase								
Physical Environment								
1.	Soil erosion , soil stability and Geology	Excavated soil placed safely against erosion	Ongoing	No erosion observed	Visual Observation Twice a week	Contractor/ WSSDO/DSC	Satisfactory	
		Reuse of excavated soil properly during backfilling the pipe line trench and well compacted	Ongoing	Compacted by ramming	Visual Observation Twice a week	Contractor/ WSSDO/DSC	Satisfactory	
2	Air quality (Dusty Environment)	Frequent sprinkling of water	Ongoing	As and when required	Visual Observation Every day	Contractor/ WSSDO/DSC	Satisfactory	
		Visual monitoring of air quality	Ongoing		Visual Observation Every day	Contractor/ WSSDO/DSC	Satisfactory	
		Use of masks	Ongoing		Visual Observation Every day	Contractor/ WSSDO/DSC	Satisfactory	

S/N	Description of Impact	Mitigation measures proposed	Implementation status	Details/remarks on implementation	Monitoring method sand frequency	Monitoring conducted by	Monitoring remarks (Excellent/Satisfactory /Partially Satisfactory/Below Satisfaction/Poor/Very Poor, Not applicable)	Remarks and actions taken to improve implementation
3	Noise and Vibration	Provision of restriction on blowing of pressure horn haphazardly for the vehicle involve in construction works	Ongoing	Drivers are instructed not to use pressure horns as far as possible	Observations/ Every day	Contractor/WSSD O/DSC	Satisfactory	
		Regular maintenance of equipment	Ongoing	Regular cleaning by operators and maintenance in workshop in case of breakdown	Periodic Maintenance record Every day	Contractor/WSSD O/DSC	Satisfactory	
		Mufflers fittings on noisy equipment	Ongoing	Mufflers are fitted but will be improved further	Equipment observation Every day	Contractor/WSSD O/DSC	Satisfactory	
		Speed Restriction	Ongoing	Drivers are instructed not to speed	Observation Every day	Contractor/WSSD O/DSC	Satisfactory	
Biological Environment								
4	Impact on natural vegetation and ecology due to: Construction of different components of system like pipe laying, water tank, treatment plant, building. Etc.	Restricting use of fuel wood in labor camp,	Ongoing		Observation of Smoke, Coal Biannually	Contractor/ WSSDO/ DSC	Satisfactory	
		Provision of minimization of vegetation clearance and forestation where ever needed	Ongoing	Labors have been instructed on minimization of vegetation clearance	Visual Observation Biannually	Contractor/WSSD O/DSC	Satisfactory	

S/N	Description of Impact	Mitigation measures proposed	Implementation status	Details/remarks on implementation	Monitoring method and frequency	Monitoring conducted by	Monitoring remarks (Excellent/Satisfactory/Partially Satisfactory/Below Satisfaction/Poor/Very Poor, Not applicable)	Remarks and actions taken to improve implementation
5	Impact on flora, fauna and habitat due to project sitting and related activities	Environmental awareness program	Ongoing		Visual Observation Bi-annually	WSSDO/ WUSC	Satisfactory	
Socio-economic Environment								
6	Impairment to infrastructure (Construction activities may impair some of the existing community infrastructure such as road, foot trail etc.)	Proper precaution to be taken at the time of construction	Ongoing		Visual Observation Daily	Contractor/ WSSDO/DSC	Satisfactory	
		Any damage to the existing infrastructure has to be repaired	Ongoing		Visual Observation Daily	Contractor/ WSSDO/DSC	Satisfactory	
7	Law and order issues due (impact on social structure and cultural aspect) Influx of outside workforce, money and unwanted activities Cultural difference	Instruction to all workers to act in a responsible manner	Ongoing	No case of misbehavior recorded	Observation of the workers Weekly	Contractor/ WSSDO/WUSC	Satisfactory	
		Prohibition of use of alcohol and gambling	Ongoing	No records of use of alcohol recorded	Observation Weekly	Contractor/ WSSDO/WUSC	Satisfactory	
		Cultural awareness program will be conducted to the outside workforce	Ongoing		Records of awareness programs conducted Weekly	Contractor/ WSSDO/WUSC	Satisfactory	

S/N	Description of Impact	Mitigation measures proposed	Implementation status	Details/remarks on implementation	Monitoring method and frequency	Monitoring conducted by	Monitoring remarks (Excellent/Satisfactory/Partially Satisfactory/Below Satisfaction/Poor/Very Poor, Not applicable)	Remarks and actions taken to improve implementation
8	Occupational Health and Safety (Impact on health depending upon working condition) Occupational health and safety (OHS) Public health	Instruction to adopt safety measures	Ongoing	Helmets, Safety Shoes, Gloves etc. are provided to labors	Observations Bi Weekly	Contractor/ WSSDO/WUSC	Satisfactory	
		First aid at hand in the working area	Ongoing	First aid box kept in the site office	First aid box Weekly	Contractor/WSSDO//WUSC	Satisfactory	
9	Community Health and Safety	Proper sanitation and hygiene to be maintained	Ongoing		Sanitation Weekly	WSSDO, WUSC, Contractor	Satisfactory	
		Quality of drinking water to be monitored	Ongoing		Drinking water quality tests Weekly	WSSDO, WUSC, Contractor	Satisfactory	
		Collection of Solid waste in fixed place	Ongoing		Observation Bi-Weekly	WSSDO/Contractor/DSC	Partially Satisfactory	

Table 5.6: Compliance with Environmental Management Plan (Baglung)

S/ N	Description of Impact	Mitigation measures proposed	Implementation status	Details/remarks on implementation	Monitoring methods and frequency	Monitoring conducted by	Monitoring remarks (Excellent/Satisfactory/Partially Satisfactory/Below Satisfaction/Poor/Very Poor, Not applicable)	Remarks and actions taken to improve implementation
Construction Phase								
Physical Environment								
1	Risk of pollution of river water due to the construction of Intake (Earthwork and other masonry work)	Regular water quality monitoring of water in the distribution system	Ongoing	Distribution pipe laying work is in progress	Water quality monitoring Twice a week	Contractor/W SSDO/DSC	Satisfactory	
		Reuse of excavated soil properly	Ongoing	Unused soil are being taken by local people for personal use	Condition of the pipe lines Twice a week	Contractor/W SSDO/DSC	Partially Satisfactory	
2.	Soil erosion and soil stability	Excavated soil placed safely against erosion	Ongoing	No risk of soil erosion found	Stacking of soil Twice a week	Contractor/W SSDO/DSC	Satisfactory	
		Reuse of excavated soil properly during backfilling the pipe line trench with well compacted	Ongoing	Backfilling of soil being done immediately after completion of pipe laying works	Condition of the pipe lines Twice a week	Contractor/W SSDO/DSC	Satisfactory	
3	Air quality (Dusty Environment)	Frequent sprinkling of water	Ongoing	Dust generation from construction materials and trench digging were avoided by sprinkling of water	Dust in Air Every day	Contractor/W SSDO/DSC	Partially Satisfactory	
	Air pollution due to movement of project vehicle	Transportation of construction materials as and where required	Ongoing	Transportation of construction materials done only in the necessary areas to avoid any unnecessary dust generation			Satisfactory	
	Air pollution due to dust particle							
	Air pollution due to operation of	Use of tarpaulin to cover loose construction materials	Ongoing	Construction materials covered during transportation using			Satisfactory	

S/ N	Description of Impact	Mitigation measures proposed	Implementation status	Details/remarks on implementation	Monitoring methods and frequency	Monitoring conducted by	Monitoring remarks (Excellent/Satisfactory/ Partially Satisfactory/Below Satisfaction/Poor/Very Poor, Not applicable)	Remarks and actions taken to improve implementation
	pumps and diesel generator	at the time of transportation.		tarpaulin to avoid dust generation				
		Visual monitoring of air quality	Ongoing	Air quality monitoring not practiced			Below Satisfactory	
4	Noise and Vibration due to:	Provision of restriction on blowing of pressure horn haphazardly for the vehicle involve in construction works	Ongoing	Drivers are instructed not to use pressure horn as far as possible	Control use of blowing pressure horn	Contractor/W SSDO/DSC	Satisfactory	
	The project vehicular Movement	Regularly maintenance of equipment	Ongoing	Equipment are regularly maintained so as to produce less noise and vibration	Every day Periodic Maintenance record Every day		Partially Satisfactory	
	Noise pollution due to operation of diesel generator	Muffler fittings on noisy equipment	Ongoing	High noise producing equipment was not used so muffler fittings was not required	Observation Every day		Partially Satisfactory	
		Speed Restriction	Ongoing	No major accident records found due to vehicle speed	Controlling speed Every day		Partially Satisfactory	
Biological Environment								
5	Disturbance and loss of forest (approximately 5 trees to be cut) and vegetation	Compensatory plantation at the rate of 25 saplings for each felled	Ongoing	Afforestation plan not conducted yet	Number of trees Planted Four times a year	WSSDO/ WUSC/CFU	Partially Satisfactory	
		Only marked trees to be cleared	Ongoing	Only marked and permitted trees were cleared	Afforested area Four times a year		Satisfactory	
		Vegetation clearance to be minimized as far as possible	Ongoing	Transmission pipeline alignment has been located so as to minimize vegetation	Cleared area Weekly		Satisfactory	

S/ N	Description of Impact	Mitigation measures proposed	Implementation status	Details/remarks on implementation	Monitoring methods and frequency	Monitoring conducted by	Monitoring remarks (Excellent/Satisfactory/ Partially Satisfactory/Below Satisfaction/Poor/Very Poor, Not applicable)	Remarks and actions taken to improve implementation
				clearance				
		Restricting use of fuel wood in the labor camp	Ongoing	Wood used as the major source of fuel in the labor camp, however haphazard cutting down of trees was not found	Smoke, coal observation Weekly		Partially Satisfactory	
6	Impact on flora, fauna and habitat due to project sitting and related activities	Environmental awareness program	Ongoing	Local Community Forest Unit monitor and conduct programs for protection of forest habitat	Flora and fauna Distribution Bi-annually	WSSDO/ WUSC	Partially Satisfactory	
		Night time operation of machinery to be avoided	Ongoing	Night time operation of the machinery not practiced	Use of machineries As needed		Excellent	
		Hunting/poaching activities of labors to be prohibited	Ongoing	No records of any hunting /poaching activities found	Activities of labor As needed		Excellent	
7	Impact to aquatic life	Construction work to be avoided in rainy season	Ongoing	Major construction works and pipe laying works were avoided in the rainy season	River water quality tests Monthly	WUSC/ DWSS	Satisfactory	
		Quality of river water to be regularly monitored	Ongoing	Water quality monitoring is done at regular intervals			Satisfactory	
		Ban on fishing activities	Ongoing	Fishing activities is not being practiced	Fishing activities Monthly		Satisfactory	
Socio-economic Environment								

S/N	Description of Impact	Mitigation measures proposed	Implementation status	Details/remarks on implementation	Monitoring methods and frequency	Monitoring conducted by	Monitoring remarks (Excellent/Satisfactory/Partially Satisfactory/Below Satisfaction/Poor/Very Poor, Not applicable)	Remarks and actions taken to improve implementation
8	Impairment to infrastructure (Construction activities may impair some of the existing community infrastructure such as road, foot trail etc.)	Proper precaution to be taken at the time of construction	Ongoing	Necessary precaution is being taken to minimize impairment of existing community infrastructure like road, foot trail, etc.	Condition of the infrastructures Daily	Contractor/ WSSDO/DSC	Satisfactory	
		Any damaged to the existing infrastructure has to be repaired	Ongoing	No major existing infrastructures has been damaged by project activities			Satisfactory	
9	law and order issues and disturbances on social structure and cultural practice Impact on employment Migration Local economy Cultural value Pollution from outside workforce	Instruction to all workers to act in a responsible manner	Ongoing	Workers were acting in a responsible and disciplined manner	Behavior of the Workers Weekly	Contractor/WSSDO/ WUSC	Satisfactory	
		Prohibition of use of alcohol and gambling	Ongoing	No records of fight and use of alcohol found	Use of alcohol, Gambling Weekly		Satisfactory	
		Priority to be given for employment of local labors	Ongoing	Due to lack of local workforce, labours from nearby districts are majorly employed	Percentage of locals employed Weekly		Satisfactory	
		Workers to be strictly supervised	Ongoing	There are no violence and disturbance records created by workers	Behavior of the Workers Weekly		Satisfactory	
		Proper sanitation facility will be provided in the labor camp (sanitation toilet and safe drinking water) Collection of solid waste in fixed place	Ongoing	No epidemic disease or vector spread found at labour camp however solid waste management was not found	Labor camp observation Weekly		Partially Satisfactory	

S/ N	Description of Impact	Mitigation measures proposed	Implementation status	Details/remarks on implementation	Monitoring methods and frequency	Monitoring conducted by	Monitoring remarks (Excellent/Satisfactory/Partially Satisfactory/Below Satisfaction/Poor/Very Poor, Not applicable)	Remarks and actions taken to improve implementation
		Cultural awareness program will be conducted to the outside workforce	Ongoing	No awareness program provided to workers however no violence due to cultural differences recorded	Behavior of outside workforce Weekly		Satisfactory	
13	Occupational Health and Safety (Impact on health depending upon working condition) Occupational health and safety (OHS) Socio Economic values Aesthetic values	Instruction to adopt safety measures	Ongoing	Instruction has been given to adopt safety measures	Use of safety gears	Contractor/WSSDO/WUSC	Partially Satisfactory	
		Adequate safety equipment like hand gloves, hard cover helmets and boots will be provided	Ongoing	Safety equipment provided by contractors but labors hardly use them	Weekly		Partially Satisfactory	
		First aid at hand in the working area	Ongoing	First aid box generally kept at the construction camp site			Satisfactory	
14	Community Health and Safety Spread of water borne diseases Deterioration in sanitary condition	Proper sanitation and hygiene to be maintained	Ongoing	Workers not affected by epidemics due to poor sanitation and hygiene	Sanitation	WSSDO, WUSC, Contractor	Satisfactory	
		Quality of drinking water to be monitored	Ongoing	Same drinking water provided at labor camp as that of local consumers	Drinking water quality tests		Satisfactory	
		Treatment of communicable diseases and regular health checkups to be done	Ongoing	Regular health check-ups of workers not practiced	Treatments		Satisfactory	
		Periodic cleaning	Ongoing	Periodic cleaning done but not at regular intervals	Area of garbage disposal		Satisfactory	

S/ N	Description of Impact	Mitigation measures proposed	Impleme ntation status	Details/remarks on implementation	Monitoring methods and frequency	Monitoring conducted by	Monitoring remarks (Excellent/Satisfactory/ Partially Satisfactory/Below Satisfaction/Poor/Very Poor, Not applicable)	Remarks and actions taken to improve implementation
15	Traffic management Traffic congestions and disturbance to pedestrians Disruption of the local access	Prior notification of construction activities	Ongoing	Pre information regarding construction works like during pipe laying works given	Notice boards As needed	Contractor/ WUSC	Satisfactory	
		Diversion signboards to be provided	Ongoing	Not strictly implemented	Use of diversion sign boards As needed		Satisfactory	

Table 5.7: Compliance with Environmental Management Plan (Shivanagar)

S/N	Description of Impact	Mitigation measures proposed	Implementation status	Details/ remarks on implementation	Monitoring methods and frequency	Monitoring conducted by	Monitoring remarks (Excellent/Satisfactory/Partially Satisfactory/ Below Satisfaction / Poor/Very Poor, Not applicable)	Remarks and actions taken to Improve implementation
Construction Phase Impact								
1	Generation of waste water Surface runoff and transportation of excavated materials to nearby bodies Disturbance of the land system Contamination of ground water	Reuse of water by the consumers in the nearby settlements to irrigate their farmland and vegetable gardens	Completed					
		While drilling boreholes minimal vibration and disturbances will be ensured	Completed					
		Proper protection during and after drilling and disinfecting after drilling will be done	Completed					
2	Disturbance of land system, erosion and landslide Changes in morphology of water system	Unstable and erosion prone sites will be avoided and only approved quarrying sites will be used	Completed					
		Quarrying activities from rivers/streams will not be done so as to change the river cross sections and longitudinal profiles	Completed					
		Land will be leveled to suit the local landscape after extraction is complete	Completed					
3	Noise pollution Air pollution due to release of emissions	Use of old and worn out equipment and vehicles, low quality fuel will be prohibited to reduce the noise and air pollution.	Completed					

S/N	Description of Impact	Mitigation measures proposed	Implementation status	Details/ remarks on implementation	Monitoring methods and frequency	Monitoring conducted by	Monitoring remarks (Excellent/Satisfactory/Partially Satisfactory/ Below Satisfaction / Poor/Very Poor, Not applicable)	Remarks and actions taken to improve implementation
		The equipment will be checked by technicians before the commencement of work and working in night shift with equipment producing high noise will be prohibited.	Completed					
		The construction material will be covered during transportation to avoid dust generation.	Completed					
4	Unorganized disposal of excavated earth	Precautionary measures will be taken during construction to avoid caving	Completed					
	Soil erosion, silt runoff	Excavated soil will be placed safely against erosion	Completed					
	Possible pollution of surface water	Reuse of excavated soil and back filling of trenches will be done	Completed					
	Deterioration of air quality due to dust	As far as possible construction activities will be avoided in the rainy season.	Completed					
	Disturbance to the pedestrians	Sprinkling of water to avoid dust	Completed					
		Temporary diversions and signboards will be provided for the pedestrians	Completed					
5	Generation of excess grease, solid waste and other construction waste	Mechanism of solid waste management will be developed in the project site before the actual commencement of work	Completed					

S/N	Description of Impact	Mitigation measures proposed	Implementation status	Details/ remarks on implementation	Monitoring methods and frequency	Monitoring conducted by	Monitoring remarks (Excellent/Satisfactory/Partially Satisfactory/ Below Satisfaction / Poor/Very Poor, Not applicable)	Remarks and actions taken to improve implementation
	Pollution of nearby irrigation canals and water bodies	Prohibition of unwanted littering and discharge of waste	Completed					
6	Obstruction in pedestrian and traffic movement	While excavating and laying pipes minimal vibration and slope disturbances will be ensured	Completed					
	Removal of excavated material can affect the local land system (erosion and soil instability)	Excavated soil will be dumped in outer side of trench opposite to roadside and backfilling will be done properly	Completed					
		Excavated soil will be placed safely against erosion	Completed					
7	Loss of vegetation and habitat	Provision of minimization of vegetation clearing and careful cutting of ground vegetation	Completed					
		Plantation of tree and shrub where ever possible	Completed					
8	12.1 Local residents could be disturbed by noise, dust and impeded access	Work to be conducted as quickly as possible to minimize disturbance	Completed					
		Residents will be consulted and informed about the disturbances in advance	Completed					
9	Problems due to irresponsible behavior of work force (e.g. gambling, disrespect to the local area and people)	All the workers will be instructed to act in a responsible manner	Completed					
		Prohibition of alcohol, gambling	Completed					

S/N	Description of Impact	Mitigation measures proposed	Implementation status	Details/ remarks on implementation	Monitoring methods and frequency	Monitoring conducted by	Monitoring remarks (Excellent/Satisfactory/Partially Satisfactory/ Below Satisfaction / Poor/Very Poor, Not applicable)	Remarks and actions taken to improve implementation
		Local people will be employed as far as possible	Completed					
10	Risk of accidents to the workers and public	As it's health and safety plan including safety measures such as provision of mask, helmet, hand gloves and rubber boots to workers will be prepared and implemented	Completed					
		First aid will be kept at hand in working area	Completed					
		General public will be excluded from all the construction sites	Completed					
		Insurance will be provided to the worker	Completed					
11	Public health hazard Rejection of the location by people	Public toilet will be located after consulting all the stakeholders	Completed					
12	Unorganized disposal of excavated earth Surface runoff, pollution of water ways Nuisance to pedestrians Deterioration of air quality due to dust	Disposal against erosion and reuse of excavated soil	Completed					
		Sprinkling of water to avoid dust	Completed					
		Temporary diversions and signboards will be provided to the pedestrians	Completed					
13	Loss of vegetation and habitat	Provision of minimization of vegetation clearing and careful cutting of ground vegetation will be done	Completed					
		Trees and shrubs will be planted wherever possible	Completed					

S/N	Description of Impact	Mitigation measures proposed	Implementa tion status	Details/ remarks on implement ation	Monitoring methods and frequency	Monitoring conducted by	Monitoring remarks (Excellent/Satisfactory/Partia lly Satisfactory/ Below Satisfaction / Poor/Very Poor, Not applicable)	Remarks and actions taken to Improve implementation
14	Risk of accidents to the workers and public	A site health and safety plan will be prepared and implemented	Completed					

Table 5.8: Compliance with Environmental Management Plan (Phidim)

Description of Impact	Mitigation measures proposed	Implementation status	Details/remarks on implementation	Monitoring methods and frequency	Monitoring conducted by	Monitoring remarks (Excellent/Satisfactory/Partially Satisfactory/Below Satisfaction/Poor/Very Poor, Not applicable)	Remarks and actions taken to improve implementation
Construction phase							
Haphazard workforce camps resulting in stress and degradation of local environment	Establish workforce camps with sanitary amenities at designated sites only	Ongoing	Health and sanitation conditions around the camps normal Labor camps are on hired buildings/places and are well with satisfactory facilities	Visual observation Before the construction starts and at three monthly intervals	Contractor, DSC	Satisfactory	
Local people deprived of work opportunities, minors may be employed	Give preference to the local people (above the age of 14) especially SPAF, PAF and women in jobs. Settle wage rate based on DWEC and provide a list to the DSC	Ongoing	Local people are engaged from within the locality No child labor employed	Contractor records Every month	Contractor/DSC	Satisfactory	
Loss of vegetation due to vegetation clearance for construction of proposed structures; fuel wood, and NTFP collection by the workforce	Control in cutting of trees	Ongoing	Pipeline alignment is always kept a distance from trees No potential loss of trees in the project areas	Visual; records of the Contractor Once a month	Contractor/DSC	Partially satisfactory	
	Prohibit the use of fuel wood	Ongoing	Restriction on use of fuel wood	Visual; records of the Contractor Once a month	Contractor/DSC	Partially satisfactory	
Changes in the morphology of the	Mining of construction materials only from	On going	Construction material transported from	Visual observation,	Contractor/DSC	Satisfactory	

Description of Impact	Mitigation measures proposed	Implementation status	Details/remarks on implementation	Monitoring methods and frequency	Monitoring conducted by	Monitoring remarks (Excellent/Satisfactory/Partially Satisfactory/Below Satisfaction/Poor/Very Poor, Not applicable)	Remarks and actions taken to improve implementation
streams due to mining of sand and gravel	quarries approved by VDC.		approved quarry sites	records			
	Borrow pits to be leveled to suit the aesthetics of the area to its original state.		Quarrying activities done carefully	Once a month			
	Such activities should not change the river cross sections and longitudinal profiles.						
Hazards to health and hygiene and safety of workers	Prepare and implement site safety plan that includes measures to: Exclude the public from all construction sites Ensure that the workers use protective equipment Provide health and safety training to the personnel Follow documented procedures for site activities Keep accident reports and records As far as possible the local people who know the local conditions should be hired	Ongoing	Signboards were used in construction sites Protective equipment including helmets, masks, boots, gloves, were provided for worker's safety but not properly used by workers No major accidents occurred during construction work	Interview with workers Weekly	Contractor	Partially satisfactory	
Air quality deterioration, Noise pollution and public health hazard due to	Transport only required amount of construction material, avoid temporary storage.	Ongoing	Construction materials for ongoing work are only transported and the materials were	Site observation Monthly	DSC /contractor	Satisfactory	

Description of Impact	Mitigation measures proposed	Implementation status	Details/remarks on implementation	Monitoring methods and frequency	Monitoring conducted by	Monitoring remarks (Excellent/Satisfactory/Partially Satisfactory/Below Satisfaction/Poor/Very Poor, Not applicable)	Remarks and actions taken to improve implementation
dust generation vehicular emissions	Use tarpaulins, plastic sheets, jute bags to cover materials during transport.		covered with tarpaulins during transport				
	Dust suppression at the site by frequent sprinkling with water.		Sprinkling of water done as per needed				
	Limit vehicle speed so that vehicles comply with the national vehicle mass emission standards, 2056. Regular maintenance of vehicles		Instructed vehicle staff				
Trench excavation could cause soil erosion, silt run off, settling of street surfaces, surface and ground water could get polluted ; Land value degraded and be a nuisance to pedestrians,	Precautionary measures should be taken during construction, to avoid soil erosion silt run off.	Ongoing	Excavated soil is reused for backfilling of trenches	Site observation Monthly /weekly	DSC/ Contactor	Satisfactory	
	Proper back filling of excavated trenches should be done		Backfilling of excavated trenches is done properly and restored to original condition				
	construction activities should be, as far as possible ,avoided during the rainy season		No excavation work carried out during rainy seasons				
	Temporary diversions and sign boards for pedestrians should be provided						
Local residents and sites may of social and cultural importance may be disturbed by noise,	Carry out the construction work as quickly as possible to minimize the disturbances.	Ongoing	Construction activities going smoothly in co-ordination with WUSC. Ongoing works	Observation Weekly /Monthly	DSC/Contract or	Satisfactory	

Description of Impact	Mitigation measures proposed	Implementation status	Details/remarks on implementation	Monitoring methods and frequency	Monitoring conducted by	Monitoring remarks (Excellent/Satisfactory/Partially Satisfactory/Below Satisfaction/Poor/Very Poor, Not applicable)	Remarks and actions taken to improve implementation
dust and impeded access	Consult residents and inform them of the work schedule in advance		discussed in advance during meeting with WUSC				
People may be inconvenienced and their health may be at risk if water supply system is shut down	Plan work carefully to keep the shut down to the minimum	Ongoing	Work carried out properly to minimize shut down	Observations	Weekly/ Monthly	Satisfactory	
	Provide alternative water supply to the affected residents			Contractor Records; Interviews with residents			

Table 5.9: Compliance with Environmental Management Plan (Bhasi)

S/N	Description of Impact	Mitigation measures proposed	Implementation status	Details/ remarks on implementation	Monitoring methods and frequency	Monitoring conducted by	Monitoring remarks (Excellent/Satisfactory/Partially Satisfactory/Below Satisfaction/Poor/Very Poor, Not applicable)	Remarks and actions taken to improve implementation
Construction Phase Impacts								
1.	Unorganized disposal of excavated earth	Precautionary measures will be taken during construction to avoid cave in	Completed	Excavation works were done carefully to avoid cave in	Contractor records Daily	DSC	Satisfactory	
	Soil erosion, silt runoff	Reuse of excavated soil and backfilling of trenches will be done	Completed	Excavated soil was used to fill trenches in the RVT site area	Quantity of soil remained Daily	Contractor	Satisfactory	
	Pollution of surface water	Safe disposal of excavated soil	Completed	Soil used for backfilling of trenches	Disposal site Daily	Contractor, WSSDO	Satisfactory	
	Deterioration of air quality due to dust	Sprinkling of water to avoid dust	Ongoing	Dust particles avoided by sprinkling of water.	Dust in the air Daily	Contractor	Satisfactory	
	Disturbance to the pedestrians	Temporary diversions and signboards will be provided for the pedestrians	Ongoing	Temporary diversion not usually required.	Signboards Daily	Contractor , WSSDO	Satisfactory	
2.	Noise pollution	Use of ear plugs and prohibition on using high noise producing equipment during night shift work.	Ongoing	No complaints from local regarding high noise during night time	Contractor records As needed	Contractor	Satisfactory	

S/N	Description of Impact	Mitigation measures proposed	Implementation status	Details/ remarks on implementation	Monitoring methods and frequency	Monitoring conducted by	Monitoring remarks (Excellent/Satisfactory/Partially Satisfactory/Below Satisfaction/Poor/Very Poor, Not applicable)	Remarks and actions taken to improve implementation
	Air pollution due to release of emissions	Covering of construction materials during transport and use of vehicles conforming to national standards.	Ongoing	Amount of dust in air and emissions from the transportation vehicles were found negligible	Contractor records As needed	Contractor	Satisfactory	
3.	Generation of excess grease, solid waste and other construction waste	Mechanism of safe disposal of waste will be developed in the project site before the actual commencement of work.	Ongoing	Safe disposal of the construction waste was practiced	Contractor records Daily	DSC, WSSDO	Satisfactory	
	Pollution of nearby irrigation canals and water bodies	Provision of dustbin for solid waste collection.	Ongoing	Dustbins have been provided but were not used often.	Contractor records Daily	Municipality, WUSC	Satisfactory	
		Prohibition of unwanted littering and discharge of waste	Ongoing	Toilet with proper soak pit in the project camp area and waste discharge	Amount and disposal of solid waste Monthly	Municipality, WUSC, Contractor	Satisfactory	
4.	Obstruction in pedestrian and traffic movement	Care will be taken while excavating and laying of pipes so that there is minimal vibration and slope disturbances	Ongoing	Manual excavation was done to avoid slope disturbances	Contractor Records Uneven surfaces Daily	Contractor , DSC	Satisfactory	

S/N	Description of Impact	Mitigation measures proposed	Implementation status	Details/ remarks on implementation	Monitoring methods and frequency	Monitoring conducted by	Monitoring remarks (Excellent/Satisfactory/Partially Satisfactory/Below Satisfactory/Poor/Very Poor, Not applicable)	Remarks and actions taken to improve implementation
	Removal of excavated material can affect the local land system (erosion and soil instability)	Excavated soil will be dumped in outer side of trench opposite to roadside and backfilling will be done properly	Ongoing	Backfilling done with proper compaction	Pavement demolition Daily	Contractor	Partially satisfactory	
	Risk of pollution of other streams in the area causing increase in turbidity	Spoil management unit to work efficiently to avoid the excavated soil from finding its way downstream to other surface sources and irrigation canals.	Ongoing	Other surface sources and irrigation canals were not disturbed by excavated soil	Contractor records Weekly	Contractor	Satisfactory	
	Loss of vegetation and habitat	Provision of minimization of vegetation clearing and careful cutting of ground vegetation	Ongoing	Vegetation clearing and cutting of ground vegetation is minimized	Cleared area Weekly	Contractor	Satisfactory	
		Plantation of tree and shrub where ever possible	Ongoing	Cutting of trees was not needed in the construction site and valuable plants were protected as far as possible	Afforested area, numbers of trees planted Yearly	WUSC	Satisfactory	
5.	Local residents	Work will be	Ongoing	Work in dense	Contractor	DSC, WSSDO	Satisfactory	

S/N	Description of Impact	Mitigation measures proposed	Implementation status	Details/ remarks on implementation	Monitoring methods and frequency	Monitoring conducted by	Monitoring remarks (Excellent/Satisfactory/Partially Satisfactory/Below Satisfactory/Poor/Very Poor, Not applicable)	Remarks and actions taken to improve implementation
	could be disturbed by noise, dust and impeded access	conducted as quickly as possible to minimize disturbance		settlement areas was done quickly to minimize disturbance	records Monthly			
		The residents will be consulted and inform about the disturbances in advance	Ongoing	Prior notice and information regarding work(were given to the local people	Communication with local people As needed	Contractor, DSC, WSSDO	Satisfactory	
6.	Problems due to irresponsible behavior of work force (e.g. gambling, disrespect to the local area and people)	All the workers will be instructed to act in a responsible manner	Ongoing	Workers were acting in a responsible and disciplined manner	Behavior of workers Weekly	Contractor, WSSDO	Satisfactory	
		Possible social gathering shall be allowed	Ongoing	No records of fight and use of alcohol found	Uses of alcohol, records of fights Weekly	WUSC, Contractor	Satisfactory	
		Local people will be employed as far as possible	Ongoing	Local people were mainly involved in construction activities	Local survey As needed	WUSC, Contractor	Satisfactory	
7.	Risk of accidents to the workers and public	A site health and safety plan including safety measures such as provision of personal protective equipment will be included	Ongoing	Necessary safety equipment was provided to workers	Use of helmet, mask, gloves, Boots etc. As needed	WUSC, Contractor	Partially Satisfactory	
		First aid will be kept	Ongoing	First Aid box	First aid box	Contractor,	Satisfactory	

S/N	Description of Impact	Mitigation measures proposed	Implementation status	Details/ remarks on implementation	Monitoring methods and frequency	Monitoring conducted by	Monitoring remarks (Excellent/Satisfactory/Partially Satisfactory/Below Satisfaction/Poor/Very Poor, Not applicable)	Remarks and actions taken to improve implementation
		at hand in working area		kept in the site office	Monthly	DSC, WSSDO		
		General public will be excluded from all construction sites	Ongoing	General public were not strictly prohibited in construction sites	Signboards Monthly	Contractor, DSC, WSSDO	Partially Satisfactory	
		Insurance will be provided to the workers	Ongoing	Insurance provided to each workers with the sum of Rs. 500,000 per labor.	Health and safety insurance One time	Contractor, DSC, WSSDO	Satisfactory	
SANITATION COMPONENT								
8.	Unorganized disposal of excavated earth	Safe disposal and re-use of excavated soil	Ongoing	Soil used for backfilling of trenches	Stacking of soil, quantity of soil remained Daily	Contractor	Satisfactory	
	Surface runoff, pollution of water ways	Sprinkling of water to avoid dust	Ongoing	Dust was avoided by sprinkling of water	Dust in the Air Daily	Contractor	Excellent	
	Nuisance to pedestrians Deterioration of air quality due to dust	Temporary diversions and signboards will be provided to the pedestrians	Ongoing	Signboards were provided	Signboards Daily	Contractor , WSSDO	Satisfactory	

S/N	Description of Impact	Mitigation measures proposed	Implementation status	Details/ remarks on implementation	Monitoring methods and frequency	Monitoring conducted by	Monitoring remarks (Excellent/Satisfactory/Partially Satisfactory/Below Satisfaction/Poor/Very Poor, Not applicable)	Remarks and actions taken to improve implementation
9.	Loss of vegetation and habitat	Provision of minimization of vegetation clearing and careful cutting of ground vegetation will be done	Ongoing	Vegetation clearing and cutting of ground vegetation is minimized	Cleared area Weekly	Contractor	Satisfactory	
		Trees and shrubs will be planted wherever possible	Ongoing	Cutting of tree was not needed in the construction site and valuable plants were protected as far as possible	Afforested area, numbers of trees planted Yearly	WUSC	Satisfactory	
10.	Risk of accidents to the workers and public	A site health and safety plan will be prepared and implemented	Ongoing	Necessary safety equipment was provided to workers	Use of safety gears Daily	WUSC, Contractor, WSSDO	Partially Satisfactory	

Table 5.10: Compliance with Environmental Management Plan (Meghauli)

S/N	Description of Impact	Mitigation measures proposed	Implementation status	Details/remarks on implementation	Monitoring methods and frequency	Monitoring conducted by	Monitoring remarks(Excellent/Satisfactory/Partially Satisfactory/Below Satisfaction/Poor/Very Poor, Not applicable)	Remarks and actions taken to improve implementation
	Pre-Construction Phase	Review of Design/Estimate	Completed	Design/estimation has been reviewed	Technical Design After submission of design report	DWSS/SSTWSSS P/PMC	Satisfactory	
		Review of specification of work	Completed	Work specification reviewed	Technical specification regarding materials and workmanship After submission of design report	DWSS/SSTWSSS P/PMC	Satisfactory	
Physical Environment								
Construction Phase								
1	Soil erosion and soil stability	Excavated soil placed safely against erosion	Completed	Excavated soil not wasted due to flood and erosion	Stacking of soil Quantity of soil remaining Twice a week	Contractor/WS SDO/DSC	Satisfactory	
		Reuse of excavated soil properly during backfilling the pipe line trench and well compacted	Completed	Excavated soil was used to fill trenches in the RVT site area		Contractor/WS SDO/DSC	Satisfactory	
2	Air Quality (Dusty Environment)	Frequent sprinkling of water	Ongoing	Dust generation from construction materials and trench digging were avoided by sprinkling of water	Visual Observation Every day	Contractor/WS SDO/DSC	Satisfactory	
		Visual monitoring of air quality	Ongoing	Air quality monitoring not practiced			Satisfactory	
		Use of masks	Ongoing	Not strictly implemented			Satisfactory	

S/N	Description of Impact	Mitigation measures proposed	Implementation status	Details/remarks on implementation	Monitoring methods and frequency	Monitoring conducted by	Monitoring remarks(Excellent/Satisfactory/Partially Satisfactory/Below Satisfaction/Poor/Very Poor, Not applicable)	Remarks and actions taken to improve implementation
		Delivery vehicle will be covered	Ongoing	Loose construction materials covered with tarpaulin during transportation			Satisfactory	
3	Noise and Vibration	Restriction on unnecessary honking of horns from the vehicles used for construction purpose	Ongoing	Drivers are instructed not to use pressure horns as far as possible	Control on use of blowing horns Daily during construction	Contractor/WS SDO/DSC	Satisfactory	
		Regularly maintenance of equipment	Ongoing	Equipment are regularly maintained so as to produce less noise and vibration	Periodic maintenance record Daily during construction	Contractor/WS SDO/ DSC	Satisfactory	
		Mufflers fittings on noisy equipment	Ongoing	High noise producing equipment was not used so mufflers fittings were not required	Observation Daily during construction	Contractor/WS SDO/ DSC	Satisfactory	
		Speed restriction	Ongoing	No major accident records found due to vehicle speed	Controlling speed Daily during construction	Contractor/WS SDO/ DSC	Satisfactory	
		Provisions of noise barrier placed in sensitive areas	Ongoing	Heavy noise producing equipment not used at construction site	Site observation Daily during construction	Contractor/WS SDO/ DSC	Satisfactory	
		Works to be restricted to day hour only	Ongoing	Working in the night time not practiced	Working schedule records Daily during construction	Contractor/WS SDO/ DSC	Excellent	

S/N	Description of Impact	Mitigation measures proposed	Implementation status	Details/remarks on implementation	Monitoring methods and frequency	Monitoring conducted by	Monitoring remarks(Excellent/Satisfactory/Partially Satisfactory/Below Satisfaction/Poor/Very Poor, Not applicable)	Remarks and actions taken to improve implementation
Biological Environment								
Construction Phase								
4	Impact on natural vegetation and ecology (Disturbance and loss of natural vegetation and ecology)	Restricting use of fuel wood in labor camp.	Ongoing	Wood used as the major source of fuel in the labor camp, however haphazard cutting down of trees was not found	Smoke observation at labor camp Biannually	WSSDO/WUSC	Satisfactory	
		Provision of minimization of vegetation clearance	Ongoing	Pipeline has been located so as to minimize vegetation clearance	Cleared area Afforested area Biannually	WSSDO/WUSC	Satisfactory	
5	Loss of flora & fauna due to project sitting & related activities	Provision of minimization of vegetation clearance	Ongoing	No major loss of habitat was observed due to project related activities	Appearance of fauna Biannually	WSSDO/WUSC	Satisfactory	
		Environmental awareness program	Ongoing	Local community forest committee monitor and conduct programs for protection of forest habitat			Satisfactory	
		Restricting use of fuel wood in labor camp.	Ongoing	Wood given by the community forest (twigs and branches) used as the major source of fuel in the labor camp			Satisfactory	
Socio-Economic and Cultural Environment								
Construction Phase								

S/N	Description of Impact	Mitigation measures proposed	Implementation status	Details/remarks on implementation	Monitoring methods and frequency	Monitoring conducted by	Monitoring remarks(Excellent/Satisfactory/Partially Satisfactory/Below Satisfaction/Poor/Very Poor, Not applicable)	Remarks and actions taken to improve implementation
6	Impairment to infrastructure (Construction activities may impair some of the existing community infrastructure such as road, foot trail etc.)	Proper precaution to be taken at the time of construction	Ongoing	Necessary precaution taken to minimize impairment of existing community infrastructure like road, foot trail, etc.	Uninterrupted human movement and vehicle movement	Contractor/ WSSDO/DSC	Satisfactory	
		Any damaged to the existing infrastructure has to be repaired	Ongoing	No major existing infrastructure has been damaged by project activities	Daily		Satisfactory	
7	Law and Order issue and disturbance on social structure & culture	Instruction to all workers to act in a responsible manner	Ongoing	Workers were acting in a responsible and disciplined manner	Behavior of local People	Contractor/ WSSDO/DSC	Satisfactory	
		Prohibition of use of alcohol and gambling	Completed	No records of fight and use of alcohol found	Weekly		Satisfactory	
		Cultural awareness of local communities to outside work force	Completed	No awareness program provided to workers however no violence due to cultural differences recorded			Satisfactory	
		Orientation to outside work	Completed	Separate orientation for outside work force not provided			Below Satisfaction	
8	Employment of local people (Economic condition of local people increases)	Positive impact on the project and community	Ongoing	Economic condition of local people uplifted	Appearance of local people in work force Weekly	Contractor/WS SDO/DSC/WUS C	Satisfactory	

S/N	Description of Impact	Mitigation measures proposed	Implementation status	Details/remarks on implementation	Monitoring methods and frequency	Monitoring conducted by	Monitoring remarks(Excellent/Satisfactory/Partially Satisfactory/Below Satisfaction/Poor/Very Poor, Not applicable)	Remarks and actions taken to improve implementation
9	Occupational Health and safety	Instruction to adopt safety measures	Ongoing	No formal awareness and instruction program held however no records of major accident found	Use of safety measures e.g. helmet, safety belt etc.	Contractor/WS SDO/DSC/WUS C	Satisfactory	
		First aid to be easily accessible	Ongoing	Not implemented strictly	Biweekly		Partially Satisfactory	
10	Pollution from outside work force	Proper sanitary condition to be maintained in the labor camp (sanitary toilet, safe drinking water)	Ongoing	Sanitary condition in toilet maintained and safe drinking water provided to workers	Sick labor Waste and cleanliness of area Biweekly	Contractor/WS SDO/DSC/WUS C	Satisfactory	
		Collection of solid waste in fixed place	Ongoing	Place for solid waste collection not allocated			Partially Satisfactory	
		Periodic cleaning	Ongoing	No adverse environmental condition found at project site			Satisfactory	
11	Traffic management 11.1 Traffic	Prior notification of construction activities	Ongoing	Pre-information regarding construction works like during pipe laying works provided	Notice boards Use of diversion sign boards	Contractor/ WUSC	Satisfactory	

S/N	Description of Impact	Mitigation measures proposed	Implementation status	Details/remarks on implementation	Monitoring methods and frequency	Monitoring conducted by	Monitoring remarks(Excellent/Satisfactory/Partially Satisfactory/Below Satisfaction/Poor/Very Poor, Not applicable)	Remarks and actions taken to improve implementation
	congestions and disturbance to pedestrians 11.2 Disruption of the local access	Diversion signboards to be provided	Ongoing	Not strictly implemented	As needed	Contractor/ WUSC	Partially Satisfactory	
Construction of Drainage Work								
12	Soil erosion, silt runoff and unsettled street surfaces	Excavated soil placed safely against erosion	Ongoing	Major amount of the excavated soil used for backfilling and remaining soil used to protect against erosion	Stacking of soil Monitoring of soil disposal site.	Contractor/DSC	Satisfactory	
		Reuse of excavated soil properly during backfilling with well compacted	Ongoing	Excavated soil was being used to backfill of trenches	Daily		Satisfactory	
		Surplus soil to be disposed in proper places (Arjun Khola and Existing dumping site)	Ongoing	Surplus earth not yield in considerable amount			Satisfactory	
13	Air, dust and noise pollution	Frequent sprinkling of water	Ongoing	Dust generation from construction materials and trench digging were avoided by sprinkling of water	Dust in Air	Contractor/ WSSDO/DSC	Partially satisfactory	
		Monitoring of air quantity	Ongoing	Air quality monitoring not practiced			Partially satisfactory	

S/N	Description of Impact	Mitigation measures proposed	Implementation status	Details/remarks on implementation	Monitoring methods and frequency	Monitoring conducted by	Monitoring remarks(Excellent/Satisfactory/Partially Satisfactory/Below Satisfaction/Poor/Very Poor, Not applicable)	Remarks and actions taken to improve implementation
		Use of tarpaulin to cover loose construction materials (sand and Aggregate) at the time of transportation	Ongoing	Construction materials covered during transportation using tarpaulin to avoid dust generation			Satisfactory	
		Transportation of construction materials as and when required	Ongoing	Transportation of construction materials done only in the necessary areas to avoid any unnecessary dust generation			satisfactory	
14	Disturbance and risk of accidents on site to workers and public	Inform the public in advance	Ongoing	Prior information to the public given before soil excavation	Use of sign board, diversion board Use of safety gears First aid box Accident records Daily	Contractor/DSC	Satisfactory	
		Follow the safety rules for all construction activities	Ongoing	Not implemented strictly			Partially Satisfactory	
		Exclude the public from the construction site and use of notice board & diversion signs	Ongoing	Public are not strictly excluded from construction site			Partially Satisfactory	
		Use of protective equipment like gloves, boots, face mask etc.	Ongoing	Protective equipment provided by contractors but workers don't use them compulsorily		Contractor/DSC	Partially Satisfactory	

Table 5.11: Compliance with Environmental Management Plan (Kakadvitta)

Description of Impact	Mitigation measures proposed	Location	Implementation status	Details/ remarks on implementation	Monitoring methods and frequency	Monitoring conducted by	Monitoring remarks (Excellent/Satisfactory/Partially Satisfactory/Below Satisfaction/Poor/Very Poor, Not applicable)	Remarks and actions taken to improve implementation
Construction phase								
Disturbance to the land system and soil erosion	Excavation technique Backfilling the pipeline trench with proper compaction	Construction site	Completed	Excavation work done carefully with minimum vibration and slope disturbance Compacted by ramming	Direct observation and record inspection Daily	Contractor/DSC	Satisfactory	
	Soil disposal area		Completed	Excavated soil is completely used for backfilling	Direct observation and record inspection Daily during construction work	Contractor DSC	Excellent	
	Stacking of soil		Completed	Stacking of soil done carefully to avoid erosion	Observation Daily	Contractor DSC	Satisfactory	
Surface and ground water quality	Water quality (Dissolved oxygen, BOD, Turbidity, etc.	Laboratory	Completed	Water quality testing report shows that results are within the range of NDWQS Established laboratory for periodic test of water quality	Record inspection Monthly	DSC	Satisfactory	
Quarrying	Quarrying activity Local aesthetics	Quarry site	Completed	Quarry sites allocated by municipality were in use for quarrying	Direct observation and contractor records Once	DSC WUSC	Satisfactory	

Description of Impact	Mitigation measures proposed	Location	Implementation status	Details/ remarks on implementation	Monitoring methods and frequency	Monitoring conducted by	Monitoring remarks (Excellent/Satisfactory/Partially Satisfactory/Below Satisfaction/Poor/Very Poor, Not applicable)	Remarks and actions taken to improve implementation
Air and Noise pollution	Use of equipment and vehicles	Construction and Operation site	Completed	Instructed to vehicle staff to minimize blowing of horns from vehicles used for construction purpose Regular cleaning by operators and maintenance in workshop in case of breakdown	Record inspection Weekly	DSC/WUSC	Satisfactory	
	Quality of fuel		Completed	Fuel supplied by NOC used	Records Weekly	DSC/ Contractor	Satisfactory	
	Sprinkling of water		Completed	Sprinkling of water done as per requirement	Observation Weekly	DSC/ Contractor	Satisfactory	
	Use of mufflers		Completed	Work done with minimal noise Instructed to install if required	Site observation Weekly	DSC/ Contractor	Satisfactory	
Loss of vegetation	Cleared area	Construction site	Completed	Instruction given to workers for minimization of vegetation clearance No potential loss of trees/vegetation/aesthetics in the scheme area NGO has been conducting environmental awareness programs	Observation and record inspection Weekly	Contractor/ WUSC	Satisfactory	
	No of trees/shrubs planted							

Second Small Town Water Supply and Sanitation Sector Project

Description of Impact	Mitigation measures proposed	Location	Implementation status	Details/ remarks on implementation	Monitoring methods and frequency	Monitoring conducted by	Monitoring remarks (Excellent/Satisfactory/Partially Satisfactory/Below Satisfaction/Poor/Very Poor, Not applicable)	Remarks and actions taken to improve implementation
Impact on aquatic animals	Quality of effluent	Construction site and outlet of treatment plant	Completed	Drainage were constructed separately Effluent from construction site collected in pits and treatment plant were discharge to nearby empty drain with no settlements around	Record inspection Monthly	WUSC/DSC	Satisfactory	
Problems from outside work force	Behavior of the workers	Project area	Completed	Instructed all workers to act in a responsible manner No complaints and any other case observed	Record inquiry Communication with people Monthly and as needed	WUSC/ Contractor	Satisfactory	
	Uses of alcohol Records of fights		Completed	No case observed (i.e. fights, complaints etc.)	Local survey Weekly	WUSC Contractor	Satisfactory	
Disturbance to the local people	Use of signboards, notice board	Project area	Completed	Signboards were used in major public areas	Local survey Weekly	WUSC Contractor	Satisfactory	
	Disposal area		Completed	Wastes were disposed at authorized areas from Municipality	Site observation Records Monthly and as needed	WUSC/ Contractor	Satisfactory	
Occupational Health and Safety	Type and number of accidents A site health and safety plan including safety	Construction site	Completed	No case of accidents observed Safety equipment were provided to workers Toilet constructed and	Visual observation Daily	Contractor DSC	Satisfactory	

Description of Impact	Mitigation measures proposed	Location	Implementation status	Details/ remarks on implementation	Monitoring methods and frequency	Monitoring conducted by	Monitoring remarks (Excellent/Satisfactory/Partially Satisfactory/Below Satisfaction/Poor/Very Poor, Not applicable)	Remarks and actions taken to improve implementation
	measures such as provision of mask, helmet, hand gloves and rubber boots to workers will be prepared and implemented Proper sanitary condition to be maintained in the labor camp			mosquito nets supplied in camp Solid waste collected and disposed in pit				
	First aid and emergency services		Completed	First aid kit placed in site office	Sit observation Weekly	DSC	Satisfactory	

Table 5.12: Compliance with Environmental Management Plan (Darakh-Sukhad)

S/N	Description of Impact	Mitigation measures proposed	Implementation status	Details/remarks on implementation	Monitoring methods and frequency	Monitoring conducted by	Monitoring remarks (Excellent/Satisfactory/Partially Satisfactory/Below Satisfaction/Poor/Very Poor, Not applicable)	Remarks and actions taken to improve implementation
Pre-construction Phase								
1.	Detailed Design	Review of Design / Estimate Completed	Completed					
2.	Pre-Construction	Review of Specification of Work	Completed					
Construction Phase								
Physical Environment								
1.	Soil erosion , soil stability and Geology	Excavated soil placed safely against erosion	Completed					
		Reuse of excavated soil properly during backfilling the pipe line trench and well compacted	Completed					
2	Air quality (Dusty Environment)	Frequent sprinkling of water	Completed					
		Visual monitoring of air quality	Completed					
		Use of masks	Completed					

S/N	Description of Impact	Mitigation measures proposed	Implementation status	Details/remarks on implementation	Monitoring methods and frequency	Monitoring conducted by	Monitoring remarks (Excellent/Satisfactory/Partially Satisfactory/Below Satisfaction/Poor/Very Poor, Not applicable)	Remarks and actions taken to improve implementation
3	Noise and Vibration	Provision of restriction on blowing of pressure horn haphazardly for the vehicle involve in construction works	Completed					
		Regular maintenance of equipment	Ongoing	Use of old and worn out equipment was prohibited to reduce the noise and pollution	Periodic Maintenance record Every day	Contractor/WSSD O/DSC	Satisfactory	
Biological Environment								
4	Impact on natural vegetation and ecology due to construction of different components of system like pipe laying, water tank, treatment plant, building. etc.	Restricting use of fuel wood in labor camp,	Completed					
		Provision of minimization of vegetation clearance and forestation where ever needed	Completed					
5	Impact on flora, fauna and habitat due to project sitting and related activities	Environmental awareness program	Completed					
Socio-economic Environment								

S/N	Description of Impact	Mitigation measures proposed	Implementation status	Details/remarks on implementation	Monitoring methods and frequency	Monitoring conducted by	Monitoring remarks (Excellent/Satisfactory/Partially Satisfactory/Below Satisfaction/Poor/Very Poor, Not applicable)	Remarks and actions taken to improve implementation
6	Impairment to infrastructure (Construction activities may impair some of the existing community infrastructure such as road, foot trail etc.)	Proper precaution to be taken at the time of construction	Completed					
		Any damage to the existing infrastructure has to be repaired	Completed					
7	Law and order issues due (impact on social structure and cultural aspect) Influx of outside workforce, money and unwanted activities Cultural difference	Instruction to all workers to act in a responsible manner	Completed					
		Prohibition of use of alcohol and gambling	Completed					
		Cultural awareness program will be conducted to the outside workforce	Completed					
8	Occupational Health and Safety (Impact on health depending upon working condition)	Instruction to adopt safety measures	Completed					

S/N	Description of Impact	Mitigation measures proposed	Implementation status	Details/remarks on implementation	Monitoring methods and frequency	Monitoring conducted by	Monitoring remarks (Excellent/Satisfactory/Partially Satisfactory/Below Satisfaction/Poor/Very Poor, Not applicable)	Remarks and actions taken to improve implementation
	Occupational health and safety (OHS) Public health	First aid at hand in the working area	Completed					
9	Community Health and Safety	Proper sanitation and hygiene to be maintained	Completed					
		Quality of drinking water to be monitored	Completed	Problem of Arsenic content in the household supply system at Sadepani	Drinking water quality tests Weekly	WSSDO, WUSC, Contractor	Satisfactory	
		Collection of Solid waste in fixed place	Completed					

Table 5.13: Compliance with Environmental Management Plan (Mukundapur)

S/N	Description of Impact	Mitigation measures proposed	Implementation status	Details/remarks on implementation	Monitoring methods and frequency	Monitoring conducted by	Monitoring remarks (Excellent/Satisfactory/Partially Satisfactory/Below Satisfaction/Poor/Very Poor, Not applicable)	Remarks and actions taken to improve implementation
Construction Phase								
Physical Environment								
1	Damage to utility lines, community services and infrastructure	Location of project structures avoid electric poles, power supply structures and infrastructures	Completed	No major damage to public and personal infrastructure recorded	Observation, consultation with local people	DWSS/ SSTWSSSP	Satisfactory	
		People will be notified and services restored as soon as possible to overcome public inconvenience	Completed	Pre-information given to public about the disturbance and inconvenience especially during pipe laying works	Weekly during construction		Satisfactory	
		Letter of approval and agreements will be obtained	Completed	Permission obtained from concerned authorities			Excellent	
2	Air, water and noise pollution	Dust suppression at the site by sprinkling water at regular intervals.	ongoing	Dust generation from construction materials and trench digging were avoided by sprinkling of water	Observation, sprinkling of water; Do oil and grease, Amount of noise levels in dB Monthly	PIU/DSC	Partially Satisfactory	
		No equipment, which will produce heavy noise will be used	ongoing	High noise producing equipment were not used			Satisfactory	

S/N	Description of Impact	Mitigation measures proposed	Implementation status	Details/remarks on implementation	Monitoring methods and frequency	Monitoring conducted by	Monitoring remarks (Excellent/Satisfactory/Partially Satisfactory/Below Satisfaction/Poor/Very Poor, Not applicable)	Remarks and actions taken to improve implementation
		Haphazard disposal of waste by workers will be monitored. Leakage and disposal of oil and grease will be checked regularly and repaired immediately if noticed.	ongoing	Disposal of construction wastes done at sanctioned area however solid waste management at campsite was not found; No leakage of grease and oil found			Satisfactory	
3	Impacts on Quarry and Spoil disposal site	Avoiding unstable and erosion prone sites Quarrying activities from rivers/streams will not be allowed so as to change the river cross sections and longitudinal profiles	Completed	Construction materials brought from registered crusher industry whose quarrying sites are at Dhumkibas and Manohari river and extraction being done without hampering the river profile	Observation Monthly	DSC/WUSC	Satisfactory	
		Quarry site will be leveled to suit the local landscape after extraction is complete	Completed	Practiced by a registered Crusher Industry			Satisfactory	
		Dumping of excavated soil in outer side of trench opposite to roadside and backfilling	Completed	Excavated soil was dumped opposite to roadside so as to minimize the blockage of the road			Satisfactory	
4	Erosion and land surface disturbance	Excavated soil will be placed against erosion	Completed	No risk of erosion of soil found	Observation and records on amount of land excavated and excavated soil reused	DSC/WUSC	Satisfactory	
		Reuse of excavated soil and backfilling of trenches will be done	Completed	Backfilling of soil being done immediately after completion of pipe laying works and remaining soil are used for filling of the trenches at OHT site			Satisfactory	

S/N	Description of Impact	Mitigation measures proposed	Implementation status	Details/remarks on implementation	Monitoring methods and frequency	Monitoring conducted by	Monitoring remarks (Excellent/Satisfactory/Partially Satisfactory/Below Satisfaction/Poor/Very Poor, Not applicable)	Remarks and actions taken to improve implementation
		As far as possible construction activities will be avoided in the rainy season	Completed	No major construction works and pipe laying works done during rainy season	Weekly		Satisfactory	
		Temporary diversions and signboards will be provided for the pedestrians	Completed	Diversion signboard placed during excavation work in the road			Satisfactory	
Biological Environment								
4	Loss of vegetation	The location of reservoirs and route of the transmission line from the intake at the stream to the storage tank has been planned to avoid main forest.	Completed	Transmission pipeline alignment has been designed so as to minimize vegetation clearance and avoid main forest	Observation, Consultation with CFUGs Daily while working inside forest area	DFO/DSC	Satisfactory	
		CFUs will be supported in afforestation	Completed	Afforestation plan has not been conducted yet by CFU			Satisfactory	
5	Possible Firewood extraction and NTFP/Timber Exploitation, Hunting and Poaching of Wild life	Use of fuel wood and timber collection will be prohibited	Completed	Fuel wood used but with strict monitoring of CFU thus excess wood not used	Observation, Records and consultation with local people and CFUGs	DFO/DSC	Satisfactory	
		Illegal collection of NTFPs and trade will be prohibited.	Completed	No illegal collection and trading of trees found			Excellent	
		LPG/kerosene will be provided to the workforce.	Completed	Workers basically use wood as the source of fuel however haphazard cutting of trees not found	Monthly		Satisfactory	

S/N	Description of Impact	Mitigation measures proposed	Implementation status	Details/remarks on implementation	Monitoring methods and frequency	Monitoring conducted by	Monitoring remarks (Excellent/Satisfactory/Partially Satisfactory/Below Satisfaction/Poor/Very Poor, Not applicable)	Remarks and actions taken to improve implementation
		Encourage and support the local community to control illegal hunting and poaching of wildlife and smuggling of forest resources.	Completed	No records of illegal hunting and poaching of wildlife found			Excellent	
		Awareness raising programs will be organized to educate local people in forest conservation	Completed	Awareness program are being conducted regarding forest conservation by local NGOs			Satisfactory	
Socio-Economic and Cultural Environment								
6	Source dispute and water use conflicts	Consultation and agreement with water users groups	Completed	WUSC plays vital role for coordination among people so no major conflict found	Consultation with different water users groups Once during Design Phase	DWSS/SSTWSS SP	Satisfactory	
7	Employment generation and increase in income	Priority to local people On job training	Completed	No formal training provided to workforce and due to the lack of local manpower employers are hired from nearby districts	Consultation with local people, Employment records Monthly	PIU/DSC	Satisfactory	
8	Disturbance to community activities	Traffic Management Plan will be developed and work will be conducted as quickly as possible to minimize disturbance	Completed	Working at the urban areas were done quickly to avoid traffic congestion and disturbance to publics	Observation and Consultation	DSC/WUSC	Satisfactory	

S/N	Description of Impact	Mitigation measures proposed	Implementation status	Details/remarks on implementation	Monitoring methods and frequency	Monitoring conducted by	Monitoring remarks (Excellent/Satisfactory/Partially Satisfactory/Below Satisfaction/Poor/Very Poor, Not applicable)	Remarks and actions taken to improve implementation
		Residents will be consulted and informed about the disturbances in advance	Completed	Pre-information regarding construction works like during pipe laying works given	with local people Weekly		Satisfactory	
9	Social dispute and dissatisfaction	Local people will be given priority for the employment	Completed	Priority given to local but due to lack of local manpower workforce hired from nearby districts	Observation and Consultation with local people Weekly	DSC/WUSC	Satisfactory	
		All the workers will be instructed to act in a responsible manner	Completed	Workers were acting in a responsible and disciplined manner			Satisfactory	
		Prohibition of alcohol, gambling	Completed	No records of fight and use of alcohol found			Satisfactory	
10	Occupational Health and safety	Provide training to workers on the potential occupational health and safety impacts/hazards and mitigation measures to be used during construction	Completed	No formal training programs regarding safety measures and occupational health provided to workers	Observation and Consultation with labors and local people Weekly	PIU/DSC	Satisfactory	
		First aid will be kept at hand in working area	Completed	First aid box generally kept at the construction camp site			Satisfactory	
		General public will be excluded from all construction sites	Completed	Not effectively implemented due to the easy accessibility of the construction site			Satisfactory	
		Insurance will be provided to the workers	Completed	Insurance provided to each workers with the sum of Rs. 500,000 per labor.			Satisfactory	

S/N	Description of Impact	Mitigation measures proposed	Implementation status	Details/remarks on implementation	Monitoring methods and frequency	Monitoring conducted by	Monitoring remarks (Excellent/Satisfactory/Partially Satisfactory/Below Satisfaction/Poor/Very Poor, Not applicable)	Remarks and actions taken to improve implementation
11	Community Health and Safety	Required hygienic conditions will be maintained in the labor camps.	Completed	No epidemic disease or vector spread found at labor camp however solid waste management was not found	Observation Weekly	DSC/WUSC	Satisfactory	
		Drinking water facility and temporary pit latrine will be established at construction sites to control open defecation and pollution of water bodies by the workers.	Completed	Open defecation not found and labor use temporary pit latrine; Pollution of water bodies by labor not found			Satisfactory	
		Awareness related to community health and safety to the local people	Completed	Awareness program conducted by local NGOs regarding health and safety to local people			Satisfactory	

Table 5.14: Compliance with Environmental Management Plan (Vyas)

S/N	Description of Impact	Mitigation measures proposed	Implementation status	Details/remarks on implementation	Monitoring methods and frequency	Monitoring conducted by	Monitoring remarks (Excellent/Satisfactory/Partially Satisfactory/Below Satisfaction/Poor/Very Poor, Not applicable)	Remarks and actions taken to improve implementation
Construction Phase								
Physical Environment								
1	Damage to utility lines, community services and infrastructure	Location of project structures to avoid electric poles, power supply structures and infrastructures	Completed	No major damage to public and infrastructure recorded	Observation, Consultation with local people	DWSS/SSTWSSSP	Satisfactory	
		People will be notified and services restored as soon as possible to overcome public inconvenience	Completed	Pre information given to public about the disturbance and inconvenience, especially during pipe laying works	Weekly during construction		Satisfactory	
		Letter of approval and agreements will be obtained	Completed	Permission obtained from concerned authorities			Excellent	
2	Air, water and noise pollution	Dust suppression at the site by sprinkling water at regular intervals.	Ongoing	Dust generation from construction materials and trench digging were avoided by sprinkling of water	Observation, sprinkling of water; Oil and grease equipment, Amount of noise levels in dB	PIU/DSC	Partially Satisfactory	
		No equipment, which will produce heavy noise will be used	Ongoing	Heavy noise producing equipment were not used	Monthly		Satisfactory	

S/N	Description of Impact	Mitigation measures proposed	Implementation status	Details/remarks on implementation	Monitoring methods and frequency	Monitoring conducted by	Monitoring remarks (Excellent/Satisfactory/Partially Satisfactory/Below Satisfaction/Poor/Very Poor, Not applicable)	Remarks and actions taken to improve implementation
		Haphazard disposal of waste by workers will be monitored. Leakage and disposal of oil and grease will be checked regularly and corrected immediately if noticed.	Ongoing	Disposal of construction wastes done at sanctioned areas. However solid waste management at campsite was not found; No leakage of grease and oil found			Partially Satisfactory	
3	Impacts on Quarry and Spoil disposal site	Avoiding unstable and erosion prone sites Quarrying activities from rivers/streams will not be allowed so as to change the river cross sections and longitudinal profiles	Ongoing	Construction materials brought from registered crusher industry whose quarrying sites are at Seti river at Kotre and extraction being done without hampering the river profile	Observation Monthly	DSC/WUSC	Satisfactory	
		Quarry site will be levelled to suit the local landscape after extraction is complete	Ongoing	Practiced by the registered crusher industry			Satisfactory	
		Dumping of excavated soil on outer side of trench opposite the roadside and backfilling	Ongoing	Excavated soil was dumped opposite to the roadside so as to minimize blockages road			Satisfactory	
4	Erosion and land surface disturbance	Excavated soil will be placed against erosion	Ongoing	Stacking of soil are done in plain areas so as to avoid erosion of soil	Observation and records on amount of land excavated and	DSC/WUSC	Satisfactory	

S/N	Description of Impact	Mitigation measures proposed	Implementation status	Details/remarks on implementation	Monitoring methods and frequency	Monitoring conducted by	Monitoring remarks (Excellent/Satisfactory/Partially Satisfactory/Below Satisfaction/Poor/Very Poor, Not applicable)	Remarks and actions taken to improve implementation
		Reuse of excavated soil and backfilling of trenches will be done	Ongoing	Backfilling of soil being done immediately after completion of pipe laying works and remaining soil are used for filling of the trenches at RVT sites	excavated soil reused Weekly		Satisfactory	
		As far as possible construction activities will be avoided in the rainy season	Ongoing	No major construction and pipe laying works done during rainy season	Satisfactory			
		Temporary diversions and signboards will be provided for the pedestrians	Ongoing	Diversion signboard placed during excavation works	Satisfactory			
Biological Environment								
4	Loss of vegetation	The location of reservoirs and route of the transmission line from the intake at the stream to the storage tank has been planned to avoid the main forest.	Ongoing	Transmission pipeline alignment has been designed so as to minimize vegetation clearance and avoid the main forest	Observation, Consultation with CFUGs Daily while working in forest areas	DFO/DSC	Satisfactory	
		CFUs will be supported in afforestation	Ongoing	Afforestation plan has not been implemented yet by Bagbhanjyang CFU	Below satisfaction			
5	Possible Firewood extraction and NTFP/Timber	Use of fuel wood and timber collection will be prohibited	Ongoing	Wood given by the community forest (twigs and branches)	Observation, Records and	DFO/DSC	Satisfactory	

S/N	Description of Impact	Mitigation measures proposed	Implementation status	Details/remarks on implementation	Monitoring methods and frequency	Monitoring conducted by	Monitoring remarks (Excellent/Satisfactory/Partially Satisfactory/Below Satisfaction/Poor/Very Poor, Not applicable)	Remarks and actions taken to improve implementation
	Exploitation, Hunting and Poaching of Wild life	Illegal collection of NTFPs and trade will be prohibited.	Ongoing	No illegal collection found	consultation with local people and CFUGs	Monthly	Excellent	
		LPG/kerosene will be provided to the workforce.	Ongoing	Workers basically use wood as the source of fuel given by the community forest (twigs and branches)			Partially satisfactory	
		Encourage and support the local community to control illegal hunting and poaching of wildlife and smuggling of forest resources.	Ongoing	No records of illegal hunting and poaching of wildlife found			Excellent	
		Awareness raising programs will be organized to educate local people in forest conservation	Ongoing	Awareness programs are being conducted regarding forest conservation by local NGOs			Satisfactory	
Socio-Economic and Cultural Environment								
6	Source dispute and water use conflicts	Consultation and agreement with water users groups	Ongoing	WUSC plays a vital role for coordination among people so no major conflict found	Consultation with different water user's groups Once during Design Phase	DWSS/SSTWSS SP	Satisfactory	

S/N	Description of Impact	Mitigation measures proposed	Implementation status	Details/remarks on implementation	Monitoring methods and frequency	Monitoring conducted by	Monitoring remarks (Excellent/Satisfactory/Partially Satisfactory/Below Satisfaction/Poor/Very Poor, Not applicable)	Remarks and actions taken to improve implementation
7	Employment generation and increase in income	Priority to local people On job training	Ongoing	No formal training provided to workforce and due to the lack of local manpower; employers are hired from nearby districts	Consultation with local people, Employment records Monthly	PIU/DSC	Partially Satisfactory	
8	Disturbance to community activities	Traffic Management Plan will be developed and work will be conducted as quickly as possible to minimize disturbance	Ongoing	Works in the urban areas were done quickly to avoid traffic congestion and disturbance to publics	Observation Consultation with local people	DSC/WUSC	Satisfactory	
		Residents will be consulted and informed about the disturbances in advance	Ongoing	Pre-information regarding construction works provided	Weekly		Satisfactory	
9	Social dispute and dissatisfaction	Local people will be given priority for the employment	Ongoing	Priority given to local but due to lack of local manpower workforce hired from nearby districts	Observation Consultation with local people	DSC/WUSC	Satisfactory	
		All the workers will be instructed to act in a responsible manner	Ongoing	Workers were acting in a responsible and disciplined manner	Weekly		Satisfactory	
		Prohibition of alcohol, gambling	Ongoing	No records of fight and use of alcohol found			Satisfactory	
10	Occupational Health and safety	Provide training to workers on the potential occupational health and safety impacts/hazards and mitigation measures to be used during construction	Ongoing	No formal training programs regarding safety measures and occupational health provided to workers	Observation Consultation with labors and local people	PIU/DSC	Below Satisfaction	

S/N	Description of Impact	Mitigation measures proposed	Implementation status	Details/remarks on implementation	Monitoring methods and frequency	Monitoring conducted by	Monitoring remarks (Excellent/Satisfactory/Partially Satisfactory/Below Satisfaction/Poor/Very Poor, Not applicable)	Remarks and actions taken to improve implementation
		First aid will be kept at hand in working area	Ongoing	First aid box generally kept at the construction camp site	Weekly		Partially Satisfactory	
		General public will be excluded from all construction sites	Ongoing	Not effectively implemented due to the easy accessibility of the construction site			Partially Satisfactory	
		Insurance will be provided to the workers	Ongoing	Insurance of Rs. 500,000 provided to each worker			Satisfactory	
11	Community Health and Safety	Required hygienic conditions will be Maintained in the labor camps.	Ongoing	No epidemic disease or vector spread found at labor camp however solid waste management was not found	Weekly	DSC/WUSC		
		Drinking water facility and temporary pit latrine will be established at construction sites to control open defecation and pollution of water bodies by the workers.	Ongoing	Open defecation not found and labor use temporary pit latrines; Pollution of water bodies by labor not found Same water consumed at labor camp as that by local community			Satisfactory	
		Awareness related to community health and safety to the local people	Ongoing	Awareness program conducted by local NGOs regarding health and safety to local people			Satisfactory	

Table 5.15: Compliance with Environmental Management Plan (Letang)

Description of Impact	Mitigation measures proposed	Location	Implementation status	Details/ remarks on implementation	Monitoring methods and frequency	Monitoring conducted by	Monitoring remarks (Excellent/Satisfactory/Partially Satisfactory/Below Satisfaction/Poor/Very Poor, Not applicable)	Remarks and actions taken to improve implementation
Construction phase								
Disturbance to the land system and soil erosion	Excavation technique	Construction site	Ongoing	Excavation work done carefully with minimal vibration and slope disturbance	Direct observation and record inspection	Contractor DSC	Satisfactory	
	Soil disposal area		Ongoing	Excavated soil completely used for backfilling	Daily during construction			
	Stacking of soil		Ongoing	Excavated soil stacked on outer side of trench opposite to roadside during pipe laying works and backfilling immediately done after completion of work				
Surface and ground water quality	Water quality (Dissolved oxygen, BOD, Turbidity)	Laboratory	Completed	Water quality test done for both ground water and surface water, test reports show that results are within the range of NDWQS	Record inspection Monthly	Contractor DSC	Satisfactory	
Quarrying	Quarrying activity	Quarry site	Ongoing	Chisang Khola located in the Letang VDC used for quarrying activities	Direct observation and contractor records	DSC	Satisfactory	
	Local aesthetics				Once			
Air and Noise pollution	Use of equipment and vehicles	Construction and Operation	Ongoing	Regular cleaning by operators and maintenance in workshop in case of	Record inspection	DSC WUSC	Satisfactory	

Description of Impact	Mitigation measures proposed	Location	Implementation status	Details/ remarks on implementation	Monitoring methods and frequency	Monitoring conducted by	Monitoring remarks (Excellent/Satisfactory/Partially Satisfactory/Below Satisfaction/Poor/Very Poor, Not applicable)	Remarks and actions taken to improve implementation
		site		breakdown No use of old vehicles Proper instruction to vehicle staff	Weekly			
	Quality of fuel		Ongoing	Fuel supplied by NOC used				
	Sprinkling of water		Ongoing	As required	Record inspection Weekly	DSC WUSC	Satisfactory	
	Use of mufflers		Ongoing	Instructed but not practiced	Site observation Weekly	DSC WUSC Contractor	Not satisfactory	
Loss of vegetation	Cleared area	Construction site		Instruction given to workers Restriction on use of fuel wood in labor camp	Observation and record inspection	Contractor WUSC	Not Satisfactory	
	No of trees/shrubs planted		Ongoing	No trees were cut during construction activities Pipe line alignment is always kept at a distance from trees	weekly			
Impact on aquatic animals	Quality of effluent	Construction site and outlet of treatment plant	Ongoing	Proper sanitary facility and toilet with soak pit constructed	Visual observation Monthly	WUSC DSC	Satisfactory	
Problems from outside workforce	Behavior of the workers	Project area	Ongoing	Instructed all workers to act in a responsible manner No complaints and no cases	Record Inquiry Communicati	WUSC, Contractor	Satisfactory	

Description of Impact	Mitigation measures proposed	Location	Implementation status	Details/ remarks on implementation	Monitoring methods and frequency	Monitoring conducted by	Monitoring remarks (Excellent/Satisfactory/Partially Satisfactory/Below Satisfaction/Poor/Very Poor, Not applicable)	Remarks and actions taken to improve implementation
				observed	on with people Monthly and as needed			
	Uses of alcohol Records of fights		Ongoing	No case observed (i.e. fights, complaints etc)	Local survey Weekly	WUSC Contractor	Satisfactory	
Disturbance to the local people	Use of signboards, notice board	Project area	Ongoing	Temporary diversions and signboards were provided for pedestrians	Local survey Weekly	WUSC Contractor	Excellent	
	Disposal area		Ongoing	Remaining soil after backfilling is used for leveling the uneven surface	Site observation Records Monthly and as needed	WUSC Contractor	Satisfactory	
Occupational Health and Safety	Type and number of accidents	Construction site	Ongoing	No case of accidents observed Safety equipment were provided to workers Temporary arrangement of sanitation facility available at working site				
	First aid and emergency services		Ongoing	First aid kit placed at site office	Visual observation Weekly	DSC Contractor	Satisfactory	

Table 5.16: Compliance with Environmental Management Plan (Narayan Municipality)

S/N	Description of Impact	Mitigation measures proposed	Implementation status	Details/ remarks on implementation	Monitoring methods and frequency	Monitoring conducted by	Monitoring remarks (Excellent/Satisfactory/Partially Satisfactory/Below Satisfaction/Poor/Very Poor, Not applicable)	Remarks and actions taken to improve implementation
Construction Phase Impacts								
1.	Unorganized disposal of excavated earth	Precautionary measures will be taken during construction to avoid cave in	Ongoing	Excavation works were done carefully to avoid cave in	Contractor records Daily	DSC	Satisfactory	
	Soil erosion, silt runoff	Reuse of excavated soil and backfilling of trenches will be done	Ongoing	Excavated soil was used to fill trenches in the RVT site area	Quantity of soil remained Daily	Contractor	Satisfactory	
	Pollution of surface water	Safe disposal of excavated soil	Ongoing	Soil used for backfilling of trenches	Disposal site Daily	Contractor, WSSDO	Satisfactory	
	Deterioration of air quality due to dust Disturbance to the pedestrians	Sprinkling of water to avoid dust	Ongoing	Dust particles avoided by sprinkling of water.	Dust in the air Daily	Contractor	Satisfactory	
		Temporary diversions and signboards will be provided for the pedestrians	Ongoing	Temporary diversion not usually required.	Signboards Daily	Contractor , WSSDO	Satisfactory	
	Noise pollution	Use of ear plugs and prohibition on using high noise producing equipment during night shift work.	Ongoing	No complaints from local regarding high noise during night time	Contractor records As needed	Contractor	Satisfactory	

S/N	Description of Impact	Mitigation measures proposed	Implementation status	Details/ remarks on implementation	Monitoring methods and frequency	Monitoring conducted by	Monitoring remarks (Excellent/Satisfactory/Partially Satisfactory/Below Satisfaction/Poor/Very Poor, Not applicable)	Remarks and actions taken to improve implementation
	Air pollution due to release of emissions	Covering of construction materials during transport and use of vehicles conforming to national standards.	Ongoing	Amount of dust in air and emissions from the transportation vehicles were found negligible	Contractor records As needed	Contractor	Satisfactory	
3.	Generation of excess grease, solid waste and other construction waste	Mechanism of safe disposal of waste will be developed in the project site before the actual commencement of work.	Ongoing	Safe disposal of the construction waste was practiced	Contractor records Daily	DSC,WSSDO	Satisfactory	
	Pollution of nearby irrigation canals and water bodies	Provision of dustbin for solid waste collection.	Ongoing	Dustbins have been provided but were not used often.	Contractor records Daily	Municipality, WUSC	Satisfactory	
		Prohibition of unwanted littering and discharge of waste	Ongoing	Toilet with proper soak pit in the project camp area and waste discharge	Amount and disposal of solid waste Monthly	Municipality, WUSC, Contractor	Satisfactory	
4.	Obstruction in pedestrian and traffic movement	Care will be taken while excavating and laying of pipes so that there is minimal vibration and slope disturbances	Ongoing	Manual excavation was done to avoid slope disturbances	Contractor Records Uneven surfaces Daily	Contractor , DSC	Satisfactory	

S/N	Description of Impact	Mitigation measures proposed	Implementation status	Details/ remarks on implementation	Monitoring methods and frequency	Monitoring conducted by	Monitoring remarks (Excellent/Satisfactory/Partially Satisfactory/Below Satisfaction/Poor/Very Poor, Not applicable)	Remarks and actions taken to improve implementation
	Removal of excavated material can affect the local land system (erosion and soil instability)	Excavated soil will be dumped in outer side of trench opposite to roadside and backfilling will be done properly	Ongoing	Backfilling done with proper compaction	Pavement demolition Daily	Contractor	Partially satisfactory	
	Risk of pollution of other streams in the area causing increase in turbidity	Spoil management unit to work efficiently to avoid the excavated soil from finding its way downstream to other surface sources and irrigation canals.	Ongoing	Other surface sources and irrigation canals were not disturbed by excavated soil	Contractor records Weekly	Contractor	Satisfactory	
	Loss of vegetation and habitat	Provision of minimization of vegetation clearing and careful cutting of ground vegetation	Ongoing	Vegetation clearing and cutting of ground vegetation is minimized	Cleared area Weekly	Contractor	Satisfactory	
		Plantation of tree and shrub where ever possible	Ongoing	Cutting of trees was not needed in the construction site and valuable plants were protected as far as possible	Afforested area, numbers of trees planted Yearly	WUSC	Satisfactory	
5.	Local residents could be	Work will be conducted as	Ongoing	Work in dense settlement areas	Contractor records	DSC, WSSDO	Satisfactory	

S/N	Description of Impact	Mitigation measures proposed	Implementation status	Details/ remarks on implementation	Monitoring methods and frequency	Monitoring conducted by	Monitoring remarks (Excellent/Satisfactory/Partially Satisfactory/Below Satisfaction/Poor/Very Poor, Not applicable)	Remarks and actions taken to improve implementation
	disturbed by noise, dust and impeded access	quickly as possible to minimize disturbance		was done quickly to minimize disturbance	Monthly			
		The residents will be consulted and inform about the disturbances in advance	Ongoing	Prior notice and information regarding work(were given to the local people	Communication with local people As needed	Contractor, DSC, WSSDO	Satisfactory	
6.	Problems due to irresponsible behavior of work force (e.g. gambling, disrespect to the local area and people)	All the workers will be instructed to act in a responsible manner	Ongoing	Workers were acting in a responsible and disciplined manner	Behavior of workers Weekly	Contractor, WSSDO	Satisfactory	
		Possible social gathering shall be allowed	Ongoing	No records of fight and use of alcohol found	Uses of alcohol, records of fights Weekly	WUSC, Contractor	Satisfactory	
		Local people will be employed as far as possible	Ongoing	Local people were mainly involved in construction activities	Local survey As needed	WUSC, Contractor	Satisfactory	
7.	Risk of accidents to the workers and public	A site health and safety plan including safety measures such as provision of personal protective equipment will be included	Ongoing	Necessary safety equipment was provided to workers	Use of helmet, mask, gloves, Boots etc. As needed	WUSC, Contractor	Partially Satisfactory	
		First aid will be	Ongoing	First Aid box kept	First aid box	Contractor,	Satisfactory	

S/N	Description of Impact	Mitigation measures proposed	Implementation status	Details/ remarks on implementation	Monitoring methods and frequency	Monitoring conducted by	Monitoring remarks (Excellent/Satisfactory/Partially Satisfactory/Below Satisfaction/Poor/Very Poor, Not applicable)	Remarks and actions taken to improve implementation
		kept at hand in working area		in the site office	Monthly	DSC, WSSDO		
		General public will be excluded from all construction sites	Ongoing	General public were not strictly prohibited in construction sites	Signboards Monthly	Contractor, DSC, WSSDO	Partially Satisfactory	
		Insurance will be provided to the workers	Ongoing	Insurance provided to each workers with the sum of Rs. 500,000 per labor.	Health and safety insurance One time	Contractor, DSC, WSSDO	Satisfactory	
SANITATION COMPONENT								
8.	Unorganized disposal of excavated earth	Safe disposal and re-use of excavated soil	Ongoing	Soil used for backfilling of trenches	Stacking of soil, quantity of soil remained Daily	Contractor	Satisfactory	
	Surface runoff, pollution of water ways	Sprinkling of water to avoid dust	Ongoing	Dust was avoided by sprinkling of water	Dust in the Air Daily	Contractor	Excellent	
	Nuisance to pedestrians Deterioration of air quality due to dust	Temporary diversions and signboards will be provided to the pedestrians	Ongoing	Signboards were provided	Signboards Daily	Contractor , WSSDO	Satisfactory	

S/N	Description of Impact	Mitigation measures proposed	Implementation status	Details/ remarks on implementation	Monitoring methods and frequency	Monitoring conducted by	Monitoring remarks (Excellent/Satisfactory/Partially Satisfactory/Below Satisfaction/Poor/Very Poor, Not applicable)	Remarks and actions taken to improve implementation
9.	Loss of vegetation and habitat	Provision of minimization of vegetation clearing and careful cutting of ground vegetation will be done	Ongoing	Vegetation clearing and cutting of ground vegetation is minimized	Cleared area Weekly	Contractor	Satisfactory	
		Trees and shrubs will be planted wherever possible	Ongoing	Cutting of tree was not needed in the construction site and valuable plants were protected as far as possible	Afforested area, numbers of trees planted Yearly	WUSC	Satisfactory	
10.	Risk of accidents to the workers and public	A site health and safety plan will be prepared and implemented	Ongoing	Necessary safety equipment was provided to workers	Use of safety gears Daily	WUSC, Contractor, WSSDO	Partially Satisfactory	Use of Personal Protective Equipment should be made compulsory for workers in the construction site

Table 5.17: Compliance with Environmental Management Plan (Khandbari)

Description of Impact	Mitigation measures proposed	Parameters to be Monitored	Implementation status	Details/remarks on implementation	Monitoring methods and frequency	Monitoring conducted by	Monitoring remarks (Excellent/Satisfactory/Partially Satisfactory/Below Satisfaction/Poor/Very Poor, Not applicable)	Remarks and actions taken to improve implementation
Physical Environment								
Conflict due to project Location	Consultation and involvement of local communities and WUSC							
Construction phase								
Risk of pollution of river water due to the construction of intake(Earthwork and other masonry work)	Regular water quality monitoring in the water source and distribution system	Water quality Monitoring, Disposal of soil Properly,	Ongoing	Earth and other masonry work done carefully to prevent river water from being polluted	Contractor records Twice a week	Contractor /DSC	Satisfactory	
	Reused of excavated soil properly	Condition of the pipe line trench	Ongoing	Excavated soil is reused properly for backfill of trenches				
Soil erosion and soil stability	Excavated soil placed safely against erosion	Stack of soil, Quantity of soil remain	Ongoing	At Piple RVT, Gairipangma Treatment plant and Kuwapani treatment plant erosion were observed and bio-engineering work was done to control and prevent from further erosion	Visual observation Twice a week	Contractor /DSC	Satisfactory	

Description of Impact	Mitigation measures proposed	Parameters to be Monitored	Implementation status	Details/remarks on implementation	Monitoring methods and frequency	Monitoring conducted by	Monitoring remarks (Excellent/Satisfactory/Partially Satisfactory/Below Satisfaction/Poor/Very Poor, Not applicable)	Remarks and actions taken to improve implementation
	Reuse of excavated soil properly during backfilling the pipe line trench with well compacted			Excavated soil is completely used for backfilling with proper ramming				
Air Quality (Dusty Environment) Air pollution due to movement of project vehicles Air pollution due to dust particles	Frequent sprinkling of water	Dust in Air, Deposition on crops and vegetation, No complaints from local residence, Monitoring of evidence issued by concerned agency, (TSPM, PM10, NOx, SOx, Cox) NAAQS of Nepal	Ongoing	Sparkling of water done as per need	Contractor records Everyday	Contractor /DSC	Satisfactory	
	Monitoring of air quantity			Dust in air and emissions from the transportation vehicles were found negligible				
	Use of masks			No complain from locals and workers in the site				
	Delivery vehicle will be covered							
	Vehicle emission test							
Noise and Vibration due to: movement of project vehicles	Restriction on unnecessary honking of horn from the vehicle used for construction purpose	Control on use of blowing horns, Periodic maintenance record, No complaints from local residence, (1 he Leq dB(A)WHO Standards	Ongoing	Proper instruction given to vehicle staff, no equipment producing excessive noise in use	Contractor records Dust level and visibility Everyday	Contractor /DSC	Satisfactory	
	Regularly maintenance of equipment			Regular monitoring of working equipment done				
	Mufflers fittings to noisy equipment			No complain of noise from locals				

Description of Impact	Mitigation measures proposed	Parameters to be Monitored	Implementation status	Details/remarks on implementation	Monitoring methods and frequency	Monitoring conducted by	Monitoring remarks (Excellent/Satisfactory/Partially Satisfactory/Below Satisfaction/Poor/Very Poor, Not applicable)	Remarks and actions taken to improve implementation
	Speed restriction			and workforce				
	Provisions of noise barrier placed in sensitive areas			Works carried out during day hour only				
	Works to be restricted to day hour only							
Biological Environment								
Impact on natural vegetation and ecology (Disturbance and loss of natural vegetation and ecology)	Restricting use of fuel wood in labor camp.	Smoke, coal	Ongoing	Instruction given to workers and contractors	Records, communication with local people Biannually	WUSC/DSC	Satisfactory	
	Provision of minimization of vegetation clearance	Cleared area,	Ongoing	Vegetation clearing and cutting of ground vegetation is minimized				
	Forestation where everneeded	Afforested area,	Ongoing	Cutting of the trees were not needed and plants were protected as far as possible				
Impact on aquatic life	Construction work to be avoided in rainy season	River water quality test (EC, PH, Do,TSS, Oil and grease.	Ongoing	No construction work was carryout during rainy season	Contractor s records Biannually	WUSC	Satisfactory	
	Quality of river water to be regularly monitored							
	Ban on fishing activities.	Fishing activities	Ongoing	Proper instruction to workforce				

Description of Impact	Mitigation measures proposed	Parameters to be Monitored	Implementation status	Details/remarks on implementation	Monitoring methods and frequency	Monitoring conducted by	Monitoring remarks (Excellent/Satisfactory/Partially Satisfactory/Below Satisfaction/Poor/Very Poor, Not applicable)	Remarks and actions taken to improve implementation
Loss of habitat (Clearance of bushes/vegetation) , Loss of flora & fauna due to project sitting and related activities	Provision of minimization of vegetation clearance	Flora and fauna Distribution	Ongoing	No case of loss of habitat was observed due to project activity and related activities	Visual observation Bi-annually and as needed	Contractor / DSC	Satisfactory	
	Environmental awareness program	Activities of labor						
Socio-Economic and Cultural Environment								
Impairment to infrastructure (Construction activities may impair some of the existing community infrastructure such as road, foot trail etc.)	Proper precaution to be taken at the time of construction	Condition of the infrastructures	Ongoing	Excavation work and pipe laying work carried out carefully	Contractor Records Daily	Contractor / DSC	Satisfactory	
	Any damaged to the existing infrastructure has to be repaired			Damaged infrastructure i.e. road were restrained to original conditions				
Law and order issues and disturbances on social structure and cultural practice Impact on social structure & cultural aspects Impact on employment Migration	Instruction to all workers to act in a responsible manner	Behaviors of local people and workers	Ongoing	Proper guidance to workers to act in responsible manner and acting in discipline manner	Contractor s records Weekly	Contractor /DSC	Satisfactory	
	Prohibition of use of alcohol and gambling	Alcohol bottle, Quarrels, Number of local employed		No records of fights and use of alcohol found				
	Cultural awareness of local communities to outside workforce			Local people were mostly involved in				
	Priority to be given to the local for employment.							

Description of Impact	Mitigation measures proposed	Parameters to be Monitored	Implementation status	Details/remarks on implementation	Monitoring methods and frequency	Monitoring conducted by	Monitoring remarks (Excellent/Satisfactory/Partially Satisfactory/Below Satisfaction/Poor/Very Poor, Not applicable)	Remarks and actions taken to improve implementation
Local economy Cultural value Pollution from outside work forces	Workforce to be strictly supervised			construction activities Work force were supervised by DSC engineers and contractors				
	Proper sanitation facility will be provided in the labor camp (sanitation toilet and safe drinking water)			Labor camps are on hired buildings/places and are well sanitized with satisfactory facilities	Contractors records Weekly	Contractor /DSC	Satisfactory	
	Collection of solid waste in fixed places			Temporary toilet and drinking water facilities was available at labor camp Solid waste were collected in pits				
Occupational Health and safety (impact on health of workers) Occupational Health and Safety (OHS) Socio-economic values Public health Aesthetic values	Instruction to adopt safety measures	Use of safety measures viz. Helmet, safety belt etc.	Ongoing	Instructed and necessary safety equipment provided to workers	Observation, contractor records	Contractor / DSC/WUSC	Satisfactory	
	Adequate safety equipment like hand gloves, hard cover helmets and boots will be provide			Worker negligence in using Personal Protective equipment	Weekly			
	First aid to be easily accessible			First aid provided to the workers in case			Satisfactory	

Description of Impact	Mitigation measures proposed	Parameters to be Monitored	Implementation status	Details/remarks on implementation	Monitoring methods and frequency	Monitoring conducted by	Monitoring remarks (Excellent/Satisfactory/Partially Satisfactory/Below Satisfaction/Poor/Very Poor, Not applicable)	Remarks and actions taken to improve implementation
				of accidents but were kept in the site office				
	Workers are to be insured by the contractor.			All the workers were insured by the contractor				
Traffic management Traffic congestions and disturbance to pedestrians Disruption of the local access	Prior notification of construction activities	Notice board Use of diversion sign board Smooth movement of vehicle	Ongoing	Prior notice and information regarding work, especially for disturbances from pipe laying activities was being given to local people and WUSC Diversion signboards were not in use in some of the sites	Visual observation As needed	Contractor /DSC/WUSC	Partially satisfactory	

Table 5.18: Compliance with Environmental Management Plan (Duhabi)

Description of Impact	Mitigation measures proposed	Implementation status	Details/remarks on implementation	Monitoring methods and frequency	Monitoring conducted by	Monitoring remarks (Excellent/Satisfactory/ Partially Satisfactory/Below Satisfaction/Poor/Very Poor, Not applicable)	Remarks and actions taken to improve implementation
Construction phase							
Generation of waste water. Surface runoff and transportation of excavated materials to nearby bodies	Reuse of water by the consumers in the nearby settlements to irrigate their farm land and vegetable gardens	Ongoing	No excessive generation of waste water Water collection in pits for reuse	Reuse of water as per need	DSC	Satisfactory	
Disturbance of the land system	Care will be taken while drilling boreholes so that there is minimal vibration and disturbances	Ongoing	Drilling done with care for minimal disturbance in the area	Contractor records As per need	DSC	Satisfactory	
Contamination of ground water	Proper protection during and after drilling will be done	Ongoing	The remaining drilled work at the end of day is temporary sealed to protect from contamination	Contractor records Daily	DSC	Satisfactory	
Disturbance of land system, erosion and landslide	Unstable and erosion prone sites will be avoided and only approved quarrying sites will be used	Ongoing	No erosion observed Location and condition of quarries and borrow pits Sand and gravels were transported from the quarry sites approved by Municipality, DDC or VDC as appropriate	Contractor records	DSC	Satisfactory	
Changes in morphology of water system	Quarrying activities from rivers/streams will not be done so as to change the river cross sections and longitudinal profiles			Once			
	Quarry site will be leveled to suit the local landscape after the extraction is complete						
Noise pollution	No use of old and worn out equipment and vehicles, low quality fuel will be	Ongoing	No old vehicles in use producing excessive noise and pollution	Contractor records Dust level and	DSC	Satisfactory	

Description of Impact	Mitigation measures proposed	Implementation status	Details/remarks on implementation	Monitoring methods and frequency	Monitoring conducted by	Monitoring remarks (Excellent/Satisfactory/Partially Satisfactory/Below Satisfaction/Poor/Very Poor, Not applicable)	Remarks and actions taken to improve implementation
of emissions	prohibited to reduce noise and air pollution.		Fuel used as supplied by NOC	visibility As needed			
	Regular inspection of equipment and prohibition of using high noise generating equipment in night time.	Ongoing	No work is done during night time	Contractor records Daily	DSC	Satisfactory	
	The construction materials will be covered during transportation to avoid dust generation	Ongoing	As per mitigation measure proposed	Contractor records As per need during transportation	DSC	Excellent	
Unorganized disposal of excavated earth	Precautionary measures will be taken during construction to avoid caving	Ongoing	Excavation work done carefully to avoid caving	Contractor records Daily	DSC	Satisfactory	
Soil erosion, silt run off Possible pollution of surface water	Excavated soil will be placed safely against erosion	Ongoing	No erosion observed Excavated soils completely used for backfill of trenches	Stacking of soil Quantity of soil remained Disposal site	DSC	Satisfactory	
Deterioration of air quality due to dust Disturbance to the pedestrians	Reuse of excavated soil Backfilling of trenches will be done Safe disposal of excavated soil			Daily			
	As far as possible construction activities will be avoided in the rainy season.	Ongoing	Avoided construction work such as digging trenches during rainy season	Contractor records As needed	DSC/ Contractors	Satisfactory	

Description of Impact	Mitigation measures proposed	Implementation status	Details/remarks on implementation	Monitoring methods and frequency	Monitoring conducted by	Monitoring remarks (Excellent/Satisfactory/ Partially Satisfactory/Below Satisfaction/Poor/Very Poor, Not applicable)	Remarks and actions taken to improve implementation
	Sprinkling of water to avoid dust	Ongoing	Sprinkling of water done in needy area	Dust in the Air Daily	DSC/ Contractor	Satisfactory	
	Temporary diversions and signboards will be provided for the pedestrians	Ongoing	Caution at busy road and dense area were used while pipe laying and other construction activities	Signboards Daily	Contractor	Satisfactory	
Generation of excess grease, solid waste and other construction waste	Pollution of nearby irrigation canal sand water bodies	Ongoing	Most of the workers are local people and the workers from outside were provided proper sanitation facility and proper guidance provided	Contractor records Monthly	DSC,WUSC,V DC	Satisfactory	
	Mechanism of safe disposal Such as grease interceptor of waste will be developed in the project site before the actual commencement of work	Ongoing	Waste generated were disposed to allocated area	Contractor records Daily	DSC	Satisfactory	
	Prohibition of unwanted Littering and discharge of waste	Ongoing	Waste water and human waste were disposed into a soak pit	Amount and disposal of solid Waste/Monthly	DSC	Satisfactory	
Obstruction in pedestrian and traffic movement Removal of excavated material can affect the local land system(erosion and oil instability)	Care will be taken while excavating and laying pipes so that the minimal vibration and slope disturbances	Ongoing	Excavation work is done carefully	Contractor records Uneven surfaces Daily	DSC, Contractor	Satisfactory	
	Excavated soil will be dumped in outer side of trench opposite to roadside and backfilling should be	Ongoing	Excavated soil place safely to protect pavement Backfilling is done	Visual inspection	Contractor	Satisfactory	

Description of Impact	Mitigation measures proposed	Implementation status	Details/remarks on implementation	Monitoring methods and frequency	Monitoring conducted by	Monitoring remarks (Excellent/Satisfactory/ Partially Satisfactory/Below Satisfaction/Poor/Very Poor, Not applicable)	Remarks and actions taken to improve implementation
	done properly		immediately after connection is completed	Daily			
	Excavated soil will be placed safely against erosion	Ongoing	Excavated soil is completely used for backfilling	Stacking of soil Daily	Contractor, DSC	Satisfactory	
Loss of vegetation and habitat	Provision of minimization of vegetation clearing and careful cutting of ground vegetation	Ongoing	No need to cut trees and plants In some of the places during pipe laying work clearing of ground vegetation required	Cleared area Weekly	Contractor	Satisfactory	
	Plantation of tree and shrub where ever possible	Ongoing	Plantation not done the ratio 1:25	Afforested area, numbers of trees planted Yearly	WUSC	Satisfactory	
Local resident could be disturbed noise, dust and impeded access	Work to be conducted as quickly as possible to minimize disturbance	Ongoing	Insurance of workers done Discussion and meeting with local people and WUSC about activities	Contractor records Monthly	DSC	Satisfactory	
	Residents will be consulted and informed about the disturbances in advance	Ongoing	Discussion about the work during meetings with WUSC in participation of local people	Communication with local people As needed	Contractor	Satisfactory	
Problems due to irresponsible behavior of work force (e.g..gambling, disrespect to the local area and people)	All the workers will be instructed to act in a responsible manner	Ongoing	Proper guidance to workers to act in responsible manner	Behavior of workers Weekly	Contractor, WUSC	Satisfactory	
	Prohibition of alcohol, gambling	Ongoing	No records of fights	Uses of alcohol, records of fights Weekly	Contractor, WUSC	Satisfactory	

Description of Impact	Mitigation measures proposed	Implementation status	Details/remarks on implementation	Monitoring methods and frequency	Monitoring conducted by	Monitoring remarks (Excellent/Satisfactory/Partially Satisfactory/Below Satisfaction/Poor/Very Poor, Not applicable)	Remarks and actions taken to improve implementation
	Local people will be employed as far as possible	Ongoing	Local workers were given priority	Local survey As needed	Contractor	Satisfactory	
Risk of accidents to the workers and public	As its health and safety plan including safety measures such As provision of mask, helmet, hand gloves and rubber boots to workers will be prepared and implemented	Ongoing	Safety measures provided but not used by workforce properly	Use of helmet, mask, gloves, boots etc. Daily	Contractor	Partially satisfactory	
	First aid will be kept at hand in Working area	Ongoing	First Aid kit available in site office	First aid box Monthly	Contractor, DSC	Satisfactory	
	General public will be excluded Formal construction sites	Ongoing	Local people seen at construction sites	Signboards Monthly	Contractor	Partially satisfactory	
	Insurance will be provided to the workers	Ongoing	Insurance of workers done and WUSC members aware	Health and safety insurance Once	Contractor, DSC	Satisfactory	

Table 5.19: Compliance with Environmental Management Plan (Dhankuta)

Description of Impact	Mitigation measures proposed	Parameters to be Monitored	Implementation status	Details/remarks on implementation	Monitoring methods and frequency	Monitoring conducted by	Monitoring remarks (Excellent/Satisfactory/Partially Satisfactory/Below Satisfaction/Poor/Very Poor, Not applicable)	Remarks and actions taken to improve implementation
Construction Phase								
Disturbance to the land system and soil erosion	Excavation technique	Quantity of soil remained	Ongoing	Excavation work is done carefully to avoid caving	Direct observation and record inspection Daily during construction	Contractor / DSC	Satisfactory	
	Soil disposal area			Excavated soil used completely for backfilling of trenches				
	Stacking of soil			No erosion observed				
Quarrying	Quarrying Activity Local aesthetics	contractor records	Ongoing	Sand and gravels transported from the quarry sites approved by Municipality, DDC or VDC as appropriate	Direct observation and contractor records Once	DSC	Satisfactory	
Air and Noise pollution	Use of equipment and vehicles Quality of fuel Use of mufflers	Record inspection	Ongoing	Regular maintenance of working equipment and vehicles was done No excessive generation of noise and smoke was observed Fuel used as	Record inspection Weekly	DSC/WUSC	Satisfactory	

Description of Impact	Mitigation measures proposed	Parameters to be Monitored	Implementation status	Details/remarks on implementation	Monitoring methods and frequency	Monitoring conducted by	Monitoring remarks (Excellent/Satisfactory/Partially Satisfactory/Below Satisfaction/Poor/Very Poor, Not applicable)	Remarks and actions taken to improve implementation
	Sprinkling of water		Ongoing	supplied by NOC Sprinkling of water done as per need				
Loss of vegetation	Cleared area No of trees/shrubs planted	Record inspection	Ongoing	No trees were cut during construction activities Vegetation clearing and cutting of ground vegetation was minimized	Visual Observation and record inspection Weekly	Contractor / WUSC	Satisfactory	
Impact on aquatic animals	Increase in turbidity in water (due to erosion of loosely deposited excavated soils)	Record inspection	Ongoing	Excavated soil was safely disposed and compaction done to prevent from erosion in intake sites No construction work was carryout during rainy season	Monthly	WUSC	Satisfactory	
Problems from outside workforce	Behavior of the workers Uses of alcohol Records of fights	Record inquiry Local survey Communication with people	Ongoing	Workers were acting in a responsible and disciplined manner No records of fights and police cases	Communication with local people Monthly and as needed	Contractor / WUSC	Satisfactory	
Disturbance to the local people	Use of signboards, notice board	Record inquiry Communication	Ongoing	Signboards was used for diversion and information to local people	Visual observation Weekly	Contractor /WUSC	Satisfactory	

Description of Impact	Mitigation measures proposed	Parameters to be Monitored	Implementation status	Details/remarks on implementation	Monitoring methods and frequency	Monitoring conducted by	Monitoring remarks (Excellent/Satisfactory/Partially Satisfactory/Below Satisfaction/Poor/Very Poor, Not applicable)	Remarks and actions taken to improve implementation
	Disposal area	with people		Excavated soil used completely for backfilling and remaining soil is disposed to sanctioned area				
Occupational Health and Safety	Type and number of accidents	File record	Ongoing	No case of accidents Necessary PPE provided but not in use by workers	Visual observation Daily	Contractor /DSC	Satisfactory	Compulsion use of PPE in the construction site is required with strict supervision from supervisor
	First aid and emergency services			First aid kit was not available at the construction site for emergency service, usually kept in site office			Partially satisfactory	Keeping of first aid box at hand in the working area

Table 5.20: Compliance with Environmental Management Plan (Rampur)

S/N	Description of Impact	Mitigation measures proposed	Implementation status	Details/remarks on implementation	Monitoring methods and frequency	Monitoring conducted by	Monitoring remarks (Excellent/Satisfactory/Partially Satisfactory/Below Satisfaction/Poor/Very Poor, Not applicable)	Remarks and actions taken to improve implementation
Construction Phase								
Physical Environment								
1	Damage to utility lines, community services and infrastructure	Location of project structures to avoid electric poles, power supply structures and infrastructure	Ongoing	No major damage to public and infrastructure recorded	Observation, Consultation with local people	DWSS/ SSTWSSSP	Satisfactory	
		People will be notified and services restored as soon as possible to overcome public inconvenience	Ongoing	Pre-information given to public about the disturbance and inconvenience, especially during pipe laying works	Weekly during construction		Satisfactory	
		Letter of approval and agreements will be obtained	Completed	Permission obtained from concerned authorities			Excellent	
2	Air, water and noise pollution	Dust suppression at the site by sprinkling water at regular intervals.	Ongoing	Dust generation from construction materials and trench digging were avoided by sprinkling of water	Observation, sprinkling of water; Oil and grease equipment Amount of noise levels in dB	PIU/DSC	Satisfactory	
		No equipment, which will produce heavy noise will be used	Ongoing	Heavy noise producing equipment were not used			Satisfactory	

S/N	Description of Impact	Mitigation measures proposed	Implementation status	Details/remarks on implementation	Monitoring methods and frequency	Monitoring conducted by	Monitoring remarks (Excellent/Satisfactory/Partially Satisfactory/Below Satisfaction/Poor/Very Poor, Not applicable)	Remarks and actions taken to improve implementation
		Haphazard disposal of waste by workers will be monitored. Leakage and disposal of oil and grease will be checked regularly and corrected immediately if noticed.	Ongoing	Disposal of construction wastes done at sanctioned areas. However solid waste management at campsite was not found; No leakage of grease and oil found	Monthly		Partially Satisfactory	
3	Impacts on Quarry and Spoil disposal site	Avoiding unstable and erosion prone sites Quarrying activities from rivers/streams will not be allowed so as to change the river cross sections and longitudinal profiles	Ongoing	Construction materials brought from registered crusher industry whose quarrying sites are at Kali Gandaki and extraction is being done without hampering the river profile	Observation	DSC/WUSC	Satisfactory	
		Quarry site will be leveled to suit the local landscape after extraction is complete	Ongoing	Practiced by the registered Crusher Industry	Monthly		Satisfactory	
		Dumping of excavated soil on outer side of trench opposite the roadside and backfilling	Ongoing	Excavated soil was dumped opposite to the roadside so as to minimize blockages			Satisfactory	
4	Erosion and land surface disturbance	Excavated soil will be placed against erosion	Ongoing	Stacking of soil are usually done in plain areas but near sloppy area was also noticed	Observation and records on amount of land excavated	DSC/WUSC	Satisfactory	

S/N	Description of Impact	Mitigation measures proposed	Implementation status	Details/remarks on implementation	Monitoring methods and frequency	Monitoring conducted by	Monitoring remarks (Excellent/Satisfactory/Partially Satisfactory/Below Satisfaction/Poor/Very Poor, Not applicable)	Remarks and actions taken to improve implementation
		Reuse of excavated soil and backfilling of trenches will be done	Ongoing	Backfilling of soil being done immediately after completion of pipe laying works and remaining soil are used for filling of the trenches at RVT sites	and excavated soil reused Weekly		Satisfactory	
		As far as possible construction activities will be avoided in the rainy season	Ongoing	No major construction and pipe laying works done during rainy season	Satisfactory			
		Temporary diversions and signboards will be provided for the pedestrians	Ongoing	Diversion signboard placed during excavation works	Satisfactory			
Biological Environment								
4	Loss of vegetation	The location of reservoirs and route of the transmission line from the intake at the stream to the storage tank has been planned to avoid the main forest.	Ongoing	Transmission pipeline alignment has been designed so as to minimize vegetation clearance and avoid the main forest	Observation, Consultation with CFUGs Daily while working in forest areas	DFO/DSC	Satisfactory	
		CFUs will be supported in afforestation	Ongoing	Afforestation plan has not been implemented yet by Ramche CFU and Kisanbari CFU	Satisfactory			
5	Possible Firewood extraction and	Use of fuel wood and timber collection will be prohibited	Ongoing	Wood given by the community forest (twigs and branches)	Observation, Records and	DFO/DSC	Satisfactory	

S/N	Description of Impact	Mitigation measures proposed	Implementation status	Details/remarks on implementation	Monitoring methods and frequency	Monitoring conducted by	Monitoring remarks (Excellent/Satisfactory/Partially Satisfactory/Below Satisfaction/Poor/Very Poor, Not applicable)	Remarks and actions taken to improve implementation
	NTFP/Timber Exploitation, Hunting and Poaching of Wild life	Illegal collection of NTFPs and trade will be prohibited.	Ongoing	No illegal collection found	consultation with local people and CFUGs		Excellent	
		LPG/kerosene will be provided to the workforce.	Ongoing	Workers basically use wood as the source of fuel given by the community forest (twigs and branches)	Monthly		Satisfactory	
		Encourage and support the local community to control illegal hunting and poaching of wildlife and smuggling of forest resources.	Ongoing	No records of illegal hunting and poaching of wildlife found			Excellent	
		Awareness raising programs will be organized to educate local people in forest conservation	Ongoing	Awareness programs are being conducted regarding forest conservation by local NGO called Sky Society Nepal			Satisfactory	
Socio-Economic and Cultural Environment								
6	Source dispute and water use conflicts	Consultation and agreement with water users groups	Ongoing	WUSC plays a vital role for coordination among people so no major conflict found	Consultation with different water users groups Once during Design Phase	DWSS/SSTWSS SP	Satisfactory	

S/N	Description of Impact	Mitigation measures proposed	Implementation status	Details/remarks on implementation	Monitoring methods and frequency	Monitoring conducted by	Monitoring remarks (Excellent/Satisfactory/Partially Satisfactory/Below Satisfactory/Poor/Very Poor, Not applicable)	Remarks and actions taken to improve implementation
7	Employment generation and increase in income	Priority to local people On job training	Ongoing	No formal training provided to workforce and due to the lack of local manpower; employers are hired from nearby districts	Consultation with local people, Employment records Monthly	PIU/DSC	Partially Satisfactory	
8	Disturbance to community activities	Traffic Management Plan will be developed and work will be conducted as quickly as possible to minimize disturbance	Ongoing	Working at the urban areas were done quickly to avoid traffic congestion and disturbance to publics	Observation and Consultation with local people	DSC/WUSC	Satisfactory	
		Residents will be consulted and informed about the disturbances in advance	Ongoing	Pre information regarding construction works like during pipe laying works given	Weekly		Satisfactory	
9	Social dispute and dissatisfaction	Local people will be given priority for the employment	Ongoing	Priority given to local but due to lack of local manpower workforce hired from nearby districts like Dang, Kapilbastu	Observation and Consultation with local people	DSC/WUSC	Satisfactory	
		All the workers will be instructed to act in a responsible manner	Ongoing	Workers were acting in a responsible and disciplined manner	Weekly		Satisfactory	
		Prohibition of alcohol, gambling	Ongoing	No records of fight and use of alcohol found			Satisfactory	

S/N	Description of Impact	Mitigation measures proposed	Implementation status	Details/remarks on implementation	Monitoring methods and frequency	Monitoring conducted by	Monitoring remarks (Excellent/Satisfactory/Partially Satisfactory/Below Satisfaction/Poor/Very Poor, Not applicable)	Remarks and actions taken to improve implementation
10	Occupational Health and safety	Provide training to workers on the potential occupational health and safety impacts/hazards and mitigation measures to be used during construction	Ongoing	No formal training programs regarding safety measures and occupational health provided to workers	Observation and Consultation with labors and local people	PIU/DSC	Satisfactory	
		First aid will be kept at hand in working area	Ongoing	First aid box generally kept at the construction camp site	Weekly		Partially Satisfactory	
		General public will be excluded from all construction sites	Ongoing	Not effectively implemented due to the easy accessibility of the construction site			Partially Satisfactory	
		Insurance will be provided to the workers	Ongoing	Insurance provided to each workers with the sum of Rs. 500,000 per labor.			Satisfactory	
11	Community Health and Safety	Required hygienic conditions will be maintained in the labor camps.	Ongoing	No epidemic disease or vector spread found at labor camp however solid waste management was not found	Observation Weekly	DSC/WUSC	Satisfactory	

S/N	Description of Impact	Mitigation measures proposed	Implementation status	Details/remarks on implementation	Monitoring methods and frequency	Monitoring conducted by	Monitoring remarks (Excellent/Satisfactory/Partially Satisfactory/Below Satisfaction/Poor/Very Poor, Not applicable)	Remarks and actions taken to improve implementation
		Drinking water facility and temporary pit latrine will be established at construction sites to control open defecation and pollution of water bodies by the workers.	Ongoing	Open defecation not found and labor use temporary pit latrine; Pollution of water bodies by labor not found			Satisfactory	
		Awareness related to community health and safety to the local people	Ongoing	Awareness program conducted by local NGOs regarding health and safety to local people			Satisfactory	

Table 5.21: Compliance with Environmental Management Plan (Baitadi)

S/No.	Description of Impact	Mitigation measures proposed	Implementation status	Details/ remarks on implementation	Monitoring methods and frequency	Monitoring conducted by	Monitoring remarks (Excellent/Satisfactory/Partially Satisfactory/Below Satisfaction/Poor/Very Poor, Not applicable)	Remarks and actions taken to improve implementation
Construction Phase Impacts								
1.	Unorganized disposal of excavated earth	Precautionary measures will be taken during construction to avoid cave in	Ongoing	Excavation works were done carefully to avoid cave in	Contractor records Daily	DSC	Satisfactory	
	Soil erosion, silt runoff							
	Pollution of surface water	Reuse of excavated soil and backfilling of trenches will be done	Ongoing	Excavated soil was used to fill trenches in the RVT site area	Quantity of soil remained Daily	Contractor	Satisfactory	
	Deterioration of air quality due to dust	Safe disposal of excavated soil	Ongoing	Soil used for backfilling of trenches	Disposal site Daily	Contractor , WSSDO	Satisfactory	
	Disturbance to the pedestrians	Sprinkling of water to avoid dust	Ongoing	Dust generated especially from cement and other construction materials were avoided by sprinkling of water	Dust in the air Daily	Contractor	Satisfactory	
		Temporary diversions and signboards will be provided for the pedestrians	Ongoing	Signboards and temporary diversions are being placed in the work areas for pedestrians	Signboards Daily	Contractor , WSSDO	Satisfactory	

S/No.	Description of Impact	Mitigation measures proposed	Implementation status	Details/ remarks on implementation	Monitoring methods and frequency	Monitoring conducted by	Monitoring remarks (Excellent/Satisfactory/Partially Satisfactory/Below Satisfaction/Poor/Very Poor, Not applicable)	Remarks and actions taken to improve implementation
2.	Noise pollution	Prohibition of high noise producing equipment and providing ear plugs for the workers	Ongoing	Noisy equipment not used. No complaints from local regarding high noise level during night.	Contractor records As needed	Contractor	Satisfactory	
	Air pollution due to release of emissions	Covering of loose materials during transportation and prohibition on using low quality fuel and vehicle not conforming to national standards.	Ongoing	Amount of dust in air and emissions from the transportation vehicles were found negligible	Contractor records As needed	Contractor	Satisfactory	
	Generation of excess grease, solid waste and other construction waste	Mechanism of safe disposal of waste will be developed in the project site before the actual commencement of work.	Ongoing	Safe disposal of the construction waste was practiced	Contractor records Daily	DSC,WSSDO	Satisfactory	
		Provision of dustbin for solid waste collection.	Ongoing	Dustbins have been provided but were not used often.	Contractor records Daily	Municipality, WUSC	Partial Satisfactory	
	Pollution of nearby irrigation canals and water bodies	Prohibition of unwanted littering and discharge of	Ongoing	Toilet with proper soak pit was found in	Amount and disposal of solid	Municipality, WUSC	Satisfactory	

S/No.	Description of Impact	Mitigation measures proposed	Implementation status	Details/ remarks on implementation	Monitoring methods and frequency	Monitoring conducted by	Monitoring remarks (Excellent/Satisfactory/Partially Satisfactory/Below Satisfaction/Poor/Very Poor, Not applicable)	Remarks and actions taken to improve implementation
		waste		the project camp area so no open defecation and waste discharge	waste Monthly			
3.	Obstruction in pedestrian and traffic movement	Care will be taken while excavating and laying of pipes so that there is minimal vibration and slope disturbances	Ongoing	Manual excavation was mostly done to avoid any chances of slope disturbances arise from using excavators	Contractor Records Uneven surfaces Daily	Contractor , DSC	Satisfactory	
4.	Removal of excavated material can affect the local land system (erosion and soil instability)	Excavated soil will be dumped in outer side of trench opposite to roadside and backfilling will be done properly	Ongoing	Backfilling done but in some areas due to inadequate compaction, irregular road surfaces found.	Pavement demolition Daily	Contractor	Partial satisfactory	
5.	Risk of pollution of other streams in the area causing increase in turbidity	Spoil management unit to work efficiently to avoid the excavated soil from finding its way downstream to other surface sources and irrigation canals.	Ongoing	Other surface sources and irrigation canals were not disturbed by excavated soil	Contractor records Weekly	Contractor	Satisfactory	

S/No.	Description of Impact	Mitigation measures proposed	Implementation status	Details/ remarks on implementation	Monitoring methods and frequency	Monitoring conducted by	Monitoring remarks (Excellent/Satisfactory/Partially Satisfactory/Below Satisfaction/Poor/Very Poor, Not applicable)	Remarks and actions taken to improve implementation
6.	Loss of vegetation and habitat	Provision of minimization of vegetation clearing and careful cutting of ground vegetation	Ongoing	Vegetation clearing and cutting of ground vegetation is minimized	Cleared area Weekly	Contractor	Satisfactory	
		Plantation of tree and shrub where ever possible	Ongoing	Cutting of trees was not needed in the construction site and valuable plants were protected as far as possible	Afforested area, numbers of trees planted Yearly	WUSC	Satisfactory	
7.	Local residents could be disturbed by noise, dust and impeded access	Work will be conducted as quickly as possible to minimize disturbance	Ongoing	Work in the dense settlement areas was done quickly to minimize disturbance	Contractor records Monthly	DSC, WSSDO	Satisfactory	
		The residents will be consulted and informed about the disturbances in advance	Ongoing	Prior notice and information regarding work were given to the local people	Communication with local people As needed	Contractor, DSC, WSSDO	Satisfactory	
8.	Problems due to irresponsible behavior of work force (e.g. gambling, disrespect to	All the workers will be instructed to act in a responsible manner	Ongoing	Workers were acting in a responsible and disciplined	Behavior of workers	Contractor, WSSDO	Satisfactory	

S/No.	Description of Impact	Mitigation measures proposed	Implementation status	Details/ remarks on implementation	Monitoring methods and frequency	Monitoring conducted by	Monitoring remarks (Excellent/Satisfactory/Partially Satisfactory/Below Satisfaction/Poor/Very Poor, Not applicable)	Remarks and actions taken to improve implementation
	the local area and people)			manner	Weekly			
		Possible social gathering shall be allowed	Ongoing	No records of fight and use of alcohol found	Uses of alcohol, records of fights Weekly	WUSC, Contractor	Satisfactory	
		Local people will be employed as far as possible	Ongoing	Local people were mainly involved in construction activities	Local survey As needed	WUSC, Contractor	Satisfactory	
9.	Risk of accidents to the workers and public	A site health and safety plan including safety measures such as provision of personal protective equipment will be included	Ongoing	Necessary safety equipment was provided to workers	Use of helmet, mask, gloves, Boots etc. As needed	WUSC, Contractor	Partially Satisfactory	
		First aid will be kept at hand in working area	Ongoing	First Aid provided to the workers in case of accident but was usually kept in the site office.	First aid box Monthly	Contractor, DSC, WSSDO	Satisfactory	
		General public will be excluded from all construction sites	Ongoing	General public were not strictly prohibited in construction sites	Signboards Monthly	Contractor, DSC, WSSDO	Partially Satisfactory	

S/No.	Description of Impact	Mitigation measures proposed	Implementation status	Details/ remarks on implementation	Monitoring methods and frequency	Monitoring conducted by	Monitoring remarks (Excellent/Satisfactory/Partially Satisfactory/Below Satisfaction/Poor/Very Poor, Not applicable)	Remarks and actions taken to improve implementation
10		Insurance will be provided to the workers	Ongoing	Insurance provided to each workers with the sum of Rs. 500,000 per labor	One time	Health and safety insurance Contractor, DSC, WSSDO	Satisfactory	
SANITATION COMPONENT								
Construction Phase Impact								
10	Unorganized disposal of excavated earth	Safe disposal and re-use of excavated soil	Ongoing	Soil used for backfilling of trenches	Stacking of soil, quantity of soil remained Daily	Contractor	Satisfactory	
	Surface runoff, pollution of water ways							
	Nuisance to pedestrians	Sprinkling of water to avoid dust	Ongoing	Dust generated especially from cement and other construction materials were avoided by sprinkling of water	Dust in the Air Daily	Contractor	Excellent	
	Deterioration of air quality due to dust	Temporary diversions and signboards will be provided to the pedestrians	Ongoing	Signboards were provided at construction site of public toilets	Signboards Daily	Contractor , WSSDO	Satisfactory	

Second Small Town Water Supply and Sanitation Sector Project

S/No.	Description of Impact	Mitigation measures proposed	Implementation status	Details/ remarks on implementation	Monitoring methods and frequency	Monitoring conducted by	Monitoring remarks (Excellent/Satisfactory/Partially Satisfactory/Below Satisfaction/Poor/Very Poor, Not applicable)	Remarks and actions taken to improve implementation
11	Loss of vegetation and habitat	Provision of minimization of vegetation clearing and careful cutting of ground vegetation will be done	Ongoing	Vegetation clearing and cutting of ground vegetation is minimized	Cleared area Weekly	Contractor	Satisfactory	
		Trees and shrubs will be planted wherever possible	Ongoing	Cutting of the tree was not needed in the construction site and valuable plants were protected as far as possible	Afforested area, numbers of trees planted Yearly	WUSC	Satisfactory	
12	Risk of accidents to the workers and public	A site health and safety plan will be prepared and implemented	Ongoing	Necessary safety equipment was provided to workers	Use of safety gears Daily	WUSC, Contractor, WSSDO	Partially Satisfactory	

Table 5.22 : Overall Compliance with EMP

No.	Sub-Project Name	EMP Part of Contract Documents(Y/N)	EMP Being Implemented (Y/N)	Status of Implementation(Excellent/Satisfactory/Partially satisfactory /Below Satisfactory)	Action Proposed and Additional Measures Required
1	Batch I, Package II SSTWSSSP/ICB-01/Karahiya-Makrahar	Y	Y	Satisfactory	
2	Batch I, Package III SSTWSSSP/ICB-02/Indrapur Morang	Y	Y	Satisfactory	Continuation of proper management of health and sanitation conditions around the camps; prohibit use of firewood.
3	Batch I, Package II SSTWSSSP/ICB-03/Lamahi_Dang	Y	Y	Satisfactory	
4	Batch I, Package II SSTWSSSP/ICB-04/Sandhikharka_Arghakhanchi	Y	Y	Satisfactory	
5	SSTWSSSP/ICB-05/Damak_Jhapa	Y	Y	Satisfactory	
6	Batch I, Package II SSTWSSSP/ICB-06/Baglung_Baglung	Y	Y	Satisfactory	
7	Batch I (Package I) Contract No- SSTWSSSP/ICB-07/Shivanagar_Kailali	Y	Y	Satisfactory	Project Completed
8	SSTWSSSP/ICB-08/Phidim_Panchthar	Y	Y	Satisfactory	
9	Batch 1 (Package I) Contract No- SSTWSSSP/ICB-09/Bhasi_Kanchanpur	Y	Y	Satisfactory	
10	Batch II, Package III SSTWSSSP/ICB-10/Meghauli_Chitwan	Y	Y	Satisfactory	

11	Batch II,Package IV SSTWSSSP/ICB- 11/Kakarvitta_Jhapa	Y	Y	Satisfactory	-
12	Batch I, Package II SSTWSSSP/ICB-012/Darakh- Sukhad_Kailali	Y	Y	Satisfactory	
13	Batch II, Package II SSTWSSSP/ICB- 13/Mukundapur-Nawalparasi	Y	Y	Satisfactory	
14	Batch II, Package II SSTWSSSP/ICB- 14/Vyas_Tanahu	Y	Y	Satisfactory	Give more emphasis on providing personal protective equipment and compel workers to use it on regular basis during the work; erect safety signs, warning signals, safety barriers along the site; restriction of general public in the entire construction site.
15	Batch II, Package IV SSTWSSSP/ICB- 15/Letang_Morang	Y	Y	Satisfactory	Give more emphasis on providing all means of personal protective equipment and compel them to use them on a regular basis during work; erect safety signs, warning signals, and safety barriers along the site; assign flagmen to control traffic in sensitive areas.
16	Batch I, Package I, Contract No : SSTWSSSP/ICB- 16/Narayan Municipality_ Dailekh	Y	Y	Satisfactory	
17	Batch II, Package III SSTWSSSP/ICB- 18/Khanbari_Sankuwasabha	Y	Y	Satisfactory	Compulsion use of PPE's during construction work; erect safety signs, warning signals, safety barriers along the site; Restriction of general public in the entire construction site.
18	Contract No : SSTWSSSP/ICB-19 /Duhabi_Sunsari	Y	Y	Satisfactory	
19	Batch II, Package IV SSTWSSSP/ICB- 20/Dhankuta_Dhankuta	Y	Y	Satisfactory	Compulsion use of PPE during construction work. First aid box and emergency services in the working area is required and environmental mitigation measures required in some of the sites.

20	Batch II, Package II SSTWSSSP/ICB-21/Rampur-Palpa	Y	Y	Satisfactory	Give more emphasis on providing personal protective equipment and compel workers to use it on regular basis during the work; erect safety signs, warning signals, safety barriers along the site; restriction of general public in the entire construction site.
21	Batch I, Package I SSTWSSSP/ICB-22/Baitadi_Baitadi	Y	Y	Satisfactory	Give more emphasis on providing personal protective equipment and compel workers to use it on regular basis during the work; erect safety signs, warning signals, safety barriers along the site; restriction of general public in the entire construction site.

Table 5.23: Implementation of EMP**Status of Environment, Forest, and Other Clearance**

City/Town	Work (package no.)	Applicable legislation/ type of clearance	Clearance given by and date	Subject /issues	Remarks/action needed
Rampur	SSTWSSSP/ICB-21/Rampur-Palpa	Bushes and shrubs clearance	Ministry of Forest through district level office (DFO)	NA	Forestation and greenery of the area after completion of component like reservoir tank. Stabilization work of slope cutting area

6 Monitoring of Environmental Impacts on Projects Surroundings

S. NO.	Sub-Project Name	Comprehensive environmental monitoring parameters				
		Ambient Air Quality	Water Quality	Noise Quality	Solid Waste Management	Health and Safety
1	Karahiya-Makrahar	- Dust particles are within the tolerance limit. - Complaints from the locals regarding the air pollution were also not recorded. - Workers wearing masks during working hours in dusty environment is satisfactory.	- Drinking water has been supplied to the workers from the taps. - No records of water borne diseases. - Wastewater generated from the camp is being collected in soak pit. - Workers are regularly made aware on health, sanitation and hygiene.	- No major noise generating equipment are used, thus no complaints from the local community. - Noise level is within the tolerable limit.	- Household wastes generated from the labor camp are being collected and properly disposed. - Regular instruction and training is given to the workforce and contractors regarding ways of managing solid wastes. - There is no evidence of complaints from community.	- All staffs and workers were provided with basic health knowledge and awareness about the HIV/AIDS was also conducted within this period. - Clean water is provided and awareness regarding sanitation and hygiene was conducted regularly. - Workers became aware about the safety equipment and accident case was not recorded. - Safety signals were also posted at various working areas and camp.
2	Indrapur		- Drinking water has been supplied to the workers from the taps. - No records of water borne diseases. - Wastewater generated from the camp is being collected in soak pit. - Workers are regularly made aware on health, sanitation and hygiene. - There is a prohibition of littering and discharge of toxic and non-toxic wastes to the water streams.		- No reporting has been done regarding solid waste management during this period.	
3	Lamahi	- Monitored using visual inspection method.	- Drinking water has been supplied to the	- Camp sites had been established away from	- Household wastes generated from the labor camp are being	
4	Sandhikharka					

5	Damak	<ul style="list-style-type: none"> - Sprinkling of water was done regularly as and when needed. - Compulsion of wearing masks while working in the dusty environment has been carried out regularly but is not satisfactory. - No complaints from local people regarding air pollution. 	<ul style="list-style-type: none"> workers from the taps. - No records of water borne diseases. - Wastewater generated from the camp is being collected in soak pit. - Workers are regularly made aware on health, sanitation and hygiene. - Wastewater generated from the camp was not discharged in the stream. 	<ul style="list-style-type: none"> residential areas. - The contractor has been strictly instructed to keep their vehicles, generators and other machinery in good condition. - Workforce has been instructed to use ear plugs at noise generating sites. - No complaints from local people regarding noise pollution. 	<ul style="list-style-type: none"> collected and properly disposed. - Regular instruction and training is given to the workforce and contractors regarding ways of managing solid wastes. -Management of the construction wastes seems to be satisfactory. - Information given regarding environmental hazards due to solid wastes, occupational health and sanitation was also provided to the workers. 	
6	Baglung	<ul style="list-style-type: none"> - Air quality of the sites seems to be normal by visual inspection. - Air pollution due to the emissions from vehicles is not significant. - Sprinkling of water was done regularly as and when needed. - Use of low quality fuel and vehicles not conforming to national standard was prohibited. -No complaints from local people regarding air pollution. 				
7	Shivanagar	<ul style="list-style-type: none"> - Due to the completion of project there are no physical activities which will increase the dust particles and air pollution. - Vehicles transporting construction materials are not operational and there 		<ul style="list-style-type: none"> - Noise pollution from the vehicles was negligible. - Sounds from other equipment like pumps and generators were within the tolerance limit. 	<ul style="list-style-type: none"> - Solid waste generated within the camp area was well managed. - Dustbins were kept to collect the waste and littering of waste was prohibited. - All collected solid waste was properly disposed at location 	

		is less quantity of vehicular exhausts.			identified within the camp.	
8	Phidim	<ul style="list-style-type: none"> - Air quality of the sites seems to be normal by visual inspection. - Air pollution due to the emissions from vehicles is not significant. - Sprinkling of water was done regularly as and when needed. - Use of low quality fuel and vehicles not conforming to national standard was prohibited. -No complaints from local people regarding air pollution. 	<ul style="list-style-type: none"> -Drinking water has been supplied to the workers from the taps. - No records of water borne diseases. - Wastewater generated from the camp is being collected in soak pit. - Workers are regularly made aware on health, sanitation and hygiene. - Wastewater generated from the camp was not discharged in the stream. 	<ul style="list-style-type: none"> - Camp sites had been established away from residential areas. - The contractor has been strictly instructed to keep their vehicles, generators and other machinery in good condition. - Workforce has been instructed to use ear plugs at noise generating sites. - No complaints from local people regarding noise pollution. 	<ul style="list-style-type: none"> -Household wastes generated from the labor camp are being collected and properly disposed. - Regular instruction and training is given to the workforce and contractors regarding ways of managing solid wastes. -Management of the construction wastes seems to be satisfactory. - Information given regarding environmental hazards due to solid wastes, occupational health and sanitation was also provided to the workers. 	
9	Bhasi	<ul style="list-style-type: none"> - Dust level in the area was within the tolerable limit. - Frequent sprinkling was water was done as and when required to minimize the suspended particles to float in to the air. - Vehicular exhaust was also under the control due to prohibition of use of low quality fuel and use of vehicles conforming to national standards. 	<ul style="list-style-type: none"> - No evidence of waterborne disease within the project camp area. - Water quality was maintained as per the EMP. -Wastewater from the toilet was collected in the soak pit and was not discharged in to the streams. -Regular Instructions have been given in camp regarding health and sanitation. 	<ul style="list-style-type: none"> - Noise pollution remains insignificant, hence no record of public complaints regarding high level of noise. -High noise producing and older equipment were not used during the period of monitoring. 	<ul style="list-style-type: none"> -Solid waste generated within the camp area was well managed. - Dustbins were kept to collect the waste and littering of waste was prohibited. -All collected solid waste was properly disposed at location identified within the camp. 	
10	Meghauri	- Air quality of the sites	-Drinking water has	- Camp sites had been	-Household wastes generated	

11	Kakarvitta	<p>seems to be normal by visual inspection.</p> <ul style="list-style-type: none">- Air pollution due to the emissions from vehicles is not significant.- Sprinkling of water was done regularly as and when needed.- Use of low quality fuel and vehicles not conforming to national standard was prohibited.-No complaints from local people regarding air pollution.	<p>been supplied to the workers from the taps.</p> <ul style="list-style-type: none">- No records of water borne diseases.- Wastewater generated from the camp is being collected in soak pit, not discharged in the stream.- Workers are regularly made aware on health, sanitation and hygiene.	<p>established away from residential areas.</p> <ul style="list-style-type: none">- The contractor has been strictly instructed to keep their vehicles, generators and other machinery in good condition.- Workforce has been instructed to use ear plugs at noise generating sites.- No complaints from local people regarding noise pollution.	<p>from the labor camp are being collected and properly disposed.</p> <ul style="list-style-type: none">- Regular instruction and training is given to the workforce and contractors regarding ways of managing solid wastes.-Management of the construction wastes seems to be satisfactory.- Information given regarding environmental hazards due to solid wastes, occupational health and sanitation was also provided to the workers.	
12	Darakh-Sukhad	<ul style="list-style-type: none">- Air pollution due to the emissions from vehicles is not significant.- Sprinkling of water was done regularly as and when needed.- Although the impact is low some mitigation measures like compulsion of wearing masks while working in the dusty environment has been carried out regularly but is not satisfactory.- No complaints from local people regarding air pollution.				
13	Mukundapur	<ul style="list-style-type: none">- Air quality of the sites seems to be normal by visual inspection.				
14	Vyas	<ul style="list-style-type: none">- Air pollution due to the				

		<p>emissions from vehicles is not significant.</p> <ul style="list-style-type: none"> - Sprinkling of water was done regularly as and when needed. - Use of low quality fuel and vehicles not conforming to national standard was prohibited. 				
15	Letang	<ul style="list-style-type: none"> - Air quality of the sites seems to be normal by visual inspection. - Use of low quality fuel and vehicles not conforming to national standard was prohibited. - Regular maintenance of construction equipment. - Restriction of using wood as fuel within the camp was not satisfactory during the period. 	<ul style="list-style-type: none"> - Drinking water has been supplied to the workers from the taps. - No records of water borne diseases. 	<ul style="list-style-type: none"> - Camp sites had been established away from residential areas. - The contractor has been strictly instructed to keep their vehicles, generators and other machinery in good condition. 	<ul style="list-style-type: none"> - All waste is managed properly in the sanctioned area. - Information given regarding environmental hazards due to solid wastes, occupational health and sanitation was also provided to the workers. 	
16	Narayan Municipality	<ul style="list-style-type: none"> - Although the dust level is with the limit, sprinkling of water was done as and when required. - Vehicular exhaust was under the control due to prohibition of use of low quality fuel and use of vehicles conforming to national standards. 	<ul style="list-style-type: none"> - No records of water borne diseases. - Wastewater generated from the camp is being collected in soak pit and was not discharged in to the streams - Regular Instructions have been given in camp regarding health and sanitation. 	<ul style="list-style-type: none"> - Noise pollution remains insignificant, hence no record of public complains. - High noise producing and older equipment were not used during the period of monitoring. 	<ul style="list-style-type: none"> - Solid waste generated within the camp area was well managed. - Dustbins were kept and collected solid waste was properly disposed at location identified within the camp. 	
17	Khanbari	<ul style="list-style-type: none"> - Air quality of the sites 	<ul style="list-style-type: none"> - Drinking water has 	<ul style="list-style-type: none"> - Camp sites had been 	<ul style="list-style-type: none"> - Solid waste generated in the 	

18	Duhabi	seems to be normal.	been supplied to the workers from the taps.	established away from residential areas.	camp site was collected in pits.	
19	Dhankuta	-Insignificant air pollution due movement of vehicle.	- No records of water borne diseases.	- The contractor has been strictly instructed to keep their vehicles, generators and other machinery in good condition.	-Instruction was given to the workforce and contractors regarding the ways of managing solid wastes.	
20	Rampur	-Sprinkling of water as and when needed.	- Wastewater generated from the camp is being collected in soak pit, not discharged in the stream.	- Workforce has been instructed to use ear plugs at noise generating sites.	-Management of construction waste seems to be satisfactory.	
21	Baitadi	- No complaints from local people regarding air pollution.	- Instructions have been given in each camp regarding the health and sanitation.	- No complaints from local people regarding noise pollution.		

7 Grievance Recording and Handling

Most of the grievances were verbal in nature and was solved. As we go through the monthly progress report there are no reporting by DSC regarding recording and solving grievances in all 21 town projects. However, each town have established a register to record grievances. Till now no grievances has been recorded.

8 Conclusion

No serious omissions or violations of environmental standards and norms have been recorded during this period in all 21 town project.