MILLENNIUM CHALLENGE ACCOUNT NEPAL (MCA-NEPAL)

Procurement of Design and Construction of Electricity Distribution System- Extension & Upgradation

MCA-N/ETP/CB/007

ADDENDUM #2

Date of Issue: 22 August 2024

This Addendum No. 2 modifies respective portions of the Bidding Document issued on 2 August 2024 and amended through Addendum no. 1 on 15 August 2024. The changes, as indicated below, are effective on the date of issue of this Addendum.

Except as expressly amended by this Addendum, all other terms and conditions of the Bidding Document - issued on 2 August 2024 and amended through Addendum No. 1 issued on 15 August 2024 remain unchanged and shall remain in full force and effect in accordance with their terms.

SN	Pages/Paragraph	Amendments
1.	Volume I, Section IV: Submission Forms 3. Bill of Quantities. PDF Page 44 to PDF Page 54 of 109	The Bill of Quantities (BoQ) is replaced by the New BoQ as attached under Annex 1 of this Addendum #2.
2.	Volume I, Section VII. Particular Conditions of Contract, GCC 53.3, PDF Page 107 of 109	"Repayment of the advance payment shall start after certification of: **Thirty** percent **(30%)** of the Contract Price. Recovery of the advance payment shall be in the amount of: **Forty** percent **(40 %)** of the amount of monthly Interim Payment Certificates. Advance payment shall be recovered in full prior to the time when **Eighty (80%)** percent of the Contract Price has been certified for payment." Is replaced by: "Repayment of the advance payment shall start after certification of: **Thirty** percent **(30%)** of the Contract Price.

<table>
<tr><td></td><td></td><td>Recovery of the advance payment shall be in the amount of: twenty percent (20 %) of the amount of monthly Interim Payment Certificates.
Advance payment shall be recovered in full prior to the time when Eighty (80%) percent of the Contract Price has been certified for payment.”</td></tr>
<tr><td>3.</td><td>Volume II Chapter 5 Table 1, PDF Page 53 of 181</td><td>Table 1 Pole Specifications is replaced by:
<table>
<tr><th>S.No.</th><th>Description</th><th>Unit</th><th colspan="2">MCA-Nepal Requirement</th></tr>
<tr><td></td><td></td><td></td><td>11 m</td><td>8m</td></tr>
<tr><td>1</td><td>Planting Depth</td><td>m</td><td>1.8</td><td>1.5</td></tr>
<tr><td>2</td><td>Section Details:</td><td></td><td>410SP-52</td><td>410SP-13</td></tr>
<tr><td></td><td>Length, m</td><td></td><td>11</td><td>8</td></tr>
<tr><td>3.1</td><td>Top (h1)</td><td>m</td><td>2.7</td><td>1.75</td></tr>
<tr><td>3.2</td><td>Middle(h2)</td><td>m</td><td>2.7</td><td>1.75</td></tr>
<tr><td>3.3</td><td>Bottom(h3)</td><td>m</td><td>5.6</td><td>4.5</td></tr>
<tr><td>4</td><td>Outside Diameter, mm</td><td></td><td></td><td></td></tr>
<tr><td>4.1</td><td>Top (h1)</td><td>mm</td><td>114.3</td><td>88.9</td></tr>
<tr><td>4.2</td><td>Middle(h2)</td><td>mm</td><td>139.7</td><td>114.3</td></tr>
<tr><td>4.3</td><td>Bottom(h3)</td><td>mm</td><td>165.1</td><td>139.7</td></tr>
<tr><td>5</td><td>Thickness, mm</td><td></td><td></td><td></td></tr>
<tr><td>5.1</td><td>Top (h1)</td><td>mm</td><td>3.65</td><td>3.25</td></tr>
<tr><td>5.2</td><td>Middle(h2)</td><td>mm</td><td>4.5</td><td>3.65</td></tr>
<tr><td>5.3</td><td>Bottom(h3)</td><td>mm</td><td>4.5</td><td>4.5</td></tr>
<tr><td>6</td><td>Approximate weight</td><td>Kg</td><td>175</td><td>101</td></tr>
<tr><td>7</td><td>Criplling load</td><td>kgf</td><td>307</td><td>301</td></tr>
<tr><td>8</td><td>Application of load from top of pole</td><td>m</td><td>0.6</td><td>0.3</td></tr>
</table></td></tr>
<tr><td>4.</td><td>Volume II Chapter 15: AERIAL BUNDLED CONDUCTORS FITTINGS SPECIFICATION
1. SCOPE, PDF Page 93 of 181</td><td>“1. SCOPE
This Specification covers the fabrication and supply of fittings and associated apparatus for with LV aerial bundled conductors (ABC).”

Is replaced by:

“1. SCOPE
The Specification covers the design, manufacture, testing before dispatch, supply and delivery of hardware and accessories for use as overhead distribution feeders suitable for use on 3-phase AC System conforming to IS-14255/1995 with up to date amendments (or equivalent standard).
Standards</td></tr>
</table>

<table>
<tr>
<td></td>
<td></td>
<td>The design, performance and test requirements shall conform to this specification and the following standards. However, in case of any conflict, the requirements of this specification shall prevail.
• NFC 33-040 Suspension Equipment
• NFC 33-041 Anchoring Devices
• NFC 33-003 Corrosion Resistance
• NFC 20-540 Climatic Ageing
• NFC 33-004 Electrical Ageing Test
The material shall also be compatible with the cables of sizes & dimensions as defined in the Cable Specifications for the cables with which they are intended to be used, and this specification. For all accessories, the qualification test shall be carried out in an internationally recognized ISO/IEC 17025 certified independent test laboratory accredited to ILAC/IAF and scope of accreditation certificate for the respective standard needs to be submitted along with the tender for technical evaluation.”</td>
</tr>
<tr>
<td>5.</td>
<td>Volume II Chapter 15: AERIAL BUNDLED CONDUCTORS FITTINGS SPECIFICATION
3. DESCRIPTION, Page 6 of Chapter 15 and PDF page 98 of 181</td>
<td>The following paragraph is added at the end:
INSULATION PIERCING CONNECTORS
Insulation Piercing Connectors (IPC) are designed to make a connection between the uncut main conductor and a branch cable conductor without having to strip either cable to expose the conductor. Instead, the tightening action of the IPC will first pierce the Insulation, then make good electrical contact between the main and branch conductor while simultaneously insulating and sealing the connection. The connector bodies shall be made entirely of mechanical and weather resistant plastic insulation material made of weather & UV resistant reinforced polymer and no metallic part outside the housing is acceptable except for the tightening bolt or nuts. Any metallic part that is exposed must be free from potential during or after connector installation.
All the Acceptance test, Type test and Routine test should be as per NFC 33 020
Technical Specification for INSULATION PIERCING CONNECTORS
<table>
<tr><th>S. No.</th><th>Description</th><th>Unit</th><th>Required</th><th>Bidder to Confirm</th></tr>
<tr><td>1</td><td>Type of Clamp</td><td></td><td>Insulation piercing con-nector</td><td></td></tr>
</table>
</td>
</tr>
</table>

		2	Name and address of manufacturer of ABC accessories			
		3	Product Designation			
		4	Standard		As per NFC 33 020	
		5	Range of cable sizes accommodated for main & branch		Main: 25-120 Sq. mm.	
		6	Application	KV	0.4	
		7	System Frequency	Hz	50	
		8	Material Composition		a) Body: Weather & UV resistance glass fibre reinforced polymer	
					b) contact plates-Aluminum alloy	
					c)Bolt-Dechromatized steel	
					d)Seats & end caps: Elastomer	
		9	Voltage withstands under water emersion	KV	6 KV for 1 min	
		10	Electrical Ageing Type Test			
		11	No. of cycles		200	
		12	Max. Temperature for each cycle		90°C	
		13	Min. & Max. Torque defined	Nm	Max. 12.1	
					Min. 9.9	
		14	Rated Tightening Torque	Nm	11	
		15	Marking		Main Range	
					Tap Range	
		16	Dimensions	mm		
		17	Approximate weight	Kg	0.12	
6.	Volume II, Technical Data Sheet, Table of Distribution Board, 1.5 Enclosure Protection Class, PDF page 172 of 181					

S. No	**Description**	**Unit**	MCA-Nepal requirement	Bidders Offer
1.5	Enclosure Protection Class	IP	IP54	

<table>
<tr><td></td><td></td><td>is replaced by:
<table>
<tr><th>S. No</th><th>Description</th><th>Unit</th><th>MCA-Nepal requirement</th><th>Bidders Offer</th></tr>
<tr><td>1.5</td><td>Enclosure Protection Class</td><td>IP</td><td>IP55</td><td></td></tr>
</table></td></tr>
<tr><td>7.</td><td>Volume III file 240801_Biddding_ Document_Thematic_Area-1_Vol_III, Base Scope of Work, PDF Page 20 and 21 of 382</td><td>Table of Base Scope of Work is replaced by the table under Annex 2 of this Addendum # 2.</td></tr>
<tr><td>8.</td><td>Volume III file Annex 5 MCA-Nepal ESHSMP</td><td>“Annex 5 MCA-Nepal ESHSMP” is replaced by the file “Annex 5 MCA-Nepal ESHSMP” attached as Annex 3 of this Addendum.</td></tr>
<tr><td>9.</td><td>Volume III file Annex 6_ESHSMP_Pricing_Guide</td><td>“Annex 6_ESHSMP_Pricing_Guide” is replaced by the file “Annex 6_ESHSMP_Pricing_Guide_Addendum” attached as Annex 4 of this Addendum.</td></tr>
<tr><td>10.</td><td>Volume I, Section IV “Offeror Qualification Forms”</td><td>Form for “Manufacturer Authorization” is added in the Volume I Section IV “Offeror Qualification Forms” of the Bidding Document as Annex 5 of this Addendum.</td></tr>
</table>

Annex 1

3. Bill of Quantities (new BoQ)

240815_BoQ
Final_Addendum.xlsx

Schedules of Rates and Prices

Schedule/Bill No. 1 - **Design Services**

Item	Description	Unit	Total - Base+Option			Remark
			Quantity	Rate USD	Amount USD	
1	2	3	4	5	6=4*5	
1	**Survey Activity**					
1.1	Detailed Field Survey, preparation of Geo-graphical maps, structure data sheet, Pre-Construction survey report- District Kath-mandu	LS	1			
1.2	Detailed Field Survey, preparation of Geo-graphical maps, structure data sheet, Pre-Construction survey report- District Sindupalchowk	LS	1			
1.3	Detailed Field Survey, preparation of Geo-graphical maps, structure data sheet, Pre-Construction survey report-District Nu-wakot	LS	1			
1.4	Detailed Field Survey, preparation of Geo-graphical maps, structure data sheet, Pre-Construction survey report-District Makwanpur	LS	1			
1.5	Detailed Field Survey, preparation of Geo-graphical maps, structure data sheet, Pre-Construction survey report-District Dhad-ing	LS	1			
1.6	Detailed Field Survey, preparation of Geo-graphical maps, structure data sheet, Pre-Construction survey report-District Chitwan	LS	1			
1.7	Detailed Field Survey, preparation of Geo-graphical maps, structure data sheet, Pre-Construction survey report-District Tanahau	LS	1			
1.8	Detailed Field Survey, preparation of Geo-graphical maps, structure data sheet, Pre-Construction survey report-District Palpa	LS	1			
1.9	Detailed Field Survey, preparation of Geo-graphical maps, structure data sheet, Pre-Construction survey report-District East Nawalparashi	LS	1			
1.10	Detailed Field Survey, preparation of Geo-graphical maps, structure data sheet, Pre-Construction survey report- District West Nawalparashi	LS	1			
2	Development and implementation of the document for Environmental, Health & Safety, Social and Gender Requirements. For Details refer to ESHSMP BoQ	LS	1			Total Price to be quoted from the total of ESHSMP BoQ.
3.1	Final Survey, preparation of as built drawing, final structure data sheet, Final survey report- District Kathmandu	LS	1			
3.2	Final Survey, preparation of as built drawing, final structure data sheet, Final survey report- District Sindupalchowk	LS	1			
3.3	Final Survey, preparation of as built drawing, final structure data sheet, Final survey report-District Nuwakot	LS	1			
3.4	Final Survey, preparation of as built drawing, final structure data sheet, Final survey report-District Makwanpur	LS	1			
3.5	Final Survey, preparation of as built drawing, final structure data sheet, Final survey report-District Dhading	LS	1			
3.6	Detailed Field Survey, preparation of Geo-graphical maps, structure data sheet, Pre-Construction survey report-District Chitwan	LS	1			
3.7	Final Survey, preparation of as built drawing, final structure data sheet, Final survey report-District Tanahau	LS	1			
3.8	Final Survey, preparation of as built drawing, final structure data sheet, Final survey report- District Palpa	LS	1			
3.9	Final Survey, preparation of as built drawing, final structure data sheet, Final survey report-District East Nawalparashi	LS	1			
3.10	Final Survey, preparation of as built drawing, final structure data sheet, Final survey report- District West Nawalparashi	LS	1			
Sub-Total (1)						

Note: Detailed Field Survey includes detailed Engineering Survey and Environment and Social Assessment for Base and Option.

Schedule/Bill No. 2 - Plant and Mandatory Spare Parts Supplied from Abroad

Item	Description	Unit	Base						Option						Total						Remarks
			Quantity	CIP Nepal Border (Excluding Taxes & Duties) (USD)		Insurance, Clearing, forwarding & Transportation to site (USD)		Total Amount in USD	Quantity	CIP Nepal Border (Excluding Taxes & Duties) FC (USD)		Insurance, Clearing, forwarding & Transportation to site LC (USD)		Total Amount in USD	Quantity	CIP Nepal Border (Excluding Taxes & Duties) FC (USD)		Insurance, Clearing, forwarding & Transportation to site LC (USD)		Total Amount in USD	
				Unit Rate	Amount	Unit Rate	Amount			Unit Rate	Amount	Unit Rate	Amount			Unit Rate	Amount	Unit Rate	Amount		
33KV,11KV 0.4KVLINE,11/0.4 TRANSFORMER																					
1	**11 KV line Construction(TP pole, 0.1 sq in ACSR)**																				
1.1	11 m Long Steel Tubular Pole (410 SP52)	No.	1748						350						2098						
1.2	100 mm sq in ACSR Conductor	Km	330						91						421						
1.3	11 KV pin Insulator set with spindle	Set	6941						1389						8330						
1.4	11 KV Disc Insulator	No.	3378						676						4054						
1.5	Tension Set with ball & socket eye	set	3378						676						4054						
1.6	BackStrap for Insulator string (50x6x404mm) with nut bolt	No.	3378						676						4054						
1.7	Joint Sleeve(For Dog Aluminium &Steel)	LS	1						1						2						
1.8	Aluminium Binding Wire	Kg	1,365						273						1,638.00						
1.9	Universal PG clamp (For dog Conductor)	No.	2589						518						3107						
1.10	Stay Set Complete (Stay plate 600x600x6mm, Stay Rod 19 mm dia, HT Turn Buckle, Pole Clamp, HT Eye Bolt, HT Thimble, Preform Tie, Stay Nut)	Set	700						140						840						
1.11	Stay wire (7/8 SWG)	Kg	8400						1680						10080						
1.12	11kV Stay Insulator	No.	700						140						840						
1.13	Pole Clamps and nut bolt for the total pole frames that is required to complete the scope of work.	LS	1						1						2						
1.14	Steel Cross arm (300x100x50x50x6mm) with suitable pole clamp and nut bolt	Set	2267						454						2721						
1.15	Steel Cross arm (1200x100x50x50x6mm) with suitable pole clamp and nut bolt	Set	2390						478						2868						
1.16	Steel Cross bracing Flat (40x6x660 mm) and pole clamp , nutbolt	Set	4780						956						5736						
1.17	Steel Cross arm (2390x100x50x50x6mm) with suitable nut bolt	Set	394						79						473						
1.18	Steel Cross Bracing angle (2723x50x50x6mm) with pole clamp and nut bolt	Set	336						68						404						
1.19	Steel Bracing angle (2071x50x50x6mm) with pole clamp and nutbolt	Set	336						68						404						

Item	Description	Unit	Base						Option						Total						Remarks
			Quantity	CIP Nepal Border (Excluding Taxes & Duties) (USD)		Insurance, Clearing, forwarding & Transportation to site (USD)		Total Amount in USD	Quantity	CIP Nepal Border (Excluding Taxes & Duties) FC (USD)		Insurance, Clearing, forwarding & Transportation to site LC (USD)		Total Amount in USD	Quantity	CIP Nepal Border (Excluding Taxes & Duties) FC (USD)		Insurance, Clearing, forwarding & Transportation to site LC (USD)		Total Amount in USD	
				Unit Rate	Amount	Unit Rate	Amount			Unit Rate	Amount	Unit Rate	Amount			Unit Rate	Amount	Unit Rate	Amount		
Sub-Total (A)																					
2	Manufacturing, Transportation and supply of LT AB cable 3C X 95 +70 sq. mm. (insulated messenger wire) along with all associated accessories including necessary FAT and site acceptance test.																				
2.1	8 m Steel Tubular Pole (410 SP13)	No.	852						171						1023						
2.2	Suspension set including steel band for LV ABC Cable including all accessories complete	No.	897						180						1077						
2.3	Tension Set including steel band for LV ABC Cable including all accessories complete	No.	543						109						652						
2.4	LT AB cable 3C X 95 +70 sq. mm.	Km	65						91						156						
2.5	Cable Connector	LS	1						1						2						
2.6	Stay Set Complete (Stay Plate 300x300x6, Stay Rod 16mm, Stay Insulator, LT Eye bolt, LT Turn buckle, LT Thimble, Pole Clamp, Preform Tie)	Set	113						23						136						
2.7	7/12 SWG Stay Wire	Kg	1017						204						1221						
Sub-Total (B)																					
3	Manufacturing, Transportation and supply of LT AB cable 3C X 50 +35 sq. mm. (insulated messenger wire) along with all associated accessories including necessary FAT and site acceptance test.																				
3.1	8 m Steel Tubular Pole (410 SP13)	No.	1502						301						1803						
3.2	Suspension set including steel band for LV ABC Cable including all accessories complete	No.	6571						1315						7886						
3.3	Tension Set including steel band for LV ABC Cable including all accessories complete	No.	3978						796						4774						
3.4	LT AB cable 3C X 50 +35 sq. mm.	Km	476.7						96						572.7						
3.5	Cable Connector	LS	1						1						2						
3.6	Stay Set Complete (Stay Plate 300x300x6, Stay Rod 16mm, Stay Insulator, LT Eye bolt, LT Turn buckle, LT Thimble, Pole Clamp, Preform Tie)	Set	829						166						995						
3.7	7/12 SWG Stay Wire	Kg	7457.4						1492						8949.4						
Sub-Total (C)																					
4	***Manufacturing, Transportation and Supply of 3-Phase 11/0.4KV Transformer (200KVA) DYn11, Rated impedance voltage-3.5 - 4.5%, Distribution Transformer, with CRGO core, copper winding &***																				

Item	Description	Unit	Base						Option						Total						Remarks
			Quantity	CIP Nepal Border (Excluding Taxes & Duties) (USD)		Insurance, Clearing, forwarding & Transportation to site (USD)		Total Amount in USD	Quantity	CIP Nepal Border (Excluding Taxes & Duties) FC (USD)		Insurance, Clearing, forwarding & Transportation to site LC (USD)		Total Amount in USD	Quantity	CIP Nepal Border (Excluding Taxes & Duties) FC (USD)		Insurance, Clearing, forwarding & Transportation to site LC (USD)		Total Amount in USD	
				Unit Rate	Amount	Unit Rate	Amount			Unit Rate	Amount	Unit Rate	Amount			Unit Rate	Amount	Unit Rate	Amount		
	conservator along with all accessories as per TS alongwith all associated equipment & accessories as per TS including necessary FAT and site acceptance test.																				
4.1	3-Phase 11/0.4KV Transformer (200KVA) DYn11	No.																			
4.2	Transformer Platform Complete include DO,LA fitting Chanels, Pole Clamps,Nutbolts (Consider 75kg Steel weight per platform)	sets																			
4.4	9 kv L.A. (3 nos. per set)	Set																			
4.5	D.O. fuse (3 nos. per set)	Set																			
4.6	Earthing set (2 Nos. per set for each Transformer)	Set																			
4.7	400/230 V LT 1 Core,120 sq mm Aluminium, PVC Insulated Cable.	m																			
4.8	Outdoor Distribution Panel Board with MCCBs 500 A, TP-1, 250 A, TP-2 with clamp and nutbolt	No.																			
	Sub-Total (D)																				
5	***Manufacturing, Transportation and Supply of 3-Phase 11/0.4KV Transformer (50KVA) DYn11, Rated impedance voltage-3.5 - 4.5%, Distribution Transformer, with CRGO core, copper winding & conservator along with all accessories as per TS alongwith all associated equipment & accessories as per TS including necessary FAT and site acceptance test.***																				
5.1	3-Phase 111/0.4KV Transformer (50KVA) DYn11	No.	108						22						130.00						
5.2	Transformer Platform Complete include DO,LA fitting Chanels, Pole Clamps,Nutbolts (Consider 75kg Steel weight per platform)	No.	108						22						130.00						
5.3	9 kv L.A. (3 nos. per set)	set	108						22						130.00						
5.4	D.O. fuse (3 nos. per set)	set	108						22						130.00						
5.5	Earthing set (2 Nos. per set for each Transformer)	set	108						22						130.00						
5.6	400/230 V LT 1 Core,120 sq mm Aluminium, PVC Insulated Cable.	m	540						108						648.00						
5.7	Outdoor Distribution Panel Board with MCCBs 300 A, TP-1, 150 A, TP-2 with pole clamp and nut bolt	No.	108						22						130.00						
	Sub-Total (E)																				
6	***Manufacturing, Transportation and Supply of 3-Phase 11/0.4KV Transformer (100KVA) DYn11, Rated***																				

Item	Description	Unit	Base						Option						Total						Remarks
			Quantity	CIP Nepal Border (Excluding Taxes & Duties) (USD)		Insurance, Clearing, forwarding & Transportation to site (USD)		Total Amount in USD	Quantity	CIP Nepal Border (Excluding Taxes & Duties) FC (USD)		Insurance, Clearing, forwarding & Transportation to site LC (USD)		Total Amount in USD	Quantity	CIP Nepal Border (Excluding Taxes & Duties) FC (USD)		Insurance, Clearing, forwarding & Transportation to site LC (USD)		Total Amount in USD	
				Unit Rate	Amount	Unit Rate	Amount			Unit Rate	Amount	Unit Rate	Amount			Unit Rate	Amount	Unit Rate	Amount		
	impedance voltage-3.5 - 4.5%, Distribution Transformer, with CRGO core, copper winding & conservator along with all accessories as per TS along with all associated equipment & accessories as per TS including necessary FAT and site acceptance test.																				
6.1	3-Phase 11/0.4KV Transformer (100KVA) DYn11	No.	89						18						107.00						
6.2	Transformer Platform Complete include DO,LA fitting Chanels, Pole Clamps,Nutbolts (Consider 75kg Steel weight per platform)	Set	89						18						107.00						
6.3	9 kv L.A. (3 nos. per set)	set	89						18						107.00						
6.4	D.O. fuse (3 nos. per set)	set	89						18						107.00						
6.5	Earthing set (2 Nos. per set for each Transformer)	set	89						18						107.00						
6.6	400/230 V LT 1 Core,120 sq mm Aluminium, PVC Insulated Cable.	m	445						89						534.00						
6.7	Outdoor Distribution Panel Board with MCCBs 150 A, TP-1TP-1, 75 A, TP-2 with pole clamp and nut bolt	No.	89						18						107.00						
Sub-Total (F)																					
Sub- Total (2) (A+B+C+D+E+F)																					

Note:
The prices for Plant, Goods and Equipment to be supplied from abroad shall be quoted on CIP Nepal Border (Excluding Taxes & Duties) plus Insurance, Clearing, forwarding & Transportation to the site. The Contractor shall also be responsible for custom clearance and all other associated charges (inside and outside Nepal, including loading, unloading) to bring all required Goods, Materials, Plant and Equipment to Works Site. The bidder shall include all cost in their bid price.
The Employer will provide tax exemption documents where required. If required, documents as per MCA-Nepal tax exemption process shall be submitted minimum 60 days before arrival of the Goods, Material, Plant and Equipment at Nepal's border. Tentative list of Goods, Material, Plant and Equipment to be imported shall also be submitted to MCA-Nepal on an annual basis for each Nepalese Fiscal Year.

Schedule/Bill No. 3 - Plant and Mandatory Spare Parts Supplied from Nepal

Item	Description	Unit	Base						Option						Total						Remark
			Quantity	EXW (Excluding Taxes & Duties) (USD)		Insurance & Transportation to site (USD)		Total Amount in USD	Quantity	EXW (Excluding Taxes & Duties) FC (USD)		Insurance & Transportation to site LC (USD)		Total Amount in USD	Quantity	EXW (Excluding Taxes & Duties) FC (USD)		Insurance & Transportation to site LC (USD)		Total Amount in USD	
				Unit Rate	Amount	Unit Rate	Amount			Unit Rate	Amount	Unit Rate	Amount			Unit Rate	Amount	Unit Rate	Amount		
33KV,11KV 0.4KVLINE,11/0.4 TRANSFORMER																					
1	**11 KV line Construction(TP pole, 0.1 sq in ACSR)**																				
1.1	11 m Long Steel Tubular Pole (410 SP52)	No.																			
1.2	100 mm sq in ACSR Conductor	Km																			
1.3	11 KV pin Insulator set with spindle	Set																			
1.4	11 KV Disc Insulator	No.																			
1.5	Tension Set with ball & socket eye	set																			
1.6	BackStrap for Insulator string (50x6x404mm) with nut bolt	No.																			
1.7	Joint Sleeve(For Dog Aluminium &Steel)	LS																			
1.8	Aluminium Binding Wire	Kg																			
1.9	Universal PG clamp (For dog Conductor)	No.																			
1.10	Stay Set Complete (Stay plate 600x600x6mm, Stay Rod 19 mm dia, HT Turn Buckle, Pole Clamp, HT Eye Bolt, HT Thimble, Preform Tie, Stay Nut)	Set																			
1.11	Stay wire (7/8 SWG)	Kg																			
1.12	11kV Stay Insulator	No.																			
1.13	Pole Clamps and nut bolt for the total pole frames that is required to complete the scope of work.	LS																			
1.14	Steel Cross arm (300x100x50x50x6mm) with suitable pole clamp and nut bolt	Set																			
1.15	Steel Cross arm (1200x100x50x50x6mm) with suitable pole clamp and nut bolt	Set																			
1.16	Steel Cross bracing Flat (40x6x660 mm) and pole clamp , nutbolt	Set																			
1.17	Steel Cross arm (2390x100x50x50x6mm) with suitable nut bolt	Set																			
1.18	Steel Cross Bracing angle (2723x50x50x6mm) with pole clamp and nut bolt	Set																			
1.19	Steel Bracing angle (2071x50x50x6mm) with pole clamp and nutbolt	Set																			
Sub-Total (A)																					
2	Manufacturing, Transportation and supply of LT AB cable 3C X 95 +70 sq. mm. (insulated messenger wire) along with all associated accessories including necessary FAT and site acceptance test.																				
2.1	8 m Steel Tubular Pole (410 SP13)	No.																			
2.2	Suspension set including steel band for LV ABC Cable including all accessoreis complete	No.																			
2.3	Tension Set including steel band for LV ABC Cable including all accessories complete	No.																			
2.4	LT AB cable 3C X 95 +70 sq. mm.	Km																			
2.5	Cable Connector	LS																			

Item	Description	Unit	Base						Option						Total						Remark
			Quan-tity	EXW (Excluding Taxes & Duties) (USD)		Insurance & Transportation to site (USD)		Total Amount in USD	Quan-tity	EXW (Excluding Taxes & Duties) FC (USD)		Insurance & Transportation to site LC (USD)		Total Amount in USD	Quan-tity	EXW (Excluding Taxes & Duties) FC (USD)		Insurance & Transportation to site LC (USD)		Total Amount in USD	
				Unit Rate	Amount	Unit Rate	Amount			Unit Rate	Amount	Unit Rate	Amount			Unit Rate	Amount	Unit Rate	Amount		
2.6	Stay Set Complete (Stay Plate 300x300x6, Stay Rod 16mm, Stay Insulator, LT Eye bolt, LT Turn buckle, LT Thimble, Pole Clamp, Preform Tie)	Set																			
2.7	7/12 SWG Stay Wire	Kg																			
Sub-Total (B)																					
3	Manufacturing, Transportation and supply of LT AB cable 3C X 50 +35 sq. mm. (insulated messenger wire) along with all associated accessories including necessary FAT and site acceptance test.																				
3.1	8 m Steel Tubular Pole (410 SP13)	No.																			
3.2	Suspension set including steel band for LV ABC Ca-ble including all accessoreis complete	No.																			
3.3	Tension Set including steel band for LV ABC Cable including all accessories complete	No.																			
3.4	LT AB cable 3C X 50 +35 sq. mm.	Km																			
3.5	Cable Connector	LS																			
3.6	Stay Set Complete (Stay Plate 300x300x6, Stay Rod 16mm, Stay Insulator, LT Eye bolt, LT Turn buckle, LT Thimble, Pole Clamp, Preform Tie)	Set																			
3.7	7/12 SWG Stay Wire	Kg																			
Sub-Total (C)																					
4	***Manufacturing, Transportation and Supply of 3-Phase 11/0.4KV Transformer (200KVA) DYn11, Rated impedance voltage-3.5 - 4.5%, Distribution Transformer, with CRGO core, copper winding & conservator along with all accessories as per TS along with all associated equipment & accessories as per TS including necessary FAT and site ac-ceptance test.***																				
4.1	3-Phase 11/0.4KV Transformer (200KVA) DYn11	No.																			
4.2	Transformer Platform Complete include DO,LA fitting Channels, Pole Clamps, Nutbolts (Consider 75kg Steel weight per platform)	sets																			
4.4	9 kv L.A. (3 nos. per set)	Set																			
4.5	D.O. fuse (3 nos. per set)	Set																			
4.6	Earthing set (2 Nos. per set for each Transformer)	Set																			
4.7	400/230 V LT 1 Core,120 sq mm Aluminium, PVC In-sulated Cable.	m																			
4.8	Outdoor Distribution Panel Board with MCCBs 500 A, TP-1, 250 A, TP-2 with clamp and nut bolt	No.																			
Sub-Total (D)																					
	Manufacturing, Transportation and Supply of 3-Phase 11/0.4KV Transformer (50KVA) DYn11, Rated impedance voltage-3.5 - 4.5%, Distribution Transformer, with CRGO core, copper winding & conservator along with all accessories as per TS along with all associated equipment & accessories																				

Item	Description	Unit	Base						Option						Total						Remark
			Quan-tity	EXW (Excluding Taxes & Duties) (USD)		Insurance & Transportation to site (USD)		Total Amount in USD	Quan-tity	EXW (Excluding Taxes & Duties) FC (USD)		Insurance & Transportation to site LC (USD)		Total Amount in USD	Quan-tity	EXW (Excluding Taxes & Duties) FC (USD)		Insurance & Transportation to site LC (USD)		Total Amount in USD	
				Unit Rate	Amount	Unit Rate	Amount			Unit Rate	Amount	Unit Rate	Amount			Unit Rate	Amount	Unit Rate	Amount		
	as per TS including necessary FAT and site acceptance test.																				
5.1	3-Phase 111/0.4KV Transformer (50KVA) DYn11	No.																			
5.2	Transformer Platform Complete include DO,LA fitting Chanels, Pole Clamps,Nutbolts (Consider 75kg Steel weight per platform)	No.																			
5.3	9 kv L.A. (3 nos. per set)	set																			
5.4	D.O. fuse (3 nos. per set)	set																			
5.5	Earthing set (2 Nos. per set for each Transformer)	set																			
5.6	400/230 V LT 1 Core,120 sq mm Aluminium, PVC Insulated Cable.	m																			
5.7	Outdoor Distribution Panel Board with MCCBs 300 A, TP-1, 150 A, TP-2 with pole clamp and nut bolt	No.																			
Sub-Total (E)																					
6.00	***Manufacturing, Transportation and Supply of 3-Phase 11/0.4KV Transformer (100KVA) DYn11, Rated impedance voltage-3.5 - 4.5%, Distribution Transformer, with CRGO core, copper winding & conservator along with all accessories as per TS alongwith all associated equipment & accessories as per TS including necessary FAT and site acceptance test.***																				
6.1	3-Phase 11/0.4KV Transformer (100KVA) DYn11	No.																			
6.2	Transformer Platform Complete include DO,LA fitting Chanels, Pole Clamps, Nutbolts (Consider 75kg Steel weight per platform)	Set																			
6.3	9 kv L.A. (3 nos. per set)	set																			
6.4	D.O. fuse (3 nos. per set)	set																			
6.5	Earthing set (2 Nos. per set for each Transformer)	set																			
6.6	400/230 V LT 1 Core,120 sq mm Aluminium, PVC Insulated Cable.	m																			
6.7	Outdoor Distribution Panel Board with MCCBs 150 A, TP-1TP-1, 75 A, TP-2 with pole clamp and nut bolt	No.																			
Sub-Total (F)																					
Sub- Total (2) (A+B+C+D+E+F)																					

Note:
1. The total quantity stated under Schedule/Bill No. 2. In case the Offeror is offering the particular items from Nepal they shall quote for the same quantity under Schedule/Bill No. 3 and shall not fill under schedule/Bill No.2.

2. The prices for Plant, Goods and Equipment to be supplied from Nepal shall be quoted on EXW (Excluding Taxes & Duties) plus Insurance & Transportation to site. The Contractor shall also be responsible for loading, unloading and other associated charge to bring all required Goods, Material, Plant and Equipment to Works Site. The bidder shall include all cost in their bid price.

Schedule/Bill No.4 - Installation and Other Services

Item	Description	Unit	Base			Option			Total			Remark
			Quantity	Unit Rate	Amount	Quantity	Unit Rate	Amount	Quantity	Unit Rate	Amount	
33KV,11KV 0.4KVLINE,11/0.4 TRANSFORMER												
A. 33kV & 11 KV line Construction (TP pole, 0.1 sq.in. ACSR)												
1	11 m long steel tubular pole Erection, including necessary civil works.	nos.	1748.00			350.00			2098.00			
2	Stringing of 0.1 sq.in. ACSR Conductor, 3 wire Stringing 11 kV S/C line including all fiitings, accessories and hardwres.	kms.	110.00			31.00			141.00			
3	Installation of 11kV Stay Set complete in all respect as per TS	sett	700.00			140.00			840.00			
4	Dismantling of Pole (Works includes dismantling and carry back to designated office safely)	Set	11.00			4.00			15.00			
5	Dismantling of Conductor (Works includes dismantling and carry back to designated office safely)	kms.	70.00			14.00			84.00			
Sub-Total (A)												
B. LT AB cable 3C X 95 +70 sq. mm. (insulated messenger wire) along with all associated accessories												
1	Stringing of LT AB cable 3C X 95 +70 sq. mm. including hardware fitting	Km	65.00			13.00			78.00			
3	9m Steel tubular Pole Erection , including necessary civil works.	No	852.00			171.00			1023.00			
4	Stay set installation	set	113.00			23.00			136.00			
5	Dismantling of Pole (Works includes dismantling and carry back to designated office safely)	set	86.00			18.00			104.00			
6	Dismantling of Conductor (Works includes dismantling and carry back to designated office safely)	Km	7.00			2.00			9.00			
Sub-Total (B)												
C. LT AB cable 3C X 50 +35 sq. mm. (insulated messenger wire) along with all associated accessories												
1	Stringing of LT AB cable 3C X 50 +35 sq. mm. including hardware fitting	Km	1502.00			301.00			1803.00			
2	9m Steel Tubular Pole Erection , including necessary civil works.	No	1502.00			301.00			1803.00			
3	Stay set installation	set	829.00			166.00			995.00			
4	Dismantling of Pole (Works includes dismantling and carry back to designated office safely)	set	151.00			31.00			182.00			
5	Dismantling of Conductor (Works includes dismantling and carry back to designated office safely)	Km	151.00			31.00			182.00			
Sub-Total (C)												
D. *11/0.4KV Transformer Installation(200KVA)*												
1	LA erection	set	0.00			0.00			0.00			
2	Transformer erection include Platform, Distribution Panel Board & Cable	set	0.00			0.00			0.00			
3	Earthing set installation	set	0.00			0.00			0.00			
4	DO fuse installation	set	0.00			0.00			0.00			
5	Dismantling of Transformer (Works includes dismantling and carry back to designated office safely)	set	0.00			0.00			0.00			
Sub-Total (D)												
E. 11/0.4KV Transformer Installation(100KVA)												
1	LA erection	set	108.00			22.00			130.00			
2	Transformer erection include Platform, Distribution Panel Board & Cable	set	108.00			22.00			130.00			
3	earthing set installation	set	108.00			22.00			130.00			
4	DO fuse installation	set	108.00			22.00			130.00			
5	Dismantling of Transformer (Works includes dismantling and carry back to designated office safely)	set	38.00			8.00			46.00			
Sub-Total (E)												
F. 11/0.4KV Transformer Installation(50KVA)												
1	LA erection	set	89.00			18.00			107.00			
2	Transformer erection include Platform, Distribution Panel Board & Cable	set	89.00			18.00			107.00			
3	earthing set installation	set	89.00			18.00			107.00			
4	DO fuse installation	set	89.00			18.00			107.00			
5	Dismantling of Transformer (Works includes dismantling and carry back to designated office safely)	set	32.00			7.00			39.00			
Sub-Total (F)												
Sub-Total (4) (A+B+C+D+E+F)												

ESHSMP BOQ

S. No.	ESHSMP related Work	Unit	Quantity	Rate in USD	Amount in USD
1.	**General Mitigation Measures**				
1.01	Develop a Contractor's Environmental, Social, Health, and Safety Management Plan (CESHSMP) based on Employer's ESHSMP	LS	1		
1.02	Conduct employee induction training on Anti-Sexual Harassment Policy, Gender based Violence, Worker's Code of Conduct, GRM, Environmental, Social, Cultural sensitivity as specified in the ESHSMP before commencement of site activities as well as bi-annually refresher training	LS	1		
1.03	Conduct training to the Contractor's employees on TIP risks including child labor	LS	1		
1.04	Conduct training on Occupational Health and Safety including hazardous materials	LS	1		
1.05	Develop and implement Grievance Redress Mechanism for addressing grievances from Workers and Community	LS	1		
2.	**Physical Environment Mitigation Measures**				
2.01	Manage excavated soils and control erosion	LS	1		
2.02	Spray disturbed areas with water if substantive off-site fugitive dust impacts occur	LS	1		
2.03	Provide appropriate toilet facilities and bury all organic wastes	LS	1		
2.04	Provide secondary containment for any fuel or hazardous materials	LS	1		
2.05	Collect, segregate and dispose all waste for reuse, recycle, or disposal at approved facilities	LS	1		
3.	**Biological Environmental Mitigation Measures**				
3.01	Conduct environmental and social impact and mitigation survey through checklist prepared and approved by the engineer and employer	LS	1		
3.02	Implement forest fire management strategy	LS	1		
-	-	-	-		
4.	**Socio-economic and Cultural Environment Mitigation Measures**				
4.01	Implement Workforce Management Plan	LS	1		
4.02	Implement Worker Access Management Protocol	LS	1		
-	-	-	-	-	-
5	**Gender, Social Inclusion and Counter-TIP Measures**				
5.01	Develop and implement Anti-Sexual Harassment Policy	LS	1		
5.02	Develop and Implement TIP Risk Management Plan	LS	1		
-	-	-	-	-	
6	**Health and Safety Measures**				
6.01	Personal Protective Equipment (PPEs) and specialized PPEs for erection and stringing activities	LS	1		
6.02	First Aid Kits and necessary Emergency medical items as required	LS	1		
6.03	Any other items not mentioned above but the bidder may wish to include as per standard practice and mentioned in ESHSMP document.	LS	1		
	Total to be taken to Schedule/Bill No. 1 - Design Services, item No. 2				

Note:

1 Bidder to consider the price of all items under annex 6 (from volume III) in the table above and the total shall be included in the bill of quantity item #2 under Schedule/Bill No. 1: Design_Services.

Schedule No/Bill No. 5 - Grand Summary

S. N.	Description	Base Price	Option Price	Total Price	Remark
		Foreign (USD)	Foreign (USD)	Foreign (USD)	
1	Schedule/Bill No. 1 - Design Services				
2	Schedule/Bill No. 2 - Plant and Mandatory Spare Parts Supplied from Abroad				
3	Schedule/Bill No. 3 - Plant and Mandatory Spare Parts Supplied from Nepal				
4	Schedule/Bill No.4 - Installation and Other Services				
Grand Total (Excluding VAT)					
	VAT (if applicable)				
	Grand Total (Including VAT)				

	Note: Evaluation and Comparison of Bid and award of Contract will be based on Grand Total (Excluding VAT)

Annex 2:

Base Scope of Work

S. No.	District	Municipality and Rural Municipality	Ward	Steel Tubular Pole 11m	Steel Tubular Pole 8m	ACSR DOG Conductor	LT ABC 50 sq mm	LT ABC 95 sq mm	50 KVA Transformer	100 KVA Transformer	Transformer Platform
1	Sindhupalchowk	Melamchi	2,3,4	35	96	3	21	3	7	1	16
2	Nuwakot	Belkotgadhi	6,7,8,9,10,12	175	108	9	25	2	2	15	21
		Likhu	3,5,6	80	74	4	17	0	4	8	16
		Shivapuri	1,3,8,7,5	170	129	9	30	0	14	5	20
		Panchakanya	5	40	24	2	6	0	4	0	5
3	Dhading	Benighat Rorang	4,7,9	0	120	0	28	2	4	3	16
		Siddhalekh	6,7	40	84	2	20	1	2	1	14
		Galchhi	3,8	20	88	1	22	0	4	0	14
		Thakre	1,2,3,11	130	92	6	22	1	6	1	20
4	Makwanpur	Hetauda Sub-metropolitan	11,19	90	84	5	18	3	8	6	17
		Raksirang	1	40	20	2	5	0	1	3	6
		Kailash	3,5,6	410	210	36	32	7	5	5	16
		Thaha	8	40	75	2	6	1	2	0	2
5	Chitwan	Ichchhyakamana	2,3	60	64	3	16	0	4	0	6
6	Tanahun	Vyas	1,14	50	115	2	11	3	5	0	10
		Bandipur	3,4,6	26	198	1	26	0	6	0	10
		Abukhaireni	4	15	65	0	9	0	3	0	8
		Rishing	6,8	32	108	2	15	0	0	5	4
7	Palpa	Nisdhi	5,6,7	90	99	5	24	1	8	2	25
		Rampur	4	60	112	3	14	1	2	0	16
8	East Nawalparasi	Binaya Tribeni	3,5								

S. No.	District	Municipality and Rural Municipality	Ward	Steel Tubular Pole 11m	Steel Tubular Pole 8m	ACSR DOG Conductor	LT ABC 50 sq mm	LT ABC 95 sq mm	50 KVA Transformer	100 KVA Transformer	Transformer Platform
9	West Nawalparasi	Sunawal	11,12,13	40	43	2	15	9	2	8	24
		Ramgram	1,8,11,12,13, 17	65	181	3	30	12	2	10	34
		Palhinandan	1,2,3	40	100	2	19	6	1	5	27
Total				**1748**	**2289**	**104**	**431**	**52**	**96**	**78**	**347**

Annex 3

Annex 5 MCA-Nepal ESHSMP

Annex 5 MCA-Nepal
ESHSMP addendum.p

ENVIRONMENTAL, SOCIAL, HEALTH AND SAFETY MANAGEMENT PLAN

(ESHSMP)

FOR THE

NEPAL ELECTRICITY TRANSMISSION PROJECT

PRE-CONSTRUCTION AND CONSTRUCTION PHASES

(MCA-Nepal Version 14, issued 1 May 2024)

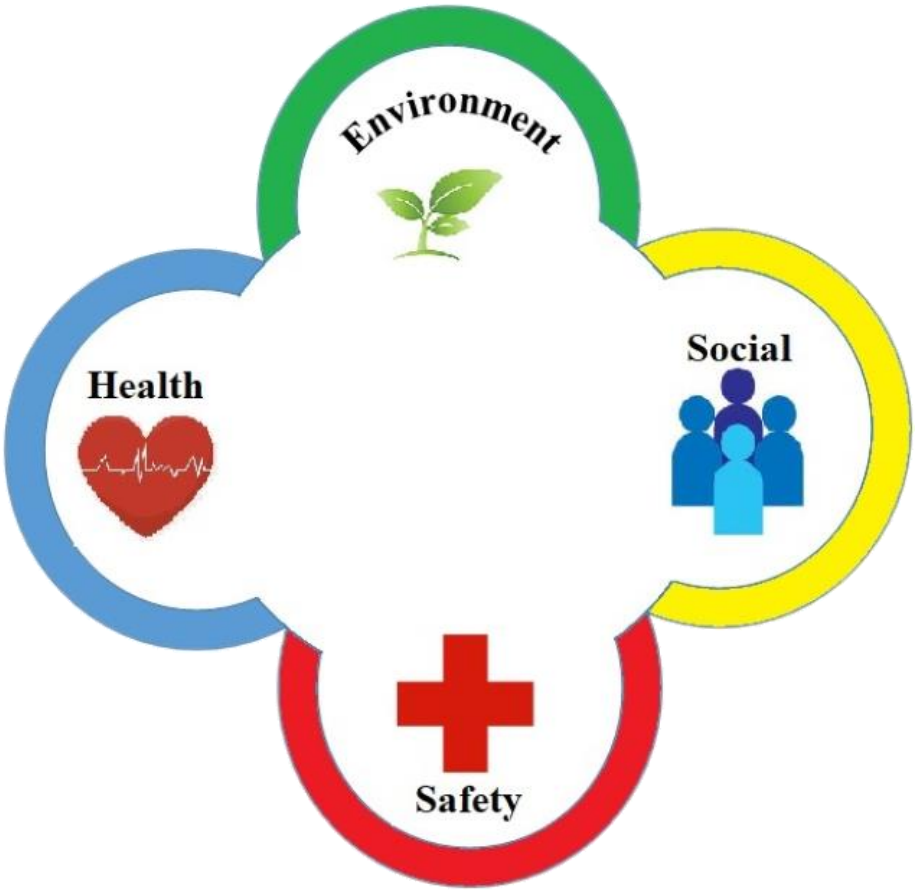

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TABLE OF CONTENTS

PRELIMINARY

SEPARATE FULL PLANS

- Stakeholder Engagement Plan (including Grievance Redress Mechanism)
- Resettlement Action Plan
- Livelihoods Restoration Plan
- Trafficking in Person (TIP) Risk Management Plan
- Social and Gender Integration Plan (SGIP)
- Emergency Preparedness and Response Plan
- Forest Compensation Plan
- Biodiversity Action Plan

TERMINOLOGY

In this document, the following terminology is used:

- Millennium Challenge Account Nepal Development Board (MCA-Nepal) is the Employer or Client, and is referred to as MCA-Nepal;
- The Employer's Representative – that is, the construction supervision consultant – is referred to as the Engineer;
- The Design-Build Contractors (although in some project documents referred to as EPC for engineering and procurement Contractors) are referred to as the Contractors.

DOCUMENT TRACKING

Version	Date	Drafted by	Reviewed by
1	13 September 2019	John Howell, Hilary Byrne	
2	25 September 2019	John Howell, Hilary Byrne	Janak Pathak, Rajendra P Thanju, Tara Gnyawali
3	19 October 2019	Janak Pathak	
4	7 November 2019	John Howell	
5	2 January 2020	Kalawati Rai, Janak Pathak, Shyam Upadhyaya Rajendra P Thanju, Tara Gnyawali	John Howell
6	27 April 2022	Kalawati Rai, Janak Pathak, Hilary Byrne	Yeshe Dejene
7	14 May 2022		Shyam K. Upadhyaya, Janak Pathak
8	1 July 2022	Kalawati Rai, Janak Pathak	
9	2 August 2022	Kalawati Rai, Janak Pathak	Yeshi Dejene, John Howell
10	11 August 2022	Kalawati Rai	Rajendra P Thanju
11	23 August 2022	Janak Pathak, Kalawati Rai	Shyam K Upadhyaya
12	28 February 2023	John Howell, Hilary Byrne	Janak Pathak, Kalawati Rai, Shyam K Upadhyaya
13	1 March 2024	Hilary Byrne, John Howell	Janak Pathak, Kalawati Rai, Shyam K Upadhyaya, Rajendra P Thanju, Prakash Basnet
14	1 May 2024	John Howell, Stephen Eagle	Janak Pathak, Kalawati Rai

ABBREVIATIONS AND ACRONYMS

AD	Anno Domini (western era)
ATV	All-terrain vehicle
BOQ	Bill of quantities
BS	Bikram Sambat (Nepalese era)
CAAN	Civil Aviation Authority of Nepal
CCA	Chure Conservation Area
CFC	Compensation Fixation Committee
CESHSMP	Contractor's Environmental, Social, Health and Safety Management Plan
CFP	Chance Finds Procedure
CLO	Community Liaison Officer
CTIP	Countering Trafficking in Persons
DLO	District Liaison Officer (now ESP-CA)
DOED	Department of Electricity Development
ED	Executive Director
ESHS	Environmental, Social, Health and Safety
ESHSMP	Environmental, Social, Health and Safety Management Plan
ESMS	Environmental and Social Management System
ESP	Environmental and Social Performance
ESP-CA	Environmental and Social Performance on-site Community Assistant (formerly DLO)
ETP	Electricity Transmission Project
FPIC	Free, Prior and Informed Consent
GIS	Geographical information system *or* gas-insulated switchgear (*depending on context*)
GON	Government of Nepal
GRC	Grievance Redress Coordinator
GRM	Grievance Redress Mechanism
GPS	Global positioning system
GSI	Gender and Social Inclusion *or* geotechnical site investigation (*depending on context*)
HIV/AIDS	Human immune deficiency virus or acquired immune deficiency syndrome
ICOMOS	International Council on Monuments and Sites
ICP	Informed consultation and participation
IFC	International Finance Corporation
MCA-Nepal	Millennium Challenge Account Nepal Development Board
MCC	Millennium Challenge Corporation
MOFE	Ministry of Forests and Environment
MPP	MCA-Nepal Partnership Programme
MSDS	Material Safety Data Sheet
PAP	Project Affected Person
PCTMCDB	President Chure-Terai Madhesh Conservation Development Board
PPE	Personal protective equipment
RAP	Resettlement Action Plan
RAP-ISP	RAP Implementation Schedule Plan
RPF	Resettlement Policy Framework
ROW	Right of way
STD	Sexually transmitted diseases
TIP	Trafficking in Persons
UNESCO	United Nations Educational, Scientific and Cultural Organization

SAFETY ABSOLUTES = ZERO TOLERANCE

All staff and workers of MCA-Nepal, its consultants, contractors, sub-contractors and guests must abide by these safety absolutes on all project work sites and when engaged in project-related activities.

Zero tolerance means that failure to comply with any of these safety requirements will lead to disciplinary action, which might include the involvement of the law enforcement authorities.

1 Personal protective equipment	• **No one may enter a project work site (other than an office or a vehicle) unless they are properly wearing a hard hat, a fluorescent vest or jacket, and protective boots.** • **Workers must also use eye protection, hearing protection, breathing masks or gloves, full body harness and other items as required by MCA-Nepal Health and Safety Procedures.**
2 Basic health and safety arrangements	• **You must respect all safety rules, standards, signals and signs.** • **You must not allow other people to ignore them.** • **You must not turn a blind eye to unsafe acts – you must always take action/report if you see something wrong.** • **Every work site must have a First Aid kit, as required by MCA-Nepal Health and Safety Procedures.** • **You must not operate equipment without the proper authority or qualifications.** • **No one may tamper with safety devices or emergency response equipment.**
3 Travel safety	• **You must respect all project transportation rules and national traffic regulations.** • **MCA-Nepal staff must not drive at night on project-related business except with a special permit from the HR and Administration Manager.** • **Staff of the Engineer and Contractors must not drive at night on project-related business except with a special permit from their appropriate senior Manager.** • **Throwing of waste and empty bottles from vehicles is absolutely prohibited. They must be disposed of in a designated area.** • **Drivers must not talk on mobile phones while driving.**
4 Working areas	• **You must mark off areas of work so that the site boundaries are clear to others.** • **You must not start work until a site is cleared of unauthorised people.**
5 Working at height	• **You must tie-off when working at unprotected elevations > 1.8 metres above the ground.** • **You must never go above 1.8 metres above the ground without another person being present.** • **You must always take action to prevent objects from falling.**
6 Working in excavations	• **All excavations deeper than 1.5 metres must have shoring to stop the sides collapsing.** • **You must never go into an excavation without another person being present.** • **You must always take action to prevent objects from falling.**
7 Energy isolation	• **You must undertake a safety lock-out for electrical, mechanical, pneumatic and hydraulic isolation before starting work.** • **You must not remove a safety lock-out placed by someone else.**
8 Lifting operations	• **Never stand under or close to a suspended load.** • **You must respect the rules of load handling, as required by MCA-Nepal Health and Safety Procedures.**
9 Violence	• **No one may assault, abuse or intimidate any other person.** • **No firearms, lethal weapons or explosive power tools are permitted.**
10 Tobacco, alcohol and drugs	• **No smoking in any project work site, office or project vehicle except in designated areas.** • **No alcohol or drugs may be brought into a project site or transported in a project vehicle.** • **No one under the influence of alcohol or drugs may enter a project site or vehicle.**
11 Worker behaviour	• **You must not cause any form of nuisance to communities in the project districts.** • **No foreign project worker may have sexual relations with Nepalese nationals.** • **No trafficking in persons.** • **No kind of harassment including sexual harassment.** • **The soliciting of sex workers is illegal in Nepal.**
12 Incident reporting and investigation	• **All above mentioned incidents must be reported, and properly investigated (by the authorized person) to determine causes, learn lessons and improve preventative measures.**

1. EXECUTIVE SUMMARY

This section provides a summary of the Environmental, Social, Health and Safety Management Plan (ESHSMP) and a listing of the compulsory actions that must be undertaken to safeguard people, society and the environment.

1.1 Summary Description of the ESHSMP and the Project

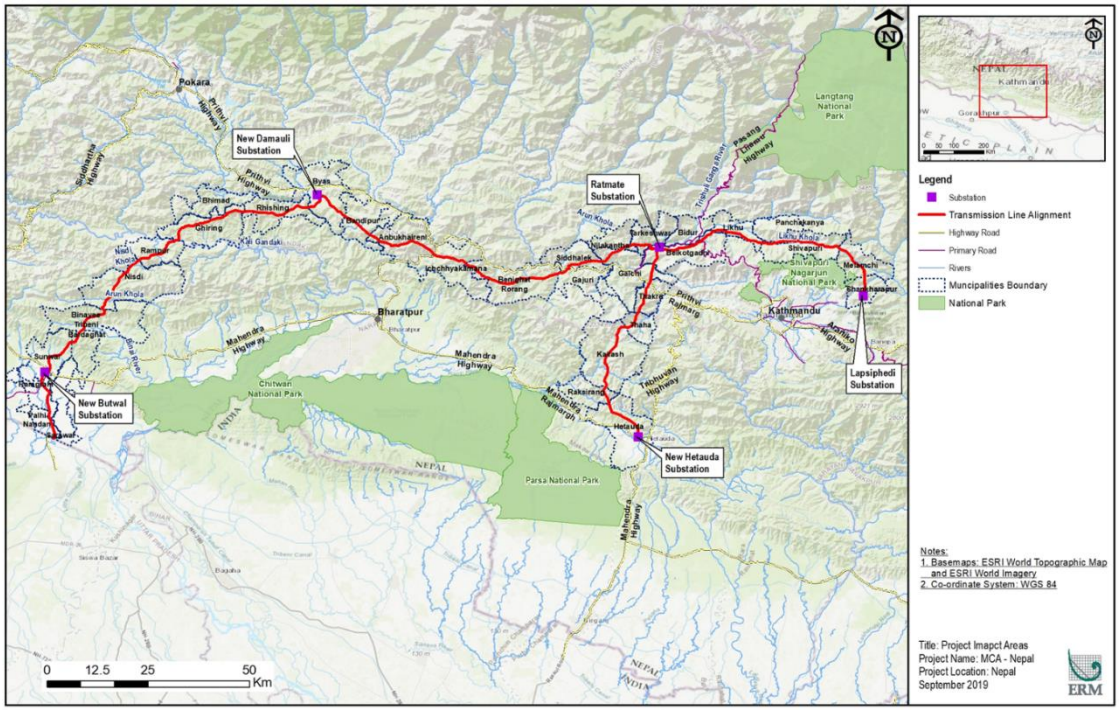
This ESHSMP covers the construction phase of the Nepal Electricity Transmission Project (ETP).

This plan is essential for ensuring that appropriate control and mitigation measures are in place during project activities. It defines the management and monitoring measures needed to ensure that the impacts of the various project components are kept in conformance with applicable standards, and that the mitigation measures agreed are effective in addressing impacts to the extent predicted. Environmental quality is required to be maintained as per stipulations in the contract agreement and existing policies. Contractors need to follow practices as mentioned in the agreement and in the approved Environmental Impact Assessment (EIA) Report and site specific ESHSMP so that the proposed environmental safeguards and management plan (including mitigation measures) will result in the avoidance or reduction of the identified adverse impacts associated with the proposed transmission line project.

The ETP will construct 400-kV double circuit electricity transmission lines spanning approximately 313.9 km[1] kilometres. This will involve the building of approximately 856 transmission towers and three new substations (Ratmate, in Nuwakot; New Damauli, in Tanahu and New Butwal in Nawalparasi (West of Bardghat Susta)). The transmission lines will also connect with two other under-construction substations (Lapsiphedi in Kathmandu and New Hetauda in Makwanpur), and with the Indian grid at the national border in Palhinandan Rural municipality in Nawalparasi (West of Bardghat Susta).

The ETP configuration is an outcome of a Detailed Feasibility Study, commissioned by the Millennium Challenge Corporation to identify transmission projects that could provide the greatest contribution to Nepal's development needs. That study included elements of stakeholder engagement, site surveys, technical assessments, and environmental and social assessments, which contributed to the screening and scoping of the environmental and social aspects of the candidate projects. The subsequent design of the selected area incorporated many measures identified in the study as important for reducing environmental and social impacts.

Figure 1: Map showing the general layout of the ETP contribution to Nepal's electricity grid



[1] ETP EIA, 2020.

1.2 Activity Sequence

You must follow the steps below in sequence. You cannot start a step without completing all parts of the one before for each defined project site.

Step	Activity	Responsibility	Condition
1	Ensure permitting is in place	Contractor	To be verified by MCA-Nepal
2	Fulfil permanent land access procedures	RAP Consultant	To be verified by MCA-Nepal
	Fulfil temporary land access procedures	Contractor	To be verified by Engineer
	Obtain forest clearance permit	MCA-Nepal	Permit issued by MOFE
3	Vegetation clearance	Contractor	To be verified by Engineer
	Laydown area and camp establishment	Contractor	To be verified by Engineer
	Waste management system establishment	Contractor	To be verified by Engineer
	Materials acquisition arrangements	Contractor	To be verified by Engineer
	Workforce mobilisation and camps	Contractor	To be verified by Engineer
4	Construction	Contractor	To be verified by Engineer
5	Site restoration and revegetation	Contractor	To be verified by Engineer
6	Handing back of temporarily used land	Engineer	To be approved by MCA-Nepal

1.3 What You Must Do – List of Obligatory Actions

The table on the following pages lists the safety, social protection and environmental protection actions that must be taken by everyone involved in the implementation of the Electricity Transmission Project. This applies to:

- All staff employed by MCA-Nepal;
- All staff and workers of the Engineer;
- All staff and workers of Contractors;
- All staff and workers of Sub-contractors;
- All staff and workers of any other Suppliers to the project; and
- Visitors to project sites.

This table contains all of the mitigation measures taken from the management and monitoring matrix (section 10): these are the practical mitigation actions agreed by MCA-Nepal as part of the conditions for the award of an Environmental Permit for the project.

WHAT YOU MUST DO – COMPULSORY ACTIONS
Everywhere, all the time – General principles
● Avoid damage to any part of the environment (soil, plants, animals, human resources and settlements) as far as possible. ● If damage cannot be avoided, then mitigate or compensate for the damage. ● Avoid any work beyond the agreed boundaries of the work sites. ● Agree on mitigation or compensation arrangements before starting any work. ● Do not hide any damage or pollution. In the event of an accident, it is better to consult the concerned agencies and agree on a mitigation plan than to risk prosecution under the law. ● Ensure that the site supervisors brief all workers at the start of every job, and at the beginning of each week, on the main environmental messages. ● Ensure that all professional and technical staff respect the environment and understand why they must. ● Ensure that all professional and technical staff respect the social and gender project requirements. ● Do not allow staff and workers to neglect environmental issues. This may lead to offences under the Environment Protection and Management Law. ● Do not ignore disregard for environmental and social issues by professional and technical staff. ● Do not allow staff and workers to engage in Trafficking in Persons (TIP) activities. Ensure that all professional and technical staffs including labourers understand that the Compact has *Zero Tolerance* policy on TIP. ● All allegations of TIP must be reported to MCA-Nepal immediately on the notice of information.

WHAT YOU MUST DO – COMPULSORY ACTIONS
Safety and health of staff and workers – all project sites
● Everyone is responsible for enforcing safety on all project sites and activities. ● Ensure that all management staff from MCA-Nepal, the Engineer and Contractors always abide by the Safety Absolutes. ● Ensure Workers Code of Conduct Anti-sexual Harassment Policy, TIP Risk Management Plan are active in place for every contractor. ● Ensure that workers are given safety inductions, toolbox talks and full daily and weekly briefings. ● Ensure that all workers, and all staff of the Engineer, the contractors and subcontractors are given an induction course on appropriate topics of gender-based violence, gender- and social-based discrimination, equal wages, grievance management, risks of trafficking in persons, child labour, child abuse, and sexual harassment. ● Teach all workers and staff members that prostitution is illegal in Nepal. ● Encourage migrant workers to abstain from sex with local people. ● Develop a culture of admonishment for unsafe acts. ● Obligate managers to set good examples for respecting safety on site. ● Provide all workers with safety equipment appropriate to the work that they are doing. ● Provide separate toilet facilities for women and men on work site. ● Do not allow workers on to a site unless they are wearing the appropriate safety gear. ● Keep first aid kits on all work sites and ensure they remain stocked and all items are in-date. ● Ensure that there are two people on each work site who know what to do if there is an accident and how to use the first aid kit. ● Respect all traffic and road transportation rules. ● Every passenger must wear a seat belt. ● Every passenger must be in a proper seat, with no sharing of seats. ● Passengers must travel in jeeps or buses (not in the back of pick-ups or trucks). ● Provide transportation service to contractors' women employees to and from work. ● Report any accident to your manager.

WHAT YOU MUST DO – COMPULSORY ACTIONS
Community safety and health – in and around all project sites
● Ensure full separation of the public from working sites. ● Fence off working areas so that people cannot be injured by things dropped on them or by falling into excavations. ● Place safety warning sign boards at the edge of work sites. ● Maintain a clean site so that dangerous articles are not left lying around near the work site, especially at night. ● No children are allowed to enter the working site (other than 15 to 17-year olds employed in non-hazardous conditions). ● Avoid the use of child labour through age certification evidence. ● Enforce the exclusion of non-project personnel from storage facilities and all sites with hazardous substances. ● Ensure that non-local workers are accommodated in sound, dry buildings, with good ventilation and clean water supplies, and with good cleanliness and sanitation arrangements. ● Provide separate workers' accommodations and toilet facilities to women and men workers. ● Provide awareness trainings to workers and nearby communities, on the prevention of contagion and infection from diseases such as influenza, sexually transmitted diseases and HIV (include vector-borne, water-borne and air-borne diseases). ● Issue policy statements on the project's adherence to Nepalese law regarding sexual exploitation and sexual harassment (including children and prostitution) and gender-based violence. ● Any project, Engineer's or Contractors' staff or worker breaking safety rule must be punished. ● Include awareness raising on these issues in trainings, toolbox talks and site briefings.

WHAT YOU MUST DO – COMPULSORY ACTIONS
Community disruption – in and around all project sites
● Use the SEP and communication procedures to inform communities about disruption. ● Ensure that the site supervisors brief all workers at the start of every job, and at the beginning of each week, on the main messages regarding respect for the local communities. ● Ensure that all professional and technical staff respect the local communities and behave well. ● Do not ignore blatant disrespect for communities including individuals from different sex, low-caste groups and/or disadvantaged social groups by professional and technical staff. ● Pay the full and fair compensation as agreed following the Resettlement Action Plan procedures. ● Assist the affected persons to relocate and re-establish their lives and livelihoods. ● Do not allow any work to commence on any part of the site where resettlement compensation has not yet been fully completed. ● Avoid the use of cultivated land wherever possible. This includes fallow agricultural land and tree plantations. ● Where use of such land is required, at least four weeks prior to commencement of work (ideally earlier), check with the ESP-CAs that mitigation measures have been agreed and implemented. ● Do not start using cultivated land before the occupier has been fully compensated, this is confirmed by the ESP-CAs and a Land Access Release Permit has been issued. ● Avoid damage to crops or land beyond agreed boundaries. ● Establish an equitable and fair employment strategy. Liaise with the ESP-CAs to ensure that it is understood in the local communities (i.e. that it is transparent). ● Give priority to local men and women in labour gangs, and those who used to earn livelihoods on land in the ROW. ● Pay at least the usual accepted district daily wage rates. ● Do not demand unpaid work by local farmers or others. ● Maintain an active policy to ensure gender equality, and prioritize disadvantaged or vulnerable groups in the construction works.

WHAT YOU MUST DO – COMPULSORY ACTIONS
Vehicles and travel – all project-related transport
● Minimise vehicle movements. ● Enforce transport rules and regulations rigorously. ● Do not transport non-project personnel in project vehicles without following the appropriate procedures. ● Conduct driving safety awareness campaigns among staff. ● Do not tolerate any poor behaviour, dangerous driving or even minor traffic infringements by any staff or workers of any project-related organisation. ● Do not allow dust generation to affect the ambient air quality outside the site. ● Spray dust suppression water as required, but ensure it is not applied at such rates that it causes erosion and washing out of the roads. ● Turn off a vehicle's engine when it is stationery and open the windows for ventilation if necessary unless in a very polluted area. ● Walk from one area to another within each work site. ● Only use vehicles for journeys that are longer than 500 metres.

WHAT YOU MUST DO – COMPULSORY ACTIONS
Cultural heritage protection – in and around all project sites
● Stop work as soon as potential cultural heritage and archaeological finds are discovered and verified by the relevant authority. ● Put in place the Chance Finds Procedure: see Annex E.09. ● Notify the Department of Archaeology. ● Fence the potential site to prevent disturbance before investigation.

WHAT YOU MUST DO – COMPULSORY ACTIONS
Hazardous materials – all transporting, storing, handling and use
● Follow the hazardous materials management guidelines fully. ● Use the safest available transportation option. On roads, use convoys with accompanying support. ● Deliver only to prepared locations. ● Maintain supplies of spill kits and granules in all vehicles and at all offloading locations. ● Ensure competent drivers and close supervision. ● Provide emergency training to all personnel involved in the movement and handling of hazardous materials. ● Use both international and Nepali labelling for identifying hazardous substances. ● Maintain emergency response / fire-fighting teams trained for a spillage event and appropriate equipment at each substation and major laydown facility.
Coated steel
● Ensure that the specifications are for no steel members to have coatings with heavy metals or other toxic elements or compounds. ● Submit certificates of coatings and the relevant MSDS for approval by MCA-Nepal before importing any steel members.

WHAT YOU MUST DO – COMPULSORY ACTIONS
Fuel storage
● Follow the hazardous materials management guidelines fully. ● Only use storage facilities located down gradient of public water supply boreholes and at least 100 metres from watercourses. ● Only use designated storage areas, with bunding of 150% volume of total capacity. ● Ensure that there are retention systems, including walls, bunds and lined drains to contain any spillages. ● Ensure that there is hard standing, with a drainage system that includes oil/water separators. ● Ensure spill kits and granules are available, and if used, dispose of waste appropriately. ● Check facilities, safeguards and procedures for any potential for explosions to occur. ● Maintain emergency response / fire-fighting teams trained for a spillage event and appropriate equipment at each facility where fuel is stored. ● Provide training for all personnel handling fuel and oil. ● Take rapid action if uncontained spills and leakages occur, to prevent soil contamination, and ground and surface water pollution. ● Do not allow soils to become contaminated and sterilised, or for water courses to be affected by runoff carrying toxic substances, affecting community water supplies, aquatic biodiversity and wildlife. ● Have controls in place to minimise opportunities for fuel pilferage.
Fuel transfers
● Follow the hazardous materials management guidelines fully, which include procedures for refuelling vehicles and site plant. ● Spill kits are to be carried by all refuelling vehicles. ● Refuel vehicles only on impermeable hard standings with controlled drainage (traps and interceptors). ● Plant refuelling on site is to be carried out according to strict protocols for refuelling in unprotected areas. ● Enforce the reporting system for spillage incidents.

WHAT YOU MUST DO – COMPULSORY ACTIONS
Construction materials – all material sources, handling areas and construction sites
● Only obtain aggregates from locations with valid environmental permits from appropriate authorities (like MOFE or local level government divisions) that cover the volume required by the project in addition to other production. ● Identify aggregate sources and quarry areas as early as possible, and create specific risk assessment and mitigation plans for these areas. ● Gain MCA-Nepal approval for all material sources. ● Allow adequate time for the consultation, resettlement and compensation of people whose land is affected. ● Install sediment control measures to prevent runoff from causing contamination and siltation of water bodies. ● Do not allow any vehicle or machine to operate in a watercourse. ● Take appropriate measures to prevent emissions and dust from affecting the ambient air quality outside the immediate site boundaries. ● Ensure proper geotechnical management so that excavation and tips do not trigger slope instability or affect water courses in any way. ● Ensure that material source areas are signed off by Engineer and approved by MCA-Nepal after project-related extraction, with rehabilitation completed where necessary.

WHAT YOU MUST DO – COMPULSORY ACTIONS
Use of Explosives
● The use of explosives must be avoided to the greatest extent possible. ● Obtain formal licensing from the government. ● Involve the Nepal Army from the planning stage onwards. ● Abide by Nepalese laws and regulations regarding the handling, storage and use of explosives. ● Be particularly strict in enforcing safety regulations when using explosives. ● Follow the detailed specifications for blasting provided in the ESHSMP: see Annex F.04. ● Ensure that blasting does not create excessive noise and vibration disturbance to wildlife and communities. ● Do not allow any unauthorised person to have access to explosives. ● Do not allow anyone to use welding equipment, smoke, cook food light any fire or use a mobile phone within 50 metres of an explosives store.

WHAT YOU MUST DO – COMPULSORY ACTIONS
Waste management – in and around all project sites
● Operate a waste management strategy based on principles of reduction, recovery, recycle and reuse. ● Collect and segregate waste into hazardous and non-hazardous at the source. ● Avoid waste spills during storage and handling. ● Dispose of all waste in an appropriate manner. ● Ensure use of PPE by staff when handling all forms of waste. ● Ensure that waste collection, segregation, storage and disposal systems avoid environmental degradation, contamination, and hazards to human and animal health. ● Dispose of waste to MOFE-authorised facilities (including local government approved facilities). ● If there are no alternatives, design and construct a landfill site that is lined and in an area that is not prone to slippage, cannot leach to surface water and groundwater, and is at least 500 metres from settlement. It should be located down gradient of any water supply springs or boreholes. ● Ensure that the landfill site is in a secure compound and that its operation conforms to GoN standards. ● Deal with hazardous waste according to international best practice and MOFE guidelines.

WHAT YOU MUST DO – COMPULSORY ACTIONS
Sanitation
● Provide proper water closet toilet facilities along with waste bins at all long term (> 1 month) work sites, separately available for men and women. ● Do not allow water to run out at toilets. ● Maintain all toilets in a clean and sanitary condition. ● Provide proper earth pit latrines at all work sites where work will be undertaken for periods of up to one month. ● Fill the latrines in once they become full and when site work is complete. ● Do not allow site workers to defecate in the open anywhere on the site or in its vicinity. ● Add the use of sanitation arrangements in workers' inductions.

WHAT YOU MUST DO – COMPULSORY ACTIONS
Soil erosion control – all laydown areas and construction sites
● Only disturb the soil where it is necessary to do so for the agreed works. ● Limit vegetation clearing to those trees approved by the Division Forest Office. ● Only cut vegetation using saws and axes. Never clear vegetation using machines or fire. ● Leave tree stumps and roots, smaller understory trees, shrubs, and the herbaceous layer intact to protect the soil from erosion. ● Use existing tracks and previously disturbed areas as far as possible. ● Do not make foot access tracks wider than 1.5 metre or make other cleared areas larger than is absolutely necessary. ● Keep vehicle access tracks to specification (including the maximum width of 3.5 metres). ● Allow small plants to grow back on the edges of tracks and other disturbed areas. ● Where it is present, remove and stockpile topsoil to a depth of 200 mm for later site restoration use. ● Store soil excavated for tower foundation construction in a designated location and replace it around the foundation during site restoration. ● Do not allow erosion to happen without taking rapid control measures: install erosion and sediment controls as the very first physical site activity. ● Grade any newly formed slopes to the minimum angle possible. ● Cut slopes to grades appropriate to the material found. ● Level surfaces to prevent erosion as soon as works have been completed. ● Keep earth piles away from the edges of steep slopes and watercourses. ● Undertake soil erosion and sediment controls as necessary, to protect areas from slips and erosion. All soil slopes steeper than 10° must be revegetated according to the guidelines in this ESHSMP. ● Avoid compaction of the soil in temporary use areas by limiting machine and vehicle access. ● Rip or deep-dig compacted soil at the start of site rehabilitation.

WHAT YOU MUST DO – COMPULSORY ACTIONS
Water resources – all laydown areas and construction sites
● Do not dispose of anything into any kind of water body. ● Keep earthworks, tracks and other cleared areas as far as possible from watercourses or bodies. ● Where earthworks, tracks, roads and other cleared areas are within 50 metres of watercourses or bodies, take special care to ensure that fuel, oil and other hazardous substances, and any earthworks, are properly contained. ● Ensure that all community water supplies are safeguarded. Confirm the location of local water supplies with the ESP-CA. Be prepared to bring in clean water for communities if the works pollute their water sources ● Do not extract more than 20 percent of the flow from a spring or watercourse. Never take so much water from a supply that the normal users are short. ● Schedule earthworks only in the dry season. ● Use surface protection measures to control soil erosion and protect watercourses. ● Regulate water discharge and run off using sediment traps and ponds. ● Monitor downstream water quality routinely.

WHAT YOU MUST DO – COMPULSORY ACTIONS
Air quality – in and around all project sites
● Enforce dust control measures during the dry season. ● Enforce strict speed limits (15 kmph) on earth tracks by placing speed bumps. Always provide warning signs with speed bumps. ● Spray water on to dry earth surfaces. ● Stop work in very windy, dry weather. ● Use only vehicles and equipment with engines that comply with national emissions standards. ● Maintain engines in good working order.

WHAT YOU MUST DO – COMPULSORY ACTIONS
Biodiversity protection – in and around all project sites
● Only cut vegetation that is in the way. This means plants that are in the direct area required for the agreed works. ● Do not cut any more vegetation than is necessary for site access and working. ● Do not use fire to remove vegetation. ● Do not burn cut vegetation. ● Instruct workforce not to collect or purchase NTFPs on site or in bazaars within 10 km of work sites. ● Avoid all use of fire using wood. ● Provide workers with food when they are living in places where there is no affordable market source of food. ● Monitor areas where natural forest has been cleared. ● If invasive species start to become a problem, devise and implement a site-specific control plan. ● Instruct workforce not to hunt, deal in or transport wild animals' or birds' meat on site. ● Provide meat from domestic animals if there is no alternative.
Birds – special protection measures
● Install marker spheres on earth wires at all locations where the EIA recommended this method to improve visibility. ● Construct transmission lines to design, so that the risk of electrocution of birds is eliminated. ● If significant bird nesting sites are found to be destroyed during construction, install nesting ledges on towers (but not transmission towers) to provide alternatives.

WHAT YOU MUST DO – COMPULSORY ACTIONS
Noise control – in and around all project sites
● Minimise site-generated noise to the greatest possible extent. ● Do not allow works to occur during the hours of darkness (6 pm to 6 am) within 500 metres of any dwelling without special permission from the Engineer. ● Allow workers to take leave on religious festivals. ● Provide warnings of blasting, starting at least 24 hours ahead, and ensure no one is within the 500-metre clearance zone. ● Provide communities, through the ESP-CA, with details of the works programme. ● Do not deviate from the agreed timing of works. ● Provide ear protection to all workers exposed to noise over 70 dB(A). ● Do not allow any person to come close to a machine without having ear protection in place.

WHAT YOU MUST DO – COMPULSORY ACTIONS
Office management – all project-related offices
● Open windows for ventilation rather than using air conditioners. ● Do not have heaters or air conditioners on when doors and windows are open. ● Turn off heaters, fans or air conditioning when you are not in a room. ● Turn off lights when you are not in a room. ● Do not print out documents unless you really need them. ● If printing is necessary, print on both sides of the paper. ● Minimize using plastic water bottles and plastic cups for drinking water as far as possible. Instead, use reusable bottles and mugs. ● Reuse water bottles by refilling.

2. INTRODUCTION TO THE ESHSMP

This section explains the objectives and structure, and rationale of the ESHSMP in relation to the project activities, organisation and approach to ESHS mitigation.

2.1 Objectives and Structure

This ESHSMP is the key safeguard document to ensure that the ETP is implemented in ways that:

- are safe for its workers and the communities affected,
- minimise and compensate for disruption to society, and
- minimise and repair damage to the environment.

The ESHSMP applies to every person and organisation involved in the implementation of the Electricity Transmission Project.

This means all MCA-Nepal staff, and the staff and workers of all consultants and contractors, and their sub-consultants, subcontractors and suppliers.

The ESHSMP is a '*living'* document. It will be subjected to ongoing review and development to ensure that it remains appropriate for all project activities. It also includes the approaches for continuous monitoring and periodic auditing with the aim of tracking the effectiveness of the management measures that are being implemented. This element is critical to any effective management plan, as there is little value in continuing to implement management measures that do not achieve the desired objectives of good performance in environmental, social and public health issues. Outcomes from the monitoring and audit programs must be used to assess mitigation performance, to document measurable improvements and to determine if further adaptive management is needed.

The ESHSMP follows a structure that is based on the following order of coverage:

- The well-being of people;
- The protection of society; and
- The protection of the environment.

This is a continuous cycle, since the well-being of people depends on the protection of the environment. However, although the broad topics covered under the heading of ESHS fall logically into this sequence, there is no implication of any having higher priority than others. Individuals, society, biodiversity and the physical environment are all of equal importance.

In some forms of management planning, a number of sub-plans are referred to like TIP Risk Management Plan which is a stand-alone document in addition to ESHSMP. In this ESHSMP, all of the sub-plans are incorporated into this single structure. Hence there are no sub-plans (such as for health and safety, construction site management, erosion control, etc.). All of these aspects are covered in the relevant sections of this all-encompassing ESHSMP. This approach has been adopted to ensure that no sub-plan is ignored in the management of the project.

This ESHSMP covers the pre-construction and construction phases of the ETP. A separate ESHSMP covers the operational phase.

2.2 How to Use the ESHSMP

The ESHSMP provides the information required to ensure that the pre-construction and construction phases of the project are managed in accordance with all the safeguards required by the EIA for safety, health, society and the environment. Different sections explain these as follows.

- The permitted project activities are described. Other construction activities are not to be used, as they have not been approved through the EIA process.
- The responsibilities of all project staff and workers are explained. These cover every organisation involved in the project, be it government, donor, client, consultant or contractor.
- The supporting parallel plans (such as those for relationships with stakeholders, for resettlement and for TIP Risk Management Plan) are described, along with their relationships with the ESHSMP.
- Details are given of the main construction site management issues.
- Safeguards for the safety and health of workers and neighbouring communities are described.
- Social safeguards are explained, to show how the communities can be protected from negative project

impacts.

- Gender and Social Inclusion requirements are explained, to ensure that excluded groups are enabled to benefit from the project and are protected from discrimination, violence, sexual harassment and TIP.
- Environmental safeguards are also listed, focusing on the physical environment (particularly the protection of soil and water resources) and the biological environment (particularly animals and the forests that are their habitats).
- Waste management is covered in a separate section, since pollution can potentially affect all aspects of ESHS.
- The mitigation measures, monitoring, reporting and enforcement systems are described in detail.
- In the annexes are given all the supporting details needed to implement the plan effectively. These include procedures and guidelines that provide the practical steps to be followed to implement the mitigation measures to the standard required under the environmental permit issued by the Government of Nepal.

The core part of the ESHSMP is in section 10. This lists all of the mitigation measures that must be implemented under the plan.

These are also listed in section 1, in the "WHAT YOU MUST DO – COMPULSORY ACTIONS" tables at the beginning of the ESHSMP.

2.3 Summary of Project Activities (Construction Phase only)

Transmission lines

The proposed 400 kV double circuit transmission line route is 313.9 kilometres long with 46 m ROW and will involve construction of 856 transmission towers. Construction will take three and a half years, and the operational life expectancy is 50 years.

Three provinces will be affected: Bagmati (6 districts); Gandaki (2 districts); and Lumbini (2 districts). The districts involved are Nawalparasi (West of Bardaghat Susta), Nawalparasi (East of Bardaghat Susta), Palpa, Tanahu, Chitwan, Dhading, Nuwakot, Makawanpur, Sindhupalchok and Kathmandu.

The project will require seven tower types, all of steel lattice designs.

- Suspension towers, used in lines for straight-run or minor angle deviations of up to 2°.
- Angle or tension towers (two types), used at locations where the deviation angle is between 2° and 30° or where the towers are subjected to uplift loads.
- Dead-end towers (four types), used at line termination points and at deviation angles of 30° to 90°.

Tower foundations will be designed to withstand uplift, settlement, bearing pressure, overturning and sliding (as appropriate) when subjected to the applied system loading. Allowances will also be made for hydrostatic pressure that may occur and the effects of seasonal rains, drying out or other cyclic loading. There is a non-limitative list of foundation types, including pad and chimney, concrete, reinforced concrete, micro-piles and steel grillages.

The 400 kV transmission line conductors are made of aluminium wires wrapped around a stranded steel cable. The conductors will be suspended from an insulator string attached to the arms on the tower at a safe height above the ground. Two overhead shield wires will be installed at the top of the towers: one is a fibre optic ground wire and the other is a steel wire. Pilot wires will be placed by hand, or by using drones or helicopters, and then the conductors will be winched into place across the spans.

Access to the tower construction sites will be mainly by existing roads and foot trails. There will be no new vehicular access tracks constructed. Helicopters may be used to lift in tower components in remote areas. Drones may also be used for stringing cables. Tower sites will each have small camps to be used at intervals through the construction period, as the sequential processes of site preparation, foundation building, tower erection and cable stringing take place. Large laydown areas will be established by the contractors at locations to be approved by MCA-Nepal under the terms of this ESHSMP.

Substations

Substations are typically used to transform voltage from high transmission voltages to lower distribution voltages for use by consumers. Five substations form part of the ETP. MCA-Nepal will construct the New Butwal, New Damauli and Ratmate substations, and will build additional facilities within existing NEA substations at Lapsiphedi and New Hetauda. For the other two substations (New Hetauda and Lapsiphedi), MCA-Nepal will only connect the ETP transmission line into existing 400 kV bays reserved within the existing substations currently being constructed by NEA. The land for the New Butwal, New Hetauda, New Damauli, and Lapsiphedi substations has already been acquired by NEA. MCA-Nepal has completed the land acquisition for the Ratmate substation. The Ratmate substation site is larger than the others as additional land is being acquired for future expansion of this substation, which is envisioned to be an important transmission hub.

Substation Land Acquisition and Construction

Substation	Land acquisition responsibility	Site area (ha)	MCA-Nepal construction responsibility
New Butwal	NEA—Land has already been acquired	3.59	Construct 400 kV GIS substation. Provide space for two future 220 kV AIS bays to be permitted and constructed by others
New Damauli	NEA— Land has already been acquired	8.09	Construct around 0.51 km access road towards south from nearest road head and new 400 kV GIS substation
Ratmate	MCA-Nepal - Land has already been acquired	19.79	Upgradation of 0.7 km of existing earthen road starting from nearest point of Galchhi - Rasuwagadhi highway and construct new 400 kV and 220 kV GIS substation
New Hetauda	NEA—Land has already been acquired	6.19	Tie transmission lines coming from Ratmate into existing substation
Lapsiphedi	NEA—Land has already been acquired	8.03	Tie transmission lines coming from Ratmate into existing substation

The ETP substation components will use Gas Insulated Switchgear (GIS) at all five substations, with sulphur hexafluoride (SF_6) as the insulating gas. The main substation facilities are as follows.

- Control building. To include offices, control panels, batteries and chargers, AC/DC panels, protection and control panels, and washroom.
- GIS switchgear building. This will house GIS switchgear and associated equipment.
- Storage and maintenance building. This will provide covered storage for spare parts for major equipment unsuitable for long-term outdoor storage, as well as water pumps.
- Staff living quarters. To be sufficient to accommodate 50 employees as well as parking for 25 vehicles.
- Potable water system. This will include a water treatment building, water storage tank and distribution system.
- Wastewater treatment system. To include a septic system for domestic wastewater treatment and disposal.
- Fire protection system. This will include a firefighting water storage tank, and fire walls between transformers and the transformer oil collection system.
- Auxiliary power system. To include one 250 kVA diesel generator set to allow for black starts and provide backup power when no other sources are available.

2.4 Project Organisation for ESHS Management

The management of ESHS compliance is the responsibility of MCA-Nepal, which is the project proponent and contractual employer. However, all Contractors are given responsibility for ensuring that all of their actions are compliant with the conditions of the environmental permit issued by the MOFE: contracts are clear on this point. Damage to any part of the environment or disruption to society by a Contractor is usually also an infringement of the law. A failure to comply with the environmental and social mitigation measures may therefore subject a Contractor both to corrective actions and penalties under the contract with MCA-Nepal, and to legal action by the civil authorities. Ensuring and monitoring compliance is also delegated to the Engineer as the employer's representative on site, and so MCA-Nepal's monitoring and reporting systems derive both from the Engineer's staff and from its own ESP and GSI personnel.

The organisation for ESHS management is summarised in the table below. In the environmental management and monitoring matrix, these responsibilities are clearly stated against each set of mitigation. The process of resettlement and compensation is managed by a separate implementation consultant. Detailed responsibilities for each organisation are given in section 3, and terms of reference for individuals are provided in Annex A.

Organisation	ESHS management responsibility	Reports to	Personnel requirements	Personnel roles
MCA-Nepal	The Client or Employer in contractual terms. Prepares contracts for engineering design, procurement and construction of the ETP, all to be completed in line with environmental and social protection safeguards. Participates in continuous monitoring and periodic auditing.	GON, with oversight by MCC to ensure compliance with MCC policies and procedures	Executive Director	Approves and submits reports to GON and MCC, as appropriate
			Deputy Executive Director (Project Delivery)	Reviews and rejects or approves the Engineer's and Contractors' reports. Approves corrective action plans for the Contractors. Communicates on ESP issues with MCA-Nepal ESP and MCC-ESP.
			ESP Specialists Environment	Participates in monitoring physical and biological environmental aspects, health and safety issues.
			ESP Specialists Land Acquisition	Participates in monitoring social aspects including compensation and stakeholder engagement.
			Gender and Social Inclusion Specialist	Participates in monitoring of gender and social inclusion provisions.
			QAM (Environment, Health and Safety)	Monitors the level of achievement on all environmental aspects of the project, and health and safety issues.
			QAM (Social Inclusion and Resettlement)	Monitors the level of achievement on all resettlement and compensatory aspects of the project, and also monitors the GSI specific targets.
Engineer	The construction supervision consultant. Oversight of all construction contracts. Carries out monitoring as required by the ESHSMP. Reviews and approves Contractors' monthly monitoring reports. Performs completion audits.	MCA-Nepal	Project Manager	Reviews and rejects or approves the Contractors' reports. Approves ESHS monitoring reports. Develops corrective action plans for the Contractors.
			Site Managers	Supervises and monitors the Contractors' technical works.
			Health and Safety Specialist	Monitors the Contractors' health and safety performance.
			Social Safeguards Specialist	Carries out monitoring of social aspects, including stakeholder engagement.
			Gender and Social Inclusion Specialist	Monitors and reviews Engineer's and Contractors' performance, undertakes GSI, TIP risks awareness training for both Engineer and Contractors.
			Environmental Specialist	Carries out monitoring of physical and biological environmental aspects of project activities.
			Geomorphologist/ Soil Conservation Specialist	Responsible for checking the conditions around aggregate sources and completed work sites.
Contractors	The design and build Contractors. Carry out internal monitoring to ensure compliance with the ESHSMP and any Contractor's plans approved by the Engineer and MCA-Nepal.	MCA-Nepal, usually via the Engineer.	Project Managers	Ensure that their companies achieve all of the ESHS requirements. Submit monitoring reports to MCA-Nepal via the Engineer. Devise and implement corrective measures as necessary.
			Site Managers	Ensure that all of the ESHS requirements are achieved on their allocated sites.
			Health and Safety Managers	Support their companies in achieving all of the health and safety requirements. Prepare monitoring reports to MCA-Nepal. Ensure that corrective measures are completed.
			Social Safeguards Managers	Support their companies in assuring that MCA-Nepal's social safeguards are applied fully. Prepare monitoring reports to MCA-Nepal. Ensure that corrective measures are completed.

Organisation	ESHS management responsibility	Reports to	Personnel requirements	Personnel roles
			Gender and Social Inclusion Managers	Support their companies in achieving all of the gender and social inclusion requirements. Prepare monitoring reports to MCA-Nepal. Ensure that corrective measures are completed.
			Environmental Managers	Support their companies in achieving all of the environmental requirements. Prepare monitoring reports to MCA-Nepal. Ensure that corrective measures are completed.
RAP implementation consultant	Implements RAP on behalf of MCA-Nepal.	MCA-Nepal	RAP Implementation Manager	Oversees and coordinates all RAP implementation-related activities. Carries out required monitoring. Produces monthly reports.
Millennium Challenge Corporation	Donor. Disburses funding for the project.	U.S. Government	MCC-Nepal Country Director	Primary contact between GON and MCC. Reviews and rejects or approves progress and monitoring reports.
			MCC-ESP Staff (Washington DC)	Review Reports, provides feedback to MCA-Nepal on MCC requirements
Ministry of Forests and Environment	Regulator. Responsible for checking compliance with environmental permit conditions. Also administers forest clearing and compensation.	GON	Environmental and Social Safeguards Specialists	Carries out external monitoring activities. Issues instructions to MCA-Nepal for any corrective actions considered necessary.
Department of Electricity Development	Host government entity. Responsible for ensuring that the project complies with the conditions in the environmental permit.	GON	Environmental and Social Safeguards Specialists	Carries out external monitoring activities. Provides feedback to MCA-Nepal on issues of concern for action to be taken.
President Chure Terai Madhesh Conservation Development Board	Agency responsible for conservation controls in some project areas.	GON	Environmental Specialists and Foresters	May carry out external monitoring and provide feedback to MCA-Nepal on issues of concern in its area of interest (i.e. the Chure and Terai).
Civil Aviation Authority	Agency responsible for administering aviation hazards.	GON	Technical Specialists	Carry out external monitoring activities. Provides feedback to MCA-Nepal on issues of concern so that MCA-Nepal can take action.

2.5 Impacts and Mitigation

Construction of the ETP will have various impacts on the physical, biological, and social environment. MCA-Nepal has worked to avoid and minimise many potential impacts through careful routing and design of the transmission line.

The sections below briefly describe the most significant project impacts and mitigation measures.

Physical resources

The project will have relatively minor impacts on most physical resources as described below, along with the mitigation measures required to ensure that the residual impacts are not significant.

Issue / impact	Mitigation measures
Erosion and landslides	● Implement site-specific erosion and sediment control measures as described in this ESHSMP. ● Minimise ground disturbing activities during the monsoon season. ● Limit clearing within the ROW by simply topping trees, leaving tree stumps, root systems, shrubs and the herbaceous layer intact, to stabilise the soil. ● Prohibit construction of new access roads to minimise forest clearing. ● Carefully segregate soils excavated for tower foundation construction, stockpile them and replace them once construction is complete. ● Provide appropriate storm drainage and direct drainage away from steep slopes and erodible areas.
Effects on air quality	● Limit clearing in the ROW to the extent possible. ● Stabilise disturbed areas as soon as possible after construction is completed. ● Cover excavated soils. ● Spray water on disturbed areas.
Effects on water resources	● Water sourcing: water may be withdrawn from local streams for the production of concrete for the tower foundations. Contractors are limited to withdrawing no more than 20 percent of the flow of small streams and springs; ● Aggregate sourcing: construction aggregate is needed for concrete production and will primarily be obtained from already permitted sources such as permitted quarries and district approved sand miners. For some remote towers, aggregate may be sourced locally, but riparian vegetation must be protected and no motorised vehicles are allowed within stream channels. Because of its environmental sensitivity and conservation status, sourcing of aggregates is prohibited in the Chure Conservation Area. ● Sewage and wastewater discharges: every Contractor will manage sewage and wastewater by providing pit toilets at all tower construction sites and septic systems at camps, laydown areas and at the three new substation sites. Wastewater discharges to streams are prohibited. ● Hazardous materials: the project will use hazardous materials such as diesel fuel for vehicles and generators, oils and lubricants, paint and cement. Contractor staff must be trained in the proper care, handling, storage, transport, and disposal of hazardous materials. Diesel storage tanks must be located at least 100 metres from any streams and must have secondary containment to contain any spills.
Noise	● Noise-generating activities will be prohibited between 10 pm and 6 am. To the extent helicopters will be used, the contractor will pre-notify nearby households and helicopter use will be limited to daylight hours, and with no flying on public and religious holidays.

Biological resources

Important biological resources affected by project construction and operation will include forests and other important habitats, and some species of conservation significance. These effects are summarised below, with the corresponding mitigation measures.

Issue / impact	Mitigation measures
Effects on forests and recognised areas for biodiversity	● Minimise forest clearing to tower construction sites and areas of the ROW where cable clearance above trees would not meet standards. ● Develop a new large tower type to allow the transmission lines to span longer distances over valleys, which again reduces the need to clear underlying forests. ● In remote or difficult to access areas, a helicopter will be used to deliver construction equipment and materials to minimise forest clearing for access. ● Compensatory forest plantation on a like for like basis (create an equal area of new habitat for the forest area disturbed). ● Minimise impacts to several critically endangered and endangered bird species found in some areas along the alignment

Issue / impact	Mitigation measures
Effects on important terrestrial species	● Shepherding protocols to be used to relocate less mobile fauna (e.g. pangolins, elongated tortoise) before clearing activities begin. ● Replanting disturbed areas with native species, employing sediment and erosion control measures, especially around rivers and steep slopes, and avoiding the introduction of invasive species. ● Worker education and enforcement of the Worker Code of Conduct will reduce the risk of hunting and poaching.
Effects on birds	● Transmission towers designed such that the lines are spaced further apart than the wingspan of the largest bird in Nepal (the Himalayan griffon), which effectively eliminates the risk of electrocution. ● Install bird diverters and marker balls on the transmission lines in areas where these birds are known to fly or migrate through.

Socio-economic conditions

Project activities, during the construction and operation phases, are likely to have both beneficial and adverse impacts on the socio-economic environment.

Beneficial impacts are as follows.

- Construction of the ETP will create over 7,300 full-time jobs over the 3.5-year construction period.
- It is estimated that Nepalese workers would fill about 80 percent of these jobs.
- Goods and services requirements through the project lifecycle will provide opportunities for local businesses in areas such as construction equipment, food for the worker camps, and support services.

Adverse impacts and the appropriate mitigation measures are listed below.

Issue / impact	Mitigation measures
Land acquisition and restrictions	● Acquire land in accordance with the provisions of the Land Acquisition Act, 1977 of GON. ● Obtain easement of land within the ROW subject to permanent restrictions in accordance with the provisions of the Electricity Act, 1992 in coordination with the District Compensation Fixation Committees (CFC).
Physical and economic displacement	● Pay compensation as per the provision in RPF and RAP. ● Implement a Livelihood Restoration Plan for displaced families or workers.
Effects on Community and Leasehold Forests	● Mitigate impacts through entitlements included in the RAP and livelihood support for vulnerable households.
Effects on community health, safety, and security	● Require proof of age for all employees. ● Implement a Workers Code of Conduct Policy. ● Implement a Traffic Management Plan. ● Prepare and implement TIP Risk Management Plan. ● Explain development restrictions on land within the ROW (e.g. prohibition on the construction of any houses).
Effects on indigenous, vulnerable, and disadvantaged people	● Provide trainings to staff and workers to raise awareness of the criminal nature of gender-based violence, sexual harassment and exploitation, trafficking in persons and other civil offences. ● Develop and implement TIP Risk Management Plan. ● Prohibit unfair and discriminatory hiring and payment practices based on gender, religion, caste, ethnicity and other social factors. ● Comply with the MCA-Nepal Social and Gender Integration Plan (SGIP). ● Develop and implement an Anti-Sexual Harassment Policy

The Workers' Code of Conduct requires respect for local customs and practices. It is also used to prohibit certain activities and emphasise the importance of non-involvement in a number of illegal activities. These include:

- hunting;
- collection of firewood;
- unauthorised clearing of vegetation;
- the collection of or trade in plants and animals;
- possession of illegal substances;
- abuse of drugs and alcohol;
- gambling;
- carrying of firearms;
- sexual harassment and sexual exploitation;
- demanding sexual relations with locals or sex in return of cash/kind;
- trafficking in persons; and
- involvement with prostitutes

In addition, the project will implement a Grievance Redress Mechanism which also includes anonymous reporting mechanism that allows stakeholders to raise concerns about MCA-Nepal's, the Engineer's and the contractors' environmental and social performances. Every Contractor must have an internal grievance reporting and management system including anonymous complaint system, agreed with MCA-Nepal which includes approved procedures to deal with allegations of sexual harassment, gender –based violence, and trafficking in persons.

3. RESPONSIBILITIES FOR IMPLEMENTING THE ESHSMP

The sections below summarise the main responsibilities of the organisations responsible for implementing and overseeing this ESHSMP. The detailed terms of reference for the individuals are given in Annex A.

3.1 Permitting and Regulations

MCA-Nepal is the proponent of the project and will obtain the environmental permit for the overall project. This permit is based on the designs, locations, construction methods, activities and materials described in the Environmental Impact Assessment. Any change to any aspect of these may lead to a need for the EIA and environmental permit to be revised. The environmental permit does not include the right to enter any area of land, to clear any forest or to ignore any law or regulation.

The forest clearance permit is separate from the environmental permit. This will also be obtained by MCA-Nepal for the whole project. It will cover only specified areas of forest at certain tower sites and in certain sections of the right of way where conductors will not be able to span trees with adequate clearance. Any change to these areas will require the forest clearance permit to be revised.

Every Contractor is responsible for determining what further permits are required and for obtaining them. These may include permits relating to aspects such as vehicles, waste and the sources of building aggregates. Permits may be needed from federal, provincial, district and municipality/rural municipality governments.

It is expected that sand and aggregates for construction will be obtained from a number of sources. It is each Contractor's responsibility to arrange these. Every material source must be covered by a valid environmental permit, a copy of which must be submitted to the Engineer with a request for approval of the use of that source. The Engineer must in turn obtain the approval of MCA-Nepal's ESP Specialist (Environment) for each source, and additional ESHS mitigation measures are likely to be required by MCA-Nepal before approval can be given.

No Contractor shall apply for further permits from the MOFE without first defining a need and obtaining the written approval of MCA-Nepal to initiate the permit request procedure.

3.2 Contractors

This ESHSMP specifies the minimum requirements for the safeguarding of all ESHS aspects of the project during the pre-construction and construction phases.

Each Contractor will prepare a Contractor's Environmental, Social, Health and Safety Management Plan (CESHSMP) that will state in detail how the provisions of this ESHSMP will be implemented by that Contractor on its specific parts of the project site, given that Contractor's actual tasks and methods. It is expected that every CESHSMP will incorporate sections of this document to avoid duplication and ensure alignment. Each CESHSMP will be reviewed and changes required if necessary before approval by both the Engineer and MCA-Nepal. Full approval must be obtained at least one month before the Contractor starts any site activities, including any access to land or preparations for the establishment of ancillary facilities such as camps and laydown areas.

Every CESHSMP must contain, in addition to all relevant components of this ESHSMP, Contractor-specific plans that cover:

- Spill response and clean-up; and
- Response plans for emergencies.

The general development and approval process for each CESHSMP is as follows.

- The Contractor will develop a detailed draft CESHSMP, using this ESHSMP to establish the minimum MCA-Nepal requirements.
- The Contractor will provide the draft CESHSMP to the Engineer for its review.
- The Engineer will review the draft and provide comments to the Contractor.
- The Contractor will address all comments provided by the Engineer and provide a revised draft CESHSMP which the Engineer will check and send with its recommendation to MCA-Nepal for its review.

- MCA-Nepal will review and, if acceptable, approve the CESHSMP, with further comments and revisions if necessary.
- Hard and soft signed copies of the final CESHSMP will be distributed among MCA-Nepal, the Engineer and the Contractor for use.

The ESHSMP-related responsibilities of the Contractor are as follows.

- Develop a draft CESHSMP, which addresses all applicable construction phase ESHS commitments based on the compliance register of MCA-Nepal that will be part of its environmental and social management system.
- Maintain copies of the current approved CESHSMP at all central and site offices at all times.
- Follow the management of change process described in section 3.10 for any changes to the CESHSMP;
- Include language requiring full compliance with this ESHSMP and the relevant CESHSMP in all subcontracts related to the project. If a subcontractor proposes any changes to the current approved CESHSMP, those changes must go through the management of change process.
- Provide appropriate training at all levels of management, staff and workforce to assure that its personnel understand the requirements of the CESHSMP.
- Ensure all new project personnel receive ESHS training as part of their induction process as described in section 6.2 of this ESHSMP.
- Provide written verification (induction sign-off) that all new personnel have completed the project induction, understand their ESHS obligations and commit to comply with them.
- Employ staff qualified in all topics of ESHS – including gender and inclusion - to oversee the project's ESHS measures.
- Ensure that ESHS staffing and resources are adequate, commensurate with the magnitude and timing of work and potential ESHS risks.
- Construct the project in accordance with the ESMS, ESIA, EIA, ESHSMP and the CESHSMP.
- Comply with and operate the MCA-Nepal's Grievance Redress Mechanism.
- Erect notification boards at all construction sites providing information for the local communities about the project, and instructions on how to lodge any grievances or make suggestions, along with contact information for the site managers and ESHS staff. Complaint box must be placed in workers' accessible locations.
- Establish an employees' grievance mechanism that complies with IFC Performance Standard 2, to provide a way for workers to file grievances or make suggestions. This will contain specific procedures for actioning investigations into allegations of sexual harassment, GBV, work/labourer related concerns etc.
- Notify the Engineer and MCA-Nepal of all incidents and accidents in accordance with the requirements of the ESHSMP. For allegations of sexual harassment, TIP, the Engineer's Gender and Social Inclusion Specialist must be informed immediately and responded within 24 hours and report to MCC within 24 hours of becoming aware of TIP incidents.
- Monitor and report on the ESHS performance of the project during construction as described in section 11.1 of this ESHSMP.
- Participate in regular ESHS performance meetings with the Engineer and MCA-Nepal, as required, to review ESHS performance.
- Proactively implement corrective actions to address any situations where the requirements of the ESHSMP are not being met.
- Retain documentation of project compliance to facilitate ESHS compliance audits.
- Cooperate fully with all compliance audits conducted by or on behalf of the engineer, MCA-Nepal, MCC or a government regulatory agency.
- Cooperate fully and implement any corrective actions required by the Engineer or MCA-Nepal, to address all situations where the requirements of the ESHSMP or the laws of Nepal are not being met.

The required minimum numbers of Contractors' ESHS staff to be provided from pre-construction to site handover, according to activity, are as shown in the table below.

Supplier	Senior specialism	Number	Mid-level specialism	Number
Contractors	Health and Safety Manager	1 per contract	Health and Safety Superintendents	Substations: 1 per substation Tower foundations: 1 per 50 km covering tower foundations, erection and conductor stringing
	Social Safeguards Manager	1 per contract	Social, Gender and Inclusion Safeguards Superintendents and Assistants	1 of each per substation 1 of each per TL segment, covering tower sites, laydown areas, etc.
	Gender and Social Inclusion Manager	1 per contract		
	Environmental Manager	1 per contract	Environmental Superintendents	1 per substation 1 per 50 km of TL, covering tower sites, laydown areas, etc.

The minimum qualifications for the various categories of staff are as given below.

Sector	Required managers' qualifications	Required superintendents' qualifications
Health and safety	● Bachelor degree in engineering / environmental science (or equivalent) ● Minimum of 8 years site experience as Safety Officer /Site Engineer in any Transmission Line construction work (132 kV and above) ● Certificate / training in health and safety ● Working knowledge in Nepali, Hindi and English.	● Bachelor degree in engineering / environmental science (or equivalent) / or diploma in engineering ● Minimum of 2 years' site experience as Safety Officer /Site Engineer in any Transmission Line construction work (132 kV and above) ● Certificate / training in health and safety is preferred. ● Working knowledge in Nepali, Hindi and English.
Social Safeguards	● Master or Bachelor degree in social science / human geography (or equivalent) ● Minimum of 8 years relevant site experience in any linear projects construction work ● At least 4 years of site experience in general social safeguarding and resettlement activities ● Working knowledge in Nepali, Hindi and English.	Social, Gender and Inclusion Safeguards *Superintendents* ● Master or Bachelor degree or diploma in social science / human geography (or equivalent) ● Minimum of 3 years' experience and 1 year's site experience in any linear project construction work ● Working knowledge in Nepali, Hindi and English.
Gender and Social Inclusion Safeguards	● Master or Bachelor degree in social science / human geography (or equivalent) ● Minimum of 8 years relevant site experience in any linear projects construction work ● At least 4 years of site experience specifically addressing social and gender inclusion issues including but not limited to TIP, sexual harassment and the promotion of anti-discrimination practices. ● Working knowledge in Nepali, Hindi and English.	Social, Gender and Inclusion Safeguards *Assistants* ● SLC or diploma in community mobilization/social science / human geography (or equivalent) ● Minimum of 1 year's site experience in any construction project ● Working knowledge in Nepali and at least one local language.
Environmental safeguards	● Master or Bachelor degree in physical geography / natural science / environmental science ● Minimum of 8 years site experience in any Transmission Line/substation construction work ● Working knowledge in Nepali, Hindi and English.	● Master Bachelor degree or diploma in physical geography / natural science / environmental science ● Minimum of 2 years' site experience in any Transmission Line / substation construction work ● Working knowledge in Nepali, Hindi and English.

The frequency and duration for the presence of the Contractor's ESHS staff on site, and for which activities they must be present, shall be agreed with the Engineer. This site attendance protocol shall be submitted to MCA-Nepal for approval. The extent to which it is achieved shall be included in Monthly ESHS Reports.

3.3 The Engineer

The Engineer is the consultant engineering company tasked with supervising the quality of design and construction on behalf of MCA-Nepal. The Engineer will have a technical team responsible for overseeing the actual engineering and construction, and an ESHS team responsible for overseeing the implementation of the mitigation measures for all environmental, social, health and safety aspects as described in this ESHSMP.

- Provide information to MCA-Nepal to maintain its Environmental, Social, Health and Safety compliance register as part of its environmental and social management system, which includes all project commitments in response to government approvals, MCC standards, MCA-Nepal requirements and agreements with local communities.
- Review, request changes as necessary and recommend MCA-Nepal to approve every Contractor's CESHSMP.
- Comply with the management of change process described in section 3.10 for any changes required to the ESHSMP.
- Provide appropriate training at all levels of management, staff and workforce to assure that its personnel understand the requirements of the CESHSMP.
- Ensure all new project personnel receive ESHS training as part of their induction process as described in section 6.2 of this ESHSMP.
- Provide written verification (induction sign-off) that all new personnel have completed the project induction, understand their ESHS obligations and commit to comply with them.
- Employ staff qualified in all topics of ESHS to oversee the Contractors' ESHS measures.
- Ensure that ESHS staffing and resources are adequate, commensurate with the magnitude and timing of work and potential ESHS risks.
- Supervise the construction of the project in accordance with the ESMS, EIA, ESIA, ESHSMP and the CESHSMP.
- Comply with the MCA-Nepal's Grievance Redress Mechanism. Hold the custody of the Complaint Box placed in Contractor's work place.
- Monitor Contractors' ESHS performance and ensure they monitor their own and all subcontractors' ESHS performance throughout construction, including mobilisation and site closure.
- Report on the ESHS performance of the project during construction as described in section 11.2 of this ESHSMP.
- Hold regular meetings with all Contractors to review ESHS performance.
- Proactively instruct corrective actions to address any situations where the requirements of the ESHSMP are not being met. Issue non-compliance and corrective action orders, including stop work and stop task orders according to the provisions in section 11.4 of this ESHSMP.
- Notify MCA-Nepal of all instructions relating to non-compliance.
- Retain documentation of project compliance to facilitate ESHS compliance audits.
- Co-operate fully with all compliance audits conducted by or on behalf of MCA-Nepal, government regulatory agencies and the MCC.

The required minimum numbers of the Engineer's ESHS staff to be provided from pre-construction to site handover are as shown in the table below. The qualifications should be similar to those defined for contractors in section 3.2.

Supplier	Senior specialism	Number	Mid-level specialism	Number
Engineer	Health and Safety Specialist	1 [Note; this task may instead be allocated among Engineer's senior team]	Health and Safety Officers	4, allocated between SS (1) and TL (3) according to activities
	Social Safeguards Specialist	1 overall	Social, Gender and Inclusion Safeguards Officers	4, allocated between SS (1) and TL(3) according to activities
	Gender and Social Inclusion Specialist	1 overall		
	Environmental Specialist	1 overall	Environmental Officers, different technical areas (physical, biological, etc.)	4, allocated between SS (1) and TL (3) according to activities

The frequency and duration for the presence of the Engineer's and the Contractors' ESHS staff on site, and for which activities they must be present, shall be agreed between the Engineer and each Contractor. These site

attendance protocols shall be submitted to MCA-Nepal for approval. The extent to which they are achieved shall be included in Monthly ESHS Reports.

3.4 Millennium Challenge Account - Nepal

MCA-Nepal is the client, employer and proponent of the project. Under the environmental permit issued by the MOFE, it is to be obligated to uphold the ESHS standards defined in this ESHSMP, for the activities described in the EIA.

- Include language in all contracts that requires the Contractor to comply with the latest approved ESHSMP, RAP and RAP-ISP.
- Prepare and maintain an Environmental, Social, Health and Safety compliance register as part of the environmental and social management system, which includes all project commitments in response to government approvals, MCC standards, MCA-Nepal requirements and agreements with local communities.
- Review, request changes as necessary and approve every Contractor's CESHSMP.
- Operate the management of change process described in section 3.10 for any changes required to the ESHSMP.
- Monitor Contractors' ESHS performance and ensure they monitor their own and all subcontractors' ESHS performance throughout construction, including mobilisation and site closure.
- Hold regular meetings with the Engineer and all Contractors to review ESHS performance.
- Notify the Engineer of the need for any corrective actions by the Contractors.
- Instruct the Engineer to issue non-compliance and corrective action orders, including stop work and stop task orders, according to the provisions in section 11.4 of this ESHSMP.
- Co-operate fully with all compliance audits conducted by or on behalf of government regulatory agencies and the MCC.

3.5 RAP Implementation Consultant

The Resettlement Policy Framework (RPF) specifies the Resettlement Action Plans (RAP) for all aspects of the resettlement process, which are required to be implemented before and complied with during the pre-construction and construction phases of the project. This section describes the process for implementing the RAP and for approving, and where needed, modifying the RAP, and each party's responsibilities relating to the RAP.

The general development and approval process is as follows:

- The RAP Implementation Consultant will develop a detailed draft RAP Implementation Schedule Plan (RAP-ISP), using the agreed RAPs which establish the minimum MCA-Nepal requirements;
- The RAP Implementation Consultant will provide the draft RAP-ISP to MCA-Nepal for its review;
- MCA-Nepal will provide comments to the RAP Implementation Consultant;
- The RAP Implementation Consultant will address all comments provided by MCA-Nepal and provide a final RAP-ISP to MCA-Nepal for its review;
- MCA-Nepal will review and, if acceptable, approve the final RAP-ISP; and
- Hard and soft signed copies of the final RAP-ISP will be distributed by the RAP Implementation Consultant to all relevant project offices including the District Public Information Offices.

The list below indicates the RAP-related responsibilities of the Resettlement Implementation Consultant.

- Develop a draft RAP-ISP, which addresses all applicable pre-construction and construction phase RAP commitments, and revise it as needed in order to obtain MCA-Nepal approval.
- Maintain a copy of the current approved RAP and RAP-ISP at the construction site management office at all times.
- Follow the management of change process described in section 3.10 for any changes to the RAP-ISP.
- Provide appropriate training so as to assure that the workforce understands the requirements of the RAP and RAP-ISP.
- Implement the RAP in accordance with the RAP-ISP and the ESHSMP.
- Comply with the MCA-Nepal's Grievance Redress Mechanism, ensuring that all resettlement-related grievances are addressed by the system.
- Provide material at regularly updated times and take responsibility for placing on the notification boards at all construction sites, information for the local communities about the Project, as well as instructions on

how to log any grievances or make suggestions along with contact information for the site managers, and ESHS staff. Record all such actions.
- Participate in regular performance meetings with the MCA-Nepal to review RAP-ISP performance.
- Retain documentation of project compliance with the RAP, RAP-ISP and related sections of the ESHSMP to facilitate MCA-Nepal compliance audits.
- Cooperate fully with all compliance audits conducted by or on behalf of MCA-Nepal, MCC and government regulatory agencies.

3.6 Millennium Challenge Corporation

As a public sector donor, the MCC must ensure that the project meets the standards that underlie its policies. Its Environmental and Social Protection staff are obliged to monitor the ETP and ensure that it complies with all aspects of this ESHSMP. Failure to do so will effectively infringe the conditions of the Compact signed with the Government of Nepal.

3.7 Ministry of Forests and Environment

MOFE is the national regulator for environmental and social compliance by all industries and development activities on behalf of the government and as defined in the environmental protection legislation. For monitoring, its main source of information is from the reports that are specified in management plans such as this ESHSMP. However, it may also either undertake its own monitoring of the project or might commission an independent review or audit. Having issued the environmental permit with appropriate conditions, MOFE will need to ensure that the project remains compliant.

3.8 Department of Electricity Development

The government agency responsible for the industrial context of the ETP is the DOED. Although the MCA-Nepal reports to the Ministry of Finance, for technical regulation it is answerable to DOED. This department has its own environmental and social unit, and may monitor the project's compliance with the ESHSMP and adherence to the conditions of its environmental permit.

3.9 Capacity Building and Training

Several capacity and occupational enhancement trainings may be demanded by the project affected communities. The project proponent or contractors are responsible for implementation of such need-based trainings according to the nature of the topic and the community demand. Some of the trainings are likely to be along the following lines:

- Trainings and awareness campaigns on expected worker behaviour standards, TIP, HIV/AIDS, STD, nutrition and sanitation;
- Conservation of wildlife and forests;
- Agricultural assistance and modern farming;
- Skill enhancement trainings on animal husbandry, carpentry, eco-tourism, house-wiring, home-stays, etc. as per locals' opportunities and occupations, especially to promote women's employment;
- Capacity building on income generating programmes as mushroom farming, fisheries, pig farming, etc.;
- Trainings on control of forest fires;
- Nursery establishment and the use of Community Forest products;
- Capacity building for emergency preparedness on natural calamities such as landslides, floods, earthquakes, etc.;
- Capacity building in financial literacy and savings, targeting individuals with low levels of literacy and ability to save, especially women and socially-excluded groups; and
- Supportive programs for nature conservation to CFUGs and LFUGs.

3.10 Management of Change

A need may arise to modify the ESHSMP. This section establishes the change management requirements for all such changes.

It is anticipated that most of the proposed changes to the ESHSMP will be initiated by the Contractors. However, the system also allows for the Engineer and MCA-Nepal to propose changes when it is reasonably likely that the current ESHSMP is not sufficient to prevent:

- Serious health and safety incidents;
- Impacts above those disclosed in the EIA/ESIA;
- New impacts not disclosed in the EIA/ESIA;
- Violation of Nepal's law; and
- Non-compliance with MCA-Nepal requirements.

The list below defines three categories of potential changes to the ESHSMP.

- Changes that have the potential to, or are reasonably likely to, result in decreased Contractors' ESHS performance, or are likely to result in an increase in ESHS impacts above those disclosed in the EIA, result in new impacts not disclosed in the EIA, require the acquisition of rights to use additional lands, or require additional permits or approvals from the government.
- Changes which have the potential to, or are reasonably likely to result in, decreased Contractors' ESHS performance, but are unlikely to result in any increase in ESHS impacts above those described in the EIA, or result in new impacts not described in the EIA, or require the acquisition of rights to use additional lands.
- Changes that are expected to result in similar or improved ESHS performance and are unlikely to result in any increase in environmental or social impacts above those described in the EIA.

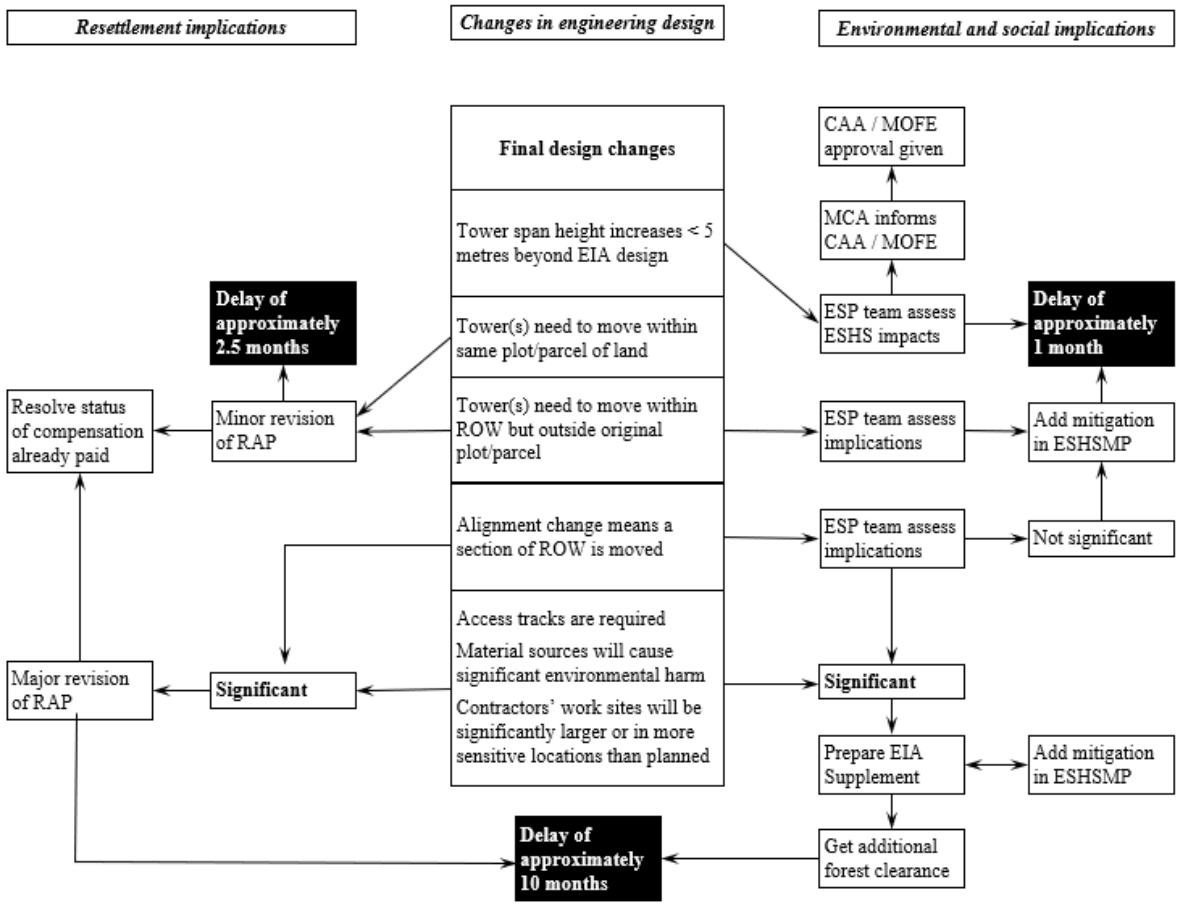
The review and approval process is given below.

1. The Contractor will notify the Engineer in a formal written submission of the proposed change and provide the rationale and justification for the change.
2. The Engineer shall review the submission, add comments and pass the request with a recommendation to MCA-Nepal.
3. MCA-Nepal will consider and consult on the matter, and take action accordingly.
4. If MCA-Nepal agrees with the request, it will modify the ESHSMP and issue an updated version.
5. Some changes may require MCA-Nepal to seek the approval of the MOFE, where they are affected by the conclusions of the EIA or the conditions of the environmental permit. In this event, MCA-Nepal will obtain formal approval from MOFE before modifying and re-issuing the ESHSMP.

Contractors are required to maintain a copy of the current version of the ESHSMP at their central and construction site offices at all times. Every Contractor is to understand that MCA-Nepal and the Engineer will use the current version of the ESHSMP as the basis for conducting their monitoring inspections.

The flow chart given below gives an indication of the time implications of changes in design and approach.

Flow chart of implications of engineering design



4. KEY SOCIAL SAFEGUARDS SUPPORTING THE ESHSMP

This section provides a brief overview of the separate safeguard plans that the project must implement in parallel to this ESHSMP.

4.1 Stakeholder Engagement and Community Consultation

MCA-Nepal has prepared and commenced implementation of a project Stakeholder Engagement Plan (SEP) and community consultation process to guide all interactions between project personnel and the neighbouring communities. The SEP and consultation process are to be continued through the pre-construction and construction phases by all parties including contractors. They must cover all communities where land is being permanently acquired (land under tower pads, substations and substation access roads), and where use restrictions apply within the transmission line rights of way. However, the community consultations are not limited to land acquisition only, it should also cover the communities from around the project footprints where there chances of trafficking risks and the community consultations should include relevant topics on TIP, sexual harassment, gender-based discrimination among others.

This SEP and consultation process must be used to direct, determine, record and monitor all interactions with the communities, whether they are affected by the construction activities or not. They are compliant with IFC Performance Standard 5 and must be used to direct all community interactions to ensure international best practice in communicating with stakeholders and communities. Maintaining high standards of communication is vital to reduce project delays and prevent the generation of additional grievances. Continuity of use of these approaches over the project life will contribute to the success of the project through consistent practices, recording and problem solving mechanisms.

The SEP and community consultation process are based on the following:

- Applicable local and national social safeguards and regulations of the Government of Nepal on land acquisition, compensation and resettlement for permanent land acquisition and rights of way;
- National Policy on Land Acquisition, Compensation and Resettlement in Development Projects in Nepal (formal cabinet approval given in July 2016);
- IFC Performance Standard 1 on Environmental and Social Sustainability, IFC Performance Standard 5 on Land Acquisition and Involuntary Resettlement (and IFC Performance Standard 7 on Indigenous Peoples as appropriate);
- Guidelines applicable for MCA-Nepal (i.e. MCC Environmental Guidelines 2010 and MCC Gender Policy 2011); and
- MCA-Nepal's Social and Gender Inclusion Plan and Resettlement Policy Framework

The implementation of the SEP and community consultation process that must be implemented by contractors are described in procedures in Annexes D.01, 4.1b and 4.1c.

4.2 Resettlement and Compensation

General

MCA-Nepal is to prepare Resettlement Action Plans (RAP) covering all areas where land is being permanently acquired under tower pads, substations and substation access roads, and where land use restrictions apply within the transmission line rights of way. All RAP will be based on the project's Resettlement Policy Framework (RPF), and will include Livelihoods Restoration Plans (LRP).
Four RAP will be prepared, as follows:

- RAP Package 1: Ratmate Substation;
- RAP Package 2: Segment from India Border to New Damauli;
- RAP Package 3: Segment from New Damauli to Ratmate; and
- RAP Package 4: Segment from New Hetauda (via Ratmate) to Lapsiphedi.

The purpose of implementing a Resettlement Action Plan is to mitigate and manage the adverse impacts of physical and economic displacement on people that result from permanent land acquisition and restrictions of land use within the transmission line right of way. It applies to all land that is privately owned and used.

All RAP prepared for the project have been guided by the RPF. This policy document was developed for the project and is based on the following standards:

- Land Acquisition Act (1977), rules and regulations of the Government of Nepal on land acquisition, compensation and resettlement for permanent land acquisition and rights of way;
- National Policy on Land Acquisition, Compensation and Resettlement in Development Projects in Nepal (formal cabinet approval given in July 2016);
- IFC Performance Standard 5 on Land Acquisition and Involuntary Resettlement (and IFC Performance Standard 7 on Indigenous Peoples as appropriate); and
- Guidelines applicable for MCA-Nepal (i.e. MCC Environmental Guidelines 2010 and MCC Gender Policy 2011).

Key elements

MCA-Nepal will implement resettlement planning and implementation in line with international standards as outlined in the RPF. Key aspects are:

- Payment of compensation to replace land, assets thereon, incomes and livelihoods linked to the project's impacts on, or use of land and natural resources, irrespective of the legal recognition of land tenure and based on replacement cost;
- Rental of lands needed for temporary periods with compensation for losses and land rehabilitation;
- Restoration (at a minimum) or improvement of the livelihoods and standards of living of affected people, families and communities; and
- Improvements in living conditions among physically displaced households through the provision of adequate housing with security of tenure at resettlement sites.

The RPF provides an overview of entitlements and an approach to integrate resettlement-planning safeguards into the land acquisition process to be implemented by MCA-Nepal and the GON. The document also includes an overview of the project's affected communities, screening of involuntary resettlement and livelihood impacts, the proposed entitlement matrix, institutional arrangements (including principles for market valuation to arrive at a fair 'replacement cost' of affected land and asset categories) along with a monitoring and evaluation framework.

The RPF mandates the use of the project wide Grievance Redress Mechanism, described in section 4.5 of this ESHSMP. The procedure is given in Annex D.04 that must be used for ***all project induced grievances received by all project entities and contractors***. The project wide approach is needed to ensure all grievances are addressed in an integrated, international best practice standard to ensure quick and efficient response, full recording and reporting.

RAP (and LRP) implementation preparation

Each of the four RAP include rehabilitation measures, an LRP, and gender and social inclusion safeguards specific to a particular local context. Each RAP includes an implementation schedule covering resettlement activities, dates for the legal process, suggested land access timelines and provision of compensation, and the clearing of the right of way.

MCA-Nepal will coordinate the resettlement planning (in terms of development of the RAP and Household Entitlement Plans for each RAP Package) with the land acquisition process and notifications that are required in accordance to the Land Acquisition Act 1977. MCA-Nepal will also assist the Government of Nepal to document the process, and will minimise the involvement of any intermediaries, aggregators and land consolidators during the land access process.

All Contractors must follow MCA-Nepal's commitment that no physical or economic displacement of the project affected households will occur until:

- *compensation has been paid at full replacement cost; and*
- *there is a formal agreement with each household on the timelines and disbursement of all other entitlements as per their eligibility:*
- *A Resettlement Completion Verification Report has been completed and accepted and*
- *A Land Access Release Permit issued per plot.*

If additional land or a variation in land acquisition is needed beyond that obtained under the RAP, the official GON Procedure described in Protocol D.06 in this ESHSMP for land acquisition must be followed. Contractors must be aware that additional acquisition can take between 2.5 and 12 months to complete, depending on whether the land is already covered by the EIA for the project, how many plots are required and the complexities of resolving compensation entitlement, valuation of assets, ownership, loans and mortgage encumbrances for each plot.

Protocols D.07a and D.07b in this ESHSMP cover the process for access to temporary usage for less than 6 months and a lease agreement for more than 6 months.

A formal sign-off process is required to indicate the completion of resettlement and allow access to the plot. This is discussed in section 5.15 and Annex D.08.

4.3 Livelihoods Restoration Plans

Livelihood Restoration Plans (LRP) are required under IFC Performance Standard 5 for all those affected households whose economic or physical displacement threatens their economic security and future livelihoods. The LRP developed for each RAP focus on:

- Replacing agricultural land and livelihoods;
- Enhancing agricultural productivity, yields, knowledge and advice;
- Skills-based vocational training with entrepreneurial support; and
- Life and financial skills to support the change process and ensure sustainability of livelihood restoration.

The LRP will be developed further during the pre-construction phase and implemented at the same time as compensation is paid for losses, and replacement land and structures made available. The intention is to hire third party organisations to implement the LRP. The LRP for each project-affected person has to be in process before sign-off for the completion of resettlement can take place and land access agreed for the Contractor.

4.4 Indigenous Peoples

Indigenous peoples may be particularly vulnerable to the adverse impacts associated with project development, including risk of impoverishment and loss of identity, culture, and natural resource-based livelihoods. MCC policy requires adherence to IFC Performance Standard 7, which seeks to ensure that business activities minimise negative impacts, foster respect for human rights, dignity and culture of indigenous populations, and promote development benefits in culturally appropriate ways. Informed consultation and participation (ICP) with indigenous peoples throughout the project process is a core requirement of the standard, and may include Free, Prior and Informed Consent (FPIC) under certain circumstances.

In Nepal the definition of indigenous peoples is generally broader than that used internationally, but some groups fall under both definitions. To avoid confusion and future disputes, the approach used by MCA-Nepal is to follow a community consultation process that is compliant with Performance standard 7 as a matter of routine throughout the project.

The SEP for the project sets out the expectations for contractor's communications with all communities and additional requirements for interactions with Indigenous Peoples.

4.5 Grievance Redress Mechanism

The grievance redress mechanism (GRM) is part of the project SEP and covers all phases of the project must be used by all Contractors throughout the pre-construction and construction phases. The process is coordinated through MCA-Nepal, which will receive and supervise resolution of all grievance notifications through the procedure given in Annex D.04. This process must be used by all parties to ensure high standards of grievance resolution and efficient, timely and effective response. This approach is to reduce delays in project implementation, enhance the reputations of all parties and ensure a high quality of grievance resolution.

The Social Safeguard, Gender and Social Inclusion Manager for each Contractor is required to implement the prescribed process for receiving grievance notifications and participating in their resolution. The SEP sets out the process to:

- Accept and acknowledge receipt of a grievance also that are received from anonymous complaint mechanisms;
- Document the grievance on the agreed forms;
- Notify the MCA-Nepal Grievance Redress Coordinator (GRC);
- Record and number the grievance as per the MCA-Nepal GRC's instruction;
- Accept delegated responsibility to investigate the grievance;
- Participate in discussions over responses and agreeing the outcome at which every tier of response is needed;
- Implementing the decision;
- Informing the claimant
- Documenting the process;
- Submitting the resolution to the MCA-Nepal GRC; and
- Closure of the grievance.

Contractors are required to have an internal grievance procedure for managing and resolving internal company complaints.

This internal grievance procedure must include special procedures for managing allegations of sexual harassment, abuse and violence (SEA / GBV) that protect the alleged victim and which meets MCC policies on Gender and Social Inclusion and on Countering Trafficking in Persons. To this end, allegations of sexual harassment, abuse or violence must be reported to both the MCA-Nepal and the Engineer's GSI team within 24 hours.

Contractors are required to operate a dropbox system for anonymous complaints including SEA/GBV allegations, as detailed in Protocol D.05 in this ESHSMP.

4.6 Social and Gender Inclusion

All projects and activities supported by MCC must take proactive measures to enhance gender and social inclusion.

MCA-Nepal's Social and Gender Integration Plan (SGIP) is the operational and management document for ensuring the integration of gender and social inclusion in Compact projects and activities, and monitoring performance and results. The SGIP analyses social and gender-based constraints and risks, and identifies opportunities for preventing and mitigating risks while enhancing benefits for women, socially excluded, vulnerable and marginalised groups, including traditionally excluded castes and ethnicities. The findings and recommendations are based on a comprehensive review of national and international reports and available data as well as consultations with key stakeholders, including government agencies, non-governmental organisations, civil society organisations, communities, and project-affected people.

The SGIP identifies enabling provisions for inclusive stakeholder engagement and benefit-sharing as well as GSI-responsive and inclusive procedures and approaches to support non-discriminatory outcomes in resettlement, livelihoods restoration, during the consultation and engagement and compensation packages. It also provides guidance on mitigating risks from trafficking in persons (TIP) and sexual exploitation based on MCC's Counter-TIP Policy and Gender Policy as well as key GON legislation on the protection of women, prevention of child labour and trafficking of persons. The SGIP Action Plan contained within the SGIP is the guiding document for key GSI activities. It outlines objectives and activities as well as monitoring responsibilities and timelines.

The SGIP includes provisions that require compliance by Contractors, including:

- Mandating equal pay and benefits for men and women performing the same work;
- Encouraging the employment of women in at least 33 percent of skilled, semi-skilled and unskilled jobs including women sub-contractors;
- Preventing the employment of children under the age of 18 (apart from 15 to 17-year olds employed in non-hazardous conditions);
- Prohibiting the charging of employment access fees by gang leaders and labour recruiters;
- Prohibiting the preference or exclusion of employment of persons on the basis of gender, ethnicity, caste, region status and sexual orientation;
- Ensuring that the MCC Policy on Counter-Trafficking in Persons is complied with in terms of employment conditions and in prohibiting the transport of non-employees in Contractors' vehicles, sex

trafficking and soliciting and engaging children for sex;

- Ensuring that an anonymous complaint system is in place using a dropbox facility at each work place that can receive complaints of SEA/GBV and be investigated in compliance with the MCC policies. Annex D.05;as an interim measure until the updating of the CTIP policy, ensuring that an anonymous complaint system is in place using the dropbox facility at each work place that can receive signed or anonymous complaints of SEA / GBV and TIP, and be investigated in compliance with the MCC policies as described in Annex D.05;
- Mandating a Workforce Management Plan to ensure compliance with MCC policy and IFC-PS2;
- Mandating and enforcing a Worker Code of Conduct Procedure, as detailed in Annex D.15, which requires workers to behave in ways that do not offend local communities or increase negative impacts caused by drinking, gambling, illegal drugs, prostitution, sexual harassment, exploitation or violence to women and children.
- Provide separate works standard accommodation camps and separate toilet facilities to women and men.
- Provide separate toilet facilities to women and men at work site.
- Ensure women and historically marginalized groups are provided with safety gear.
- Provide transport facility to women workers.
- Development and implementation of Anti-Sexual Harassment Policy, TIP Risk Management Plan.
- Mandating and enforcing an internal employee grievance mechanism for each Contractor to enable the reporting and investigation into allegations of sexual harassment, gender based violence, etc.

4.7 MCA Partnership Programme

The MCA Partnership program is the benefit sharing component of ETP. It incorporates the Community Support Programs that are typically undertaken by electricity sector projects in Nepal. The objective of the MCA Partnership program is to build trust, rapport and share project benefits with the communities affected by project activities. This is expected to help develop relationships with the project communities to build trust and rapport that will smooth project completion.

The objectives of MCA Partnership program are the following:

- To ensure that direct project-related benefits are accrued by the project communities by increasing access to energy and maximising the use of energy for productive purposes; and
- To help build relationships with the project communities for the timely completion of the project.

Although the electricity transmitted through the lines that the ETP constructs cannot be directly supplied to the project communities, the MCA Partnership program will work towards providing adequate and reliable electricity through either grid-connected distribution system extensions or improvements, or through off-grid electricity solutions. In addition, the MCA Partnership program will promote productive uses of electricity to enhance the quality of life and livelihoods for communities in and around the project area.

5. CONSTRUCTION SITE MANAGEMENT IN THE ESHSMP - OVERVIEW

This section provides an overview of ESHS management in relation to the main project activity sites.

5.1 Permanent Land Access

Land acquired for the project can only be accessed once the acquisition and resettlement process is complete. The ETP has a formal sign off process to indicate the completing of resettlement and allowing of access to the plot. The dangers of escalating grievances caused by contractors entering and utilising unacquired plots represent a project risk that is easily avoidable by adherence to the RAP process and land access release procedure that is applicable to all contractors entering acquired land.

The Land Access Release Procedure (Annex C.5.1) states the conditions necessary and the steps to be followed to verify that resettlement of land acquired permanently has been completed to the required status before any Contractor can be permitted to enter the land for works. These will be coordinated by MCA-Nepal against the construction programme and works contracts to ensure a smooth transition and land access for contractors.

These conditions are:

- Payment of all compensation;
- Replacement of land if required: this involves the permanent acquisition of replacement land and the relocation of the PAP to be completed;
- Relocation to permanent or temporary buildings if the previous house is to be demolished;
- Enrolment in livelihood programmes and the commencement of the programmes; and
- Transition allowances paid and vulnerability assessed.

Once the resettlement for PAPs has reached this stage, MCA-Nepal will hire a third party organisation to verify completion of resettlement. On completion of the verification survey, the third party organisation and MCA-Nepal will sign the Land Access Release Permit for each affected plot and formally record the transfer of the release forms.

The Permit consists of both an electronic record and a physical paper that contains the plot reference number, a map and boundaries of the acquisition, GPS coordinates, and the names of the former owners, and indicates ways of entering the plot. The Land Access Release Permit forms the basis of the Work Land Access Release Permit that contractors must use when managing works.

Should any Contractor discover the need for the ETP to acquire additional land, the Contractor must engage with MCA-Nepal and request MCA-Nepal to acquire the area. Depending on the circumstances this may take 2 to 12 months and represents the potential for causing considerable delay.

All contractors are required to have a Work Management Plan within which it is mandated that there must be a Work Land Access Release Permit. This must be issued daily or per task alongside the job card, and must be carried by all work team leaders. It will clearly identify which land the contractor has access to by plot, and the works that may be carried out according to the acquisition rights or lease arrangement. This permit requirement prevents accidental incursion on unacquired land and accidental damage to property and crops as a result of not knowing precisely where movement and activities are allowed. The Work Land Access Release Permit is given in Annex C.5.3.

5.2 Acquisition of New Land

In contracts where the final design is not complete before land acquisition is needed, the situation arises whereby further land has to be acquired to facilitate the construction of the final design.

All new land has to be acquired by the official GoN land acquisition process as set out in the Land Acquisition Act (1977) and as laid out in the Resettlement Policy Framework for the project. A new Resettlement Action Plan process has to be undertaken incorporating all stages of assessment, valuation, agreement, payment and relocation which can take between 2-12 months to fulfil. The potential for delay is high and so requests to acquire new plots need careful consideration against the design difficulties that have triggered the request.

In the event that new acquisition is required, the contractor must liaise with the Land Acquisition Officer (LAO) of MCA-Nepal to agree the process whereupon the LAO must trigger a new acquisition. The land may not be entered prior to acquisition but must await the release of the Land Release Permit for the plot.

5.3 Temporary Land Access

Land will be needed temporarily for a range of purposes. Differing requirements exist for rentals of plots for less than six months as against leases for longer periods. Temporary access may be for activities such as tower construction or stringing works.

Land used by a Contractor or which is affected by the stringing of transmission lines (subject to land use restrictions) is subject to stringent rehabilitation requirements once construction is finalised. The Engineer and the Contractor will agree the rehabilitation measures that will be required before the Contractor is allowed to sign a lease, and the rehabilitation will form part of the contract. These might typically include waste materials removal, replacement of soil and recontouring as required, removal of temporary structures and facilities, and replanting of trees and grasses as required, to remove hazards or contaminants, prevent erosion and rehabilitate the land. The cost of these works is to be borne by the Contractor, and the time to complete them must be included in the period of the lease.

Renting of land needed for six months or less

A Temporary Land Access Procedure that includes environmental and social safeguards was developed and implemented to cover geotechnical investigation-related activities of the project during its planning phase. This procedure has been updated along the lines required in the Resettlement Policy Framework and must be followed by all Contractors. The procedure is given in Annex D.07. It applies to all land used or temporarily occupied by any part of the project that is owned or used by private or community entities (e.g. CFUG).

Temporary access for project activities usually does not exceed a period of six months of continuous occupation of private property. In every case the Temporary Land Access Procedure must be followed and reported to the Resettlement Implementation Consultant via the Engineer and MCA-Nepal, to ensure that all parties are aware and to highlight the potential for grievances to be registered and redressed if necessary.

Long-term lease for temporary land use

There will be no permanent land acquisition for tower site access tracks or for land needed for other temporary purposes. The Contractor is responsible for negotiating a rental agreement for land for temporary access tracks or laydown sites etc. with the landowner for the period of construction and rehabilitation of the track. The construction and rehabilitation period is to be for a maximum of five years. The details of implementation of this are given in Annex C.5.2.

Loss of livelihoods and the rental process

Land that is required for more than six months but is not intended to become a permanent acquisition has an impact on the landowner's ability to continue maintaining their livelihood through inability to use the land for its normal productive use for an extended period of time. The impact applies through both the construction period and the length of time taken to rehabilitate the land to its former productivity. Rehabilitation requires that compaction of soil be addressed and topsoil returned to the site must be of similar quality and productivity to regain the previous level of production. It also includes restoration of existing paths, irrigation works and bunds etc. as were previously in place. Poor quality rehabilitation will require greater time to restore and therefore the contractor will have to extend rental payments until the land is rehabilitated effectively. The Engineer or the Employer may commission independent soil testing or other analyses to verify the success of rehabilitation.

To ensure adequate replacement livelihoods, the Contractor is required to negotiate a rental agreement on the basis of, at the minimum, the crop or tree compensation value rate for all the crops and trees usually produced on the land over the annual cycle, the rate being as determined by the district agriculture and horticulture offices at that time. The Contractor must add at a minimum, an additional 10 percent of the crop and tree value to compensate for the nuisance involved in allowing access. The landowner is free to negotiate a higher percentage of the crop and tree rate. The rental agreement will be signed and paid annually, and includes a commitment to rehabilitation in the next non-monsoon period to the previous layout and quality. The rate for

crop compensation will be assessed annually and will increase by at least the increase in District rates or the cost price index for that year. The Contractor is required to pay rental for the rehabilitation period according to the above directions and as stated in the Resettlement Policy Framework (as updated).

In the event that the temporary land access by the Contractor prevents the landowner from maintaining their livelihood despite the rental, the situation will be examined on a case by case basis with the household likely to be entered into the project's Livelihood Restoration Programme.

The negotiations will be monitored by the Engineer's ESP team or the RAP Implementation Consultant to ensure that the minimum conditions are met, that a signed contract is in place, and the annual fee paid and receipted before the Engineer will issue an Access Permit for Access Roads under Protocol C.5.3 .

5.4 Tower Construction Site Management

Site management

The management of tower construction sites is dictated by the procedure in Annex E.01. The purpose is to ensure that the many towers are constructed in ways that do not have unnecessary or unacceptable impacts on any aspect of the environment or society. The land acquisition for the tower sites covers only the areas required for the permanent land take, land required for temporary periods for laydown areas etc must be negotiated according to the protocol for temporary land access (D.07) for periods of 6 months to 5 years.

The approach to tower construction site management must address the following topics.

- Demarcation and public notice: the establishment of the site on the ground, and making the public aware of its purpose and their rights in relation to the project.
- Tower access: the determination of the access routes and methods for the site, for workers, construction materials and supplies.
- Tower work camps, storage areas, and work areas: the management of the different parts of the construction site in an orderly fashion, to make them safe and to avoid damaging the environment or disrupting communities.
- Worker accommodation: the rules to ensure clean, healthy accommodation for workers at temporary sites. Provide separate accommodation and toilet facilities to women and men workers. Any temporary structures built for accommodation of labourers, store purposes etc. during the construction should be demolished after the completion of work.
- Wastewater treatment: the ways in which wastewater is to be managed so as to avoid polluting the soil or nearby water bodies.
- Air quality management: the approaches used to minimise air emissions, from dust and exhausts.
- Noise abatement: the approaches used to minimise noise, especially at night (noisy works from 6:00 am to 6:00 pm) on occasions when night-time working is permitted.
- Hazardous materials and waste management: the rules to be followed to ensure that hazardous chemicals do not pollute the soil, water bodies or the atmosphere.
- Solid waste management: the approaches to the collection, storage and disposal of waste materials in ways that minimise the risks to health and environmental pollution.

Access to tower sites

Wherever possible, access will be only using existing access routes. New foot trails to a maximum width of 1.5 metre may be constructed. These will be earth paths made following the guideline in Annex E.03a, and must be removed and the land rehabilitated at the time of site closure.

All-terrain vehicles (ATV) may be used on foot trails where it is safe to do so. Trails may not be widened beyond 1.5 metre for their use, although in steep terrain step-out areas for pedestrians may be built every 50 metres or where the ground allows. For the ETP, an ATV is defined as having the following attributes.

- Four wheels with low ground pressure tyres, or twin rubber tracks;
- A single driving position and no passenger capability;
- A maximum width of 1.22 metre (48 inches); and
- A maximum payload of 250 kg.

Where it is feasible to construct vehicular access tracks, suitable alignments have been designed from the nearest road point to a number of tower sites. These will be earth tracks for dry season use only, made following the guideline in Annex E.03b. They must be removed and the land rehabilitated at the time of site closure. Access tracks must have a maximum of 3.5 metres of carriageway width (with appropriate widening on bends) or as determined by the Engineer, and be designed for use only by four wheel drive vehicles or tracked machines. They must be demonstrated to be safe for the movement of workers.

The opening of vehicular access on government-owned public land is illegal without an environmental permit. Contractors shall not obtain environmental permits for the construction of tracks or roads on public land that are used for access to ETP tower sites without the written consent of MCA-Nepal. Compensation for loss of livelihoods must be negotiated (D.07) and paid before a land access permit (D.08) can be issued.

Any works undertaken by contractors at the request of landowners or community members must only be commenced once the written consent of MCA-Nepal has been obtained and an environmental permit issued by the MOFE. Any such tracks or roads must be built to Government of Nepal local road specifications and all earthworks and drainage completed in accordance with the guidelines in Annexes E.16 to E.21. This must be undertaken irrespective of the agreement between the Contractor and the landowner or community.

Working hours

Construction sites may be active only for the hours of 6 am to 6 pm. If a particular operation requires night-time working because it needs an unbroken long operation, the approval of the Engineer must be obtained for every such event. For this to be given, a special operating procedure statement must be submitted for approval. This will include, among other aspects, detailed explanations of the proposed safety measures, and noise and light abatement provisions. Night-time working will not be given for successive nights or for more than three out of any seven night period.

5.5 Substation Construction Site Management

Management context

The management of substation construction sites is dictated by the procedure in Annex E.02. The purpose is to ensure that these large facilities are constructed in ways that do not have unnecessary or unacceptable impacts on any aspect of the environment or society. The approach to substation construction site management must address the following topics.

- Demarcation and public notice: the establishment of the site on the ground, and making the public aware of its purpose and their rights in relation to the project.
- Substation access: the determination of the access routes and methods for the site, for workers, construction materials and supplies.
- Work camps, storage areas, and work areas: the management of the different parts of the construction site in an orderly fashion, to make them safe and to avoid damaging the environment or disrupting communities.
- Worker accommodation: the rules to ensure clean, healthy accommodation for workers at these relatively long-term construction sites. Provide separate accommodation and toilet facilities to women and men workers. Any temporary structures built for accommodation of labourers, store purposes etc. during the construction should be demolished after the completion of work.
- Wastewater treatment: the ways in which wastewater is to be managed so as to avoid polluting the soil or nearby water bodies.
- Air quality management: the approaches used to minimise air emissions, from dust and exhausts.
- Noise abatement: the approaches used to minimise noise, especially at night (noisy works from 6:00 am to 6:00 pm) on occasions when night-time working is permitted.
- Hazardous materials and waste management: the rules to be followed to ensure that hazardous chemicals do not pollute the soil, water bodies or the atmosphere.
- Solid waste management: the approaches to the collection, storage and disposal of waste materials in ways that minimise the risks to health and environmental pollution.

Working hours

Construction sites may be active only for the hours of 6 am to 6 pm. If a particular operation requires night-time working because it needs an unbroken long operation (such as a slab casting), the approval of the Engineer must be obtained for every such event. For this to be given, a special operating procedure statement must be submitted for approval. This will include, among other aspects, detailed explanations of the proposed safety measures, and noise and light abatement provisions. Night-time working will not be given for successive nights or for more than three out of any seven night period.

5.6 Insulating Gas

The ETP's substations will use the gas sulphur hexafluoride (SF_6) for insulation in in its gas-insulated switchgear (GIS). This synthetic gas has a high dielectric strength, a high arc interruption capability, high heat transfer characteristics; in addition, it is non-toxic, biologically inert, chemically stable, non-corrosive and easy to handle. However, the significant disadvantage of the gas is that it has the highest global warming potential of any known substance: it is 23,500 times more effective as a greenhouse gas than carbon dioxide.

Strict procedures for the transport, storage, handling and use of SF_6 must be prepared by the substation Contractors, approved by the Engineer and MCA-Nepal, and followed at all times.

Guidance rules for the use of SF_6 are provided in Annex F.03.

5.7 Laydown Area Management

The management of laydown areas is dictated by the rules in the ESHS mitigation matrix in section 11.2 of this ESHSMP. The purpose is to ensure that the laydown areas are selected, managed and rehabilitated in ways that do not have unnecessary or unacceptable impacts on any aspect of the environment or society. The approach to laydown area management must address the following topics.

- Demarcation and public notice: the establishment of the site on the ground, fencing and making the public aware of its purpose and their rights in relation to the project.
- Site access: the determination of the access routes and methods for the site, for workers, construction materials and supplies.
- Camps, storage areas, and work areas: the management of the different parts of the area in an orderly fashion, to make them safe and to avoid damaging the environment or disrupting communities.
- Wastewater treatment: the ways in which wastewater is to be managed so as to avoid polluting the soil or nearby water bodies.
- Air quality management: the approaches used to minimise air emissions, from dust and exhausts.
- Noise abatement: the approaches used to minimise noise, especially at night.
- Hazardous materials and waste management: the rules to be followed to ensure that hazardous chemicals do not pollute the soil, water bodies or the atmosphere.
- Solid waste management: the approaches to the collection, storage and disposal of waste materials in ways that minimise the risks to health and environmental pollution.

5.8 Workers' Camp Site Management

The management of workers' camps is dictated by the rules in the ESHS mitigation matrix in section 11.2 of this ESHSMP. As with laydown areas, the intent is to ensure that the locations are selected, managed and rehabilitated in ways that do not have unnecessary or unacceptable impacts on any aspect of the environment or society. The approach to camp management must address the following topics.

- Demarcation and public notice: the establishment of the site on the ground, and making the public aware of its purpose and their rights in relation to the project.
- The Contractor must site worker accommodation in a location more than 2 km from towns and villages. This provision is aimed at reducing the social impact of worker behaviour on local communities. It is accepted that this provision is not possible in the Terai, where this condition is waived. It is also waived for the MCA-Nepal Partnership Program, which will be working within communities.
- Site access: the determination of the access routes and methods for the site, for workers, construction materials and supplies.

- Parking, storage, sleeping accommodation, cooking and eating areas, recreational facilities and washing and sanitation places: the layout and management of the different parts of the area in an orderly fashion considering the different gender of workers to have separate workers' camp areas for women and men to make them safe and to avoid damaging the environment or disrupting communities.
- Wastewater treatment: the ways in which wastewater is to be managed so as to avoid polluting the soil or nearby water bodies.
- Solid waste management: the approaches to the collection, storage and disposal of waste materials in ways that minimise the risks to health and environmental pollution.

5.9 Clearance of Transmission Line Rights of Way

The vegetation in the rights of way may be cleared only where private land has been acquired or where a forest clearance permit has been obtained for public land and payment of the right of way easement compensation has been paid and verified and a land access permit issued. The ETP's approach is to minimise vegetation clearance by spanning cables above trees wherever possible. Cables will be strung using pilot wires rather than by unrolling them along the ground. Hence there will be no clearing of the entire ROW as a standard procedure.

The following main rules apply.

- Only trees individually marked and approved for felling may be cleared.
- Tree felling may only be undertaken using hand saws, axes or chain saws. Trees may not be felled using bulldozers, excavators, winches or other machines (except as a safety aid in conjunction with a saw).
- No stumps or roots are to be disturbed.
- Shrubs, herbs and ground cover vegetation will be maintained to minimise soil erosion.

Further details of this aspect of the project are given in section 8.6.

5.10 Use of Helicopters and Drones

The use of all airborne vehicles, whether manned or unmanned, must comply with the requirements of the Civil Aviation Authority of Nepal (CAAN). Any Contractor using helicopters or drones must provide a detailed plan for their use to MCA-Nepal at least one month in advance; such a plan must include copies of all relevant permits, as well as statements of the activities proposed, the frequencies, durations and detailed safety procedures.

Aircraft, including drones, may be used only during the hours of daylight and never on public holidays or religious festivals. They may only be operated by fully qualified and certified individuals.

Helicopter landing sites are restricted to areas that have been designated for the purpose, cleared and marked appropriately. These will normally be laydown areas, and helicopters will not normally land at tower construction sites. Designated landing sites must have identified ground managers who will follow the agreed safety protocols and ensure readiness by trained ground staff. Landing sites must be at least 200 metres from the nearest dwelling and in locations where public access can be controlled. Stores of jet fuel must be managed as for other fuels (i.e. maintained in covered, bunded stores with fire prevention measures in place).

Sky crane helicopters (or equivalent heavy-lift helicopters) may only be landed at airfields certified by CAAN. Their use must be requested to MCA-Nepal at least three months in advance. Any such request must be accompanied by a detailed plan of operations that demonstrates a high degree of safety in all lifting and assembly operations. If used in tower assembly operations, they are not permitted to land at landing sites approved for small helicopter use for project activities.

5.11 Aggregate Sourcing

Aggregates for substation and transmission tower foundation construction must be obtained only from sources that have been formally approved in advance by the Engineer. The Contractor must provide a draft aggregate sourcing plan at least three months in advance of starting extraction. The environmental permits for each proposed source must accompany this draft plan. The Engineer's materials engineer will then check the quality of each location and the Engineer's geomorphologist will review the source locations. The geomorphologist will undertake a full appraisal of the physical environmental consequences of the use of each proposed site and

will provide a decision on its suitability: (a) acceptable; (b) acceptable with conditions that must be incorporated in the Contractor's aggregate sourcing plan before it can be approved; or (c) reject it, with reasons. The appraisal by the Engineer's geomorphologist will examine the existing situation in and around the proposed aggregate source, the likely consequences of the extraction of the volumes proposed and the rehabilitation measures that would be required to restore the environmental damage caused. The material transport arrangements will also be considered. All aspects of the plan must comply with the conditions of this ESHSMP. All findings communicated from the Engineer's staff must be incorporated in the aggregate sourcing plan before it is resubmitted for approval. The Contractor will be responsible for completing the rehabilitation works before payment can be made for the aggregates.

In creating its aggregate sourcing plan, a Contractor must address all of the following rules.

- Aggregate shall be sourced from quarries that are already approved and with valid environmental permits.
- The exact nature and volume of the aggregates to be obtained must be given, in relation to the quarry's annual output.
- In very remote or difficult to access tower locations, the Contractor may suggest local aggregate sources, if available, for volumes up to 500 cubic metres in total for a single tower. Local sources are small temporary quarries within 2 km of tower sites that are themselves at least 2 km remote from an existing motorable road.
- There shall be no clearing of trees.
- There shall be no clearing of riparian vegetation.
- Extraction from streams and rivers will normally cause environmental damage at other locations (such as polluted water or channel shifting) and so will normally be rejected as an option by the Engineer's geomorphologist unless significant prevention and rehabilitation measures are proposed.
- There shall be no opening of new motorised vehicle access.
- No motorised vehicles are permitted within stream channels.
- A letter of acceptance must be provided by the chief officer of the municipality.

The sourcing of aggregate from streams and rivers is prohibited within the Chure Conservation Area.

5.12 Blasting at Tower Sites

In certain locations, geological conditions may require the use of explosives to create sound foundations for transmission towers. The need for this will not be known until the final geotechnical site investigations are undertaken at each of the approximately 850 tower spots during the pre-construction phase by the transmission line contractors. Blasting is to be minimised and will be used as a last resort. All use of explosives must be managed by the Nepal Army; and so if blasting is required the first step for the project will be a request by MCA-Nepal to the Nepal Army Headquarters for assistance.

Explosive charges may also be used to connect sections of cable. These are actually configured to be implosive compressive connectors, which have a metallic sleeve wrapped inside a special explosive charge. When that charge is detonated, emitting a noise like a large firecracker, the energy of the explosion compresses the metallic sleeve around the conductor and forms a solid connection between two ends of conductor (in the case of a splice) or between the conductor and dead-end hardware. Implosive connectors do not require large equipment to install. Individual explosive wraps can be handled by one person and other components such as detonators are also portable. The Contractor must inform all surrounding communities of the timing of blasting each time, giving at least 24 hours notice.

Guidelines on the management and use of explosives are provided in Annex F.04.

5.13 Construction in the Chure Range

The Chure Range is the most southerly and recently formed of the Himalayan ridge complexes. Its recent geological formation, along with its continuing active uplift and down wasting, means that its slopes are steep and physically fragile. Water tables are mostly deep and water courses ephemeral, so this range supports only a very sparse population. As a result, the area is still relatively well forested and supports high rates of biodiversity. It is also the source of much of the groundwater that makes the Terai so suitable for habitation and agriculture. In recognition of this, the area is designated principally for conservation under the management of the President Chure-Terai Madhesh Conservation Development Board. The Board sets a range of rules and

guidelines that must be followed for all activities in its defined area: this encompasses all parts of the Bhabar (Terai upper piedmont), Chure or Siwaliks and Mahabharat crossed by the ETP transmission lines.

The Engineer's geomorphologist can advise Contractors on the boundaries of the Bhabar, Chure and Mahabharat, and information on the exceptional landform dynamics of these areas.

All Contractors are required to follow the Chure Guidelines related to Environment Protection, which are provided in Annex B.2. Key aspects identified by the Board during project preparation are as follows.

- Balance cut and fill in all earthworks.
- Construct drains, siltation tanks and recharge ponds around all earthworks.
- Avoid causing any impacts on wetlands and biodiversity rich areas.
- Design structures to withstand the very high sediment loads of rivers in Chure areas.
- Provide full details of construction materials to be excavated from locations in the Chure.
- The sourcing of aggregate from streams and rivers is prohibited within the Chure Conservation Area.

5.14 Physical Site Restoration and Revegetation

All earthworks made bare by project activities must be protected against erosion. Eroded soil is Nepal's biggest export, and one that it cannot afford. Soil is the growing medium for the plants that provide almost all food, and many medicines, fibres and construction materials. Once it is entrained in rivers, soil becomes a pollutant and sediment. The steep slopes and intense rainfall mean that bare surfaces are particularly susceptible to erosion in Nepal. For these reasons, all project-disturbed land must be physically restored and revegetated.

Site rehabilitation involves the following main activities.

Activity	Guidance
Surface grading. All surfaces must be regraded to a smooth, firm condition.	Guideline in Annex E.16.
Soil replacement. Subsoil and topsoil must be replaced on the surface, taken from storage areas made at the time of site clearance.	Guideline in Annex E.17.
Revegetation planning. The newly restored bare surfaces are highly erodible. The optimal bio-engineering (revegetation) techniques must be selected and preparations made for implementation.	Guideline in Annex E.18.
Revegetation implementation. As soon as the soil is moist enough at the start of the monsoon, the revegetation works planned (activity above) must be implemented.	Guidelines in Annexes E.19, 5.14e and 5.14f.
Monitoring of effectiveness. The establishment of the revegetation works must be monitored and either repaired or its success certified before the site can be considered restored.	

5.15 Sign-off and Handing Back of Sites

The Contractor will notify the Engineer and MCA-Nepal of the timescale to the end of the lease. The MCA-Nepal and Engineer's Environmental Specialists will review the measures in the contract, make a site visit to assess and revise measures in the light of the works actually undertaken and the impact on the site. The revised measures will be agreed and instructed, and the Contractor will carry out the works. The completion of rehabilitation must be monitored and verified by the Engineer's Geomorphologist and Environmental Specialist, and approved by the MCA-Nepal Environmental Specialist.

All restored and revegetated sites must be certified as complete by the Engineer's Geomorphologist and Environmental Specialist, and the MCA-Nepal Environmental Specialist before the site can be handed back to the owner. Payment of the Contractor for restoration work and completion can be made only after this has been certified.

5.16 MCA-Nepal Partnership Program

As part of the benefit sharing of the project, through the MCA Partnership program MCA-Nepal would provide services to the communities in three thematic areas:

1. Electricity distribution system extension and upgrading;
2. Off-grid solutions for households and social institutions; and
3. Capacity building for enhanced electricity use.

The construction activities that might have their own environmental impacts will mainly be in thematic area 1, of electricity distribution system extension and upgrading. The grid line extension will mainly follow roads and should have very limited environmental impact on the area. In case of thematic area 2, most of the work will be at the individual level and should not have any significant impact on the surroundings. The third thematic area will be focused on building the capacities of the communities and municipalities for improving their livelihoods and planning capabilities.

6. HEALTH AND SAFETY COMPONENTS OF THE ESHSMP - OVERVIEW

This section provides an overview of the safety and health obligations for both workers (i.e. as occupational health and safety) and communities. It also specifically covers traffic management (a key risk area) and emergency preparedness.

6.1 Guiding Safety Principles

Every person working on the Electricity Transmission Project takes responsibility for their own safety and that of all others.

This message is to underlie all health and safety actions. It is to be delivered in all trainings and safety briefings.

Safety is the single most important factor in all project activities. The failure of any person to ensure safety is to be a disciplinable offence in all contracts. MCA-Nepal and the Engineer have authority to stop work on any site where a Contractor fails to ensure safety according to the provisions of the contract terms and this ESHSMP. All responsibility for delays caused by such work stoppages rests with the Contractor.

The Contractor is responsible for provision of all necessary welfare and hygienic requirements, for the prevention of epidemics, and for maintaining records concerning the health of its workers. In this respect, the Contractor is required to develop and submit COVID-19 Risk Mitigation Plan as an addendum to Environmental, Social, Health and Safety Management Plan (ESHSMP).

Every person connected with the project must comply as a minimum with the MCA-Nepal Safety Absolutes given at the start of this ESHSMP, and develop and submit COVID-19 Risk Mitigation Plan as an addendum template of which is given in Annex G.

6.2 Occupational Health and Safety

The project involves construction activities on a large scale and at over 850 work sites over distances exceeding 300 km. The possibility of serious injuries and fatalities among workers is extreme.

Any serious injury or fatality among the workforce will be considered the fault of the Contractor's Site Manager until proven otherwise. Through this premise, Contractors' Site Managers are obligated to take full responsibility for the management of the health and safety provisions for their workforces. The Site Managers must be supported by Health and Safety Managers, who will lead teams of Health and Safety Superintendents, as listed in section 3.2. These Superintendents will oversee all aspects of health and safety on the tower and substation construction sites.

Every Contractor shall develop and implement a site-specific health and safety management plan for every site. All such plans are to be submitted to the Engineer for approval by the Engineer's Health and Safety Specialist. This plan will include health and safety training in both induction trainings and regular tool-box talks.

All personnel working at or visiting a site must comply with the Safety Absolutes given at the start of this ESHSMP.

MCA-Nepal, the Engineer and all Contractors must provide the personal protective equipment to all of their personnel and visitors on all project sites, as described in Annex C.01.

6.3 Community Health and Safety

The project is likely to present risks to the health and safety of communities. These may arise from:

1. Importation of diseases to potentially vulnerable local populations;
2. Increased risk of community exploitation through:
    a. Disruption to local market prices and availability of goods and services;
    b. Increased opportunities for gambling, drinking and imported illegal drugs;
    c. Demand for sex;
    d. Increased potential for gender-based violence and inequalities within households or at work camps;

e. Increased sexual harassment and exploitation of women, girls and boys; and
f. Potential increased likelihood of trafficking of persons to other areas.

Every Contractor must have a Gender and Social Inclusion Manager, who will be responsible to deploy one or more (as appropriate to the site and the construction schedule) community communication team to conduct community health awareness trainings covering:

1. The risks to communities of imported diseases and the social impacts of increased gambling, drinking and illegal drugs taking in the communities;
2. Trafficking in persons and the threats to communities of increased sexual harassment and exploitation of women, girls and boys, enabling prostitution;
3. Impacts of gender-based violence, exploitation and discrimination, and inequalities in the home or at work camps; and
4. The likely impact of the project on local goods and services, opportunities and potential for disruption.
5. The message of zero tolerance policy against all forms of TIP.
6. Inclusion in internal investigations of TIP offences with the responsibility of liaison with the Engineer and MCA-Nepal's SGI team.
7. Participate in the employees/internal grievance mechanism investigations with the Human Resources (HR) Manager, particularly into allegations of sexual harassment, trafficking in persons and GBV.

The Engineer's Social Safeguards Specialist and Gender and Social Inclusion Specialist will assist the Contractors' staff to devise the messages and manage these campaigns and investigations. This work will require the hiring of specialist trainers or employing in house-trainers to deliver trainings at employee induction programmes, and for the reiteration of awareness raising during tool-box talks or in participation in allegation investigations.

6.4 Traffic Management

All Contractors must prepare a Traffic Management Plan specific to their work and site activities. These plans will apply to all vehicle-accessible areas in construction sites, laydown and storage areas, labour camps and public roads. They will be applicable for the entire duration of each Contractor's activities from preparatory work to closure and site handover. The plans will cover motorised, non-motorised and pedestrian movements, and parking. Guidance for Traffic Management Plans is provided in Annex C.04.

The purpose of a Traffic Management Plan is to mitigate and manage environmental, health and safety risks and impacts associated with transportation. This includes transportation of construction materials, transportation of waste, and transportation of labour and equipment to laydown areas and construction sites by roads or trails.

A key aspect of a Traffic Management Plan is to ensure community safety, as the roads used for project construction are also public roads. Road stretches in and around settlements have particularly great potential to cause disturbance and raise accident risks to members of the communities.

6.5 Emergency and Disaster Preparedness

All organisations operating in Nepal should have an Emergency Preparedness and Response Plan so that staff can react in a controlled and efficient manner in the event of an emergency or disaster. MCA-Nepal has such a plan and all Contractors must also create and maintain them.

The objectives of the Emergency Preparedness and Response Plan include the following:

- Establish the emergency organisation and management approach in accordance with a defined incident command system;
- Establish the roles and responsibilities of key personnel during emergency events or potential for an emergency event;
- Provide response guidelines for dealing with specific emergency scenarios to minimize, as far as possible, the impact to the personnel at site and the environment;
- Identify and provide spill response equipment to enable a quick and appropriate response in the event of pollution being caused; and
- Establish communications and co-ordination protocols and interfaces between the Contractor and MCA-Nepal.

Every Contractor must submit an Emergency Preparedness and Response Plan for approval by MCA-Nepal at least three months before mobilising to any site. Guidance on the development of minimum Emergency Preparedness and Response Plans is provided in Annex C.05. These plans must cover issues such as earthquakes, floods, fires, epidemics, civil unrest, economic blockades, accidents and spills of hazardous materials, affecting the Contractor or its personnel either at its work sites or in transit.

7. SOCIAL COMPONENTS OF THE ESHSMP - OVERVIEW

This section provides an overview of the social safeguards required by the project, for both workers and the communities with context of their reciprocal relationship, in the neighbourhoods of the project work sites.

7.1 Labour and Working Conditions

IFC Performance Standard 2 on Labour and Working Conditions and Nepal Labour Act 2074 (2017) must be fully complied with. The requirements of this standard have been guided by a number of international conventions and instruments, including those of the International Labour Organization and the United Nations. The scope of application of this Performance Standard depends on the type of employment relationship between the client and the worker. It applies equally to workers directly engaged by MCA-Nepal, workers engaged through Contractors, and workers engaged by other primary suppliers.

Performance Standard 2 requires the adoption and implementation of human resources policies and procedures appropriate to the size and workforce of an organisation that set out its approach to managing workers consistent with the requirements of the standard and Nepalese law. Employers must provide workers with documented information that is clear and understandable, regarding their rights under national labour and employment law and any applicable collective agreements, including their rights related to hours of work, wages, overtime, compensation, and benefits upon beginning the working relationship and when any material changes occur.

Performance Standard 2 stands for non-discrimination and equal opportunity for the employment. But it also explains that special measures of protection to remedy past discrimination by a country during the recruitment will not be considered as discrimination. In accordance to the positive discrimination principle of Nepalese Constitution, MCA-Nepal adopts diversity in the workforce, encouraging workforce from all caste and ethnicity and targeting 33 percent of total job is encouraged for women workforce.

Employment in Nepal is primarily regulated under the Labour Act 2074 (2017 AD), the Child Labour (Prohibition and Regulation) Act 2056 (2000 AD) and the Labour Rules (or Regulations) 2075 (2018 AD). The Labour Act 2074 replaced the previous labour law completely (i.e. the Labour Act 2048 has ceased to be in effect). The Labour Act has been passed for provisions for the rights, interest, facilities and safety of workers and employees working in enterprises of various sectors. Compliance with the law is mandated and to be demonstrated in the Workforce Management Plan. The Sexual Harassment at Workplace Prevention Act 2071 (2015 AD) came in effect from February 20, 2015 which affords to protect the employees and workers from sexual harassment employed by the entities including contract workers and also the customers and persons accompanying such customers who visits the workplace for services.

Every Contractor must prepare and implement a Workforce Management Plan including an Anti-sexual Harassment Policy. The Anti-Sexual Harassment Policy must comply MCC guidance note and also the Sexual Harassment at Workplace Prevention Act 2071. The Sexual Harassment at Workplace Prevention Act 2071 sets out responsibilities of an employer to prevent such actions in their workplace by:

- Disseminating information to create awareness on the issues, implications and consequences of workplace sexual harassment;
- Making a system to make anonymous complaints;
- Providing victims with necessary psychological treatment;
- Providing information to the victims on the procedure on for filing complaints.

The Workforce Management Plan will be reviewed by the Engineer and, when acceptable, submitted to MCA-Nepal. The plan must then be reviewed and approved by MCA-Nepal, be compliant with IFC PS 2, MCC Gender and Counter-Trafficking in Persons Polices and MCA-Nepal SGIP prior to the Contractor commencing works. Each Contractors plan will be monitored and audited as specified in this ESHSMP.

The Workforce Management Plan will apply across the Project area, including all contractors' employees and subcontractors engaged by the Project. Each contractor will prepare a detailed Workforce Management Plan in keeping with the minimum requirements identified here. A proforma for the minimum standard Workforce Management Plan is included in Annex D.14.

The aim of the Workforce Management Plan is to manage the employment of local unskilled labour and impacts of semi- and skilled labour influx due to the Project. The purpose of the plan is to:

- Define a formal and integrated approach to manage workforce presence and movement during the

construction and operation phase of the project, and
- To meet the requirements of the applicable regulations and relevant international standards.

The specific objectives of the Workforce Management Plan (WMP) are to:
- Prevent employment of children below the age of 18 years apart from 15 to 17-year olds in non-hazardous conditions (Procedure in Annex C6.1);
- Enable the employment of local men and women as unskilled labour at each site (Procedure in Annex C6.2);
- Attract and retain a skilled and competent workforce;
- The Workforce Management Plan must include provision for a Contractor's internal grievance mechanism to be in place throughout the construction period to ensure that any employee-related grievances will be reviewed with the employees on a regular basis to avoid any such further grievances.
- Provide for the provision and use of a complaints dropbox at every site.
- Ensure employees are aware of their rights and entitlements including pay, festivals, sick and bereavement leave, and rest breaks;
- Ensure contractors comply with MCC Counter Trafficking in Persons Policy and guidelines in their employment conditions for employees (Procedure in Annex C6.3);
- Ensure the employees understand anti-social behaviour in the workplace and local communities (Procedure in Annex D.13);
- Ensure all the workers understand sexual harassment, exploitation and abuse of women, children or any person is completely prohibited. (Guideline in D.16);
- Deliver a fair and equitable environment that includes an employees' grievance mechanism for responding to and resolving employees' questions and concerns and the grievance mechanism must have anonymous complaint system and should be informed to all the stakeholders;
- Should have a kind of allegation response procedure under HR Manager, in the procedure within the WMP to enable investigation of allegations of sexual harassment, gender based violence that is align ed with the MCC guidelines on sexual harassment. Gender and Social Inclusion Manager shall be the subject specialist during the investigation;
- Ensure compliance with relevant Nepali laws and regulations, and relevant international standards; and
- Ensure employee relations issues are managed justly, and in a coordinated and consistent manner.

7.2 Employee Induction and Worker Code of Conduct Requirements

Under the Labour Rules 2075 and the Workforce Management Plan, Contractors are obliged to operate a Workers' Code of Conduct to lay out their obligations to workers, and also workers' rights and obligations. This code of conduct draws on the Labour Law 2074 to define:
- Conditions of employment: working hours, rates of pay, rest periods;
- Safeguarding women and men from all forms of discrimination, harassment and violence;
- Compliance with Anti-sexual Harassment Policy;
- Rights of employees to a grievance mechanism, holidays, and cultural and festival access; and
- Conditions for work camps, shelter, water and sanitation, food and security.

All workers, regardless of their role or duration of employment, will be expected to review and acknowledge the Workers' Code of Conduct by signing the code sheet. In the case of illiterate workers, the Code of Conduct will be read to the employee in the appropriate language and the employee will have his mark witnessed. The signed or marked document will include the requirement to respect local customs and practices. All Contractors are required to undertake a series of employment inductions and employee awareness programmes at the commencement of employment and over the employment period. The code of conduct must include provision for a Contractor's internal grievance mechanism to be in place throughout the construction period to ensure that any employee-related grievances will be reviewed with the employees on a regular basis to avoid any such further grievances. The Contractor shall include expectations of employee behaviour in induction packages.

Induction packages shall be mandatory for all employees and include:
- Employment rights and conditions as set out under the Labour Act 2074;
- Project and Contractor's Anti-sexual Harassment Policy;
- Countering the Trafficking in Persons (see section 7.5);
- Rights to have access to local festivals;
- Cultural sensitivities, and social norms and practices in each area;
- Expectations on avoiding poor relations between employees and local communities caused by behaviour relating to alcohol, gambling, prostitution, illegal drugs use, violence and sexual abuse of women and

children;
- Awareness on what constitutes gender based violence, sexual harassment, exploitation, abuse and consequences on staff who engage with such behaviour;
- Awareness of responsibilities to counter the trafficking of people around the project area;
- Information on Grievance Redress Mechanism including reporting person, phone numbers; and
- Awareness of the possibilities of the transmission of HIV/AIDs and communicable illnesses.

The contractor may hire a third party organisation to deliver appropriate training and awareness programmes.

The Workers' Code of Conduct must set out expectations and responsibilities for all project employees to ensure they understand cultural sensitivities within each ETP district. It also must list local customs and festivals and their timings, and cultural practices by area and community. It must also specify penalties for contraventions.

7.3 Management of Workforce Behaviour On and Off Site

Many communities, particularly in rural areas, have a social structure unfamiliar with the potential impacts of the introduction or major amplification of widespread recreational behaviours such as prostitution, gambling, drinking and illegal drug taking. Serious harm can be caused by allowing workforce personnel to set up or promote brothels, bars, gambling dens, drug taking and selling points in local communities near to labour camps. For this reason, labour camps should be away from major settlements as much as possible.

The Contractors and Consultants must develop a Workforce Management Plan in their Human Resource Department and approved by MCA-Nepal before the commencement of works. Part of the obligations of the Workforce Management Plan is the prevention of workers from causing social nuisance in their workplace, labour camps and local communities. Refer to Annex D.13 for procedures for addressing anti-social behaviour in the workplace and local communities, including regular reinforcement of training through toolbox talks etc., and monitoring requirements.

7.4 Prevention of Gender-Based Violence

Violence that is directed at an individual based on his or her biological sex or gender identity is Gender-based Violence (GBV). It can be sexual, physical, verbal, mental, psychological, socio-economic abuse, threats, coercion and manipulation. The GBV is the extreme form of gender and social based discrimination which is rooted in gender inequality, abuse of power, societal and structural barriers and harmful norms and practices. Although anyone can be the victim of GBV, predominantly it is against women and girls.

Physical punishment, emotional or psychological violence, trafficking for sex or labour, child or forced marriage, sexual harassment are some of the forms of GBV which originates on the base of gender discrimination as well exclusion practices.

MCA-Nepal conducted an 'Initial Social and Gender Assessment' during the Compact development phase and developed "Social and Gender Integration Plan (SGIP), 2021" which provides analysis on gender-based violence in Nepal. The SGIP explains the situation of GBV and also outlines the Contractor's role in making the workplace free from all form of violence. MCA-Nepal Safety Absolutes points out zero tolerance on any kind of violence.

All Contractors' and Sub-contractors' staff are required to prevent GBV against community members and must follow the following required actions:

- Ensure all the workers, staffs of Contractors and Engineer receive induction training on topics of gender-based discrimination, gender-based violence.
- Provide trainings, tool-box talking points to staff and workers to raise awareness on various forms of GBV and its consequences. The training should cover the steps to be taken in response to any incident of GBV and the process of investigation and decision that can include dismissal from work and reporting to Nepal's law enforcement authorities. There are various Nepalese legislations that gets triggered with the events of GBV including the Constitution of Nepal, Article 38 (3).
- Have an internal employee grievances redress mechanism to enable the reporting and investigation into

events of GBV for the Contractors team. Anonymous reporting can be achieved using the Contractor's dropbox complaint process. The reception of a complaint of SEA / GBV will trigger the Contractor to notify the MCA-Nepal and the Engineer's GSI team within 24 hours to assist and support the investigation. Allegations of criminal offences will be reported to the Nepal Police.

- Include awareness and use of the Nepal National Helpline 1145.
- Ensure that an investigation procedure under HR is established for allegations against GBV where Gender and Social Inclusion Manager will be subject specialist.
- Ensure full confidentiality and non-retaliation against the complainant.
- For any incidents of GBV coming through external GRM procedure will be acknowledged.

Nepal is one of only four countries in the world to have a nationwide anonymous GBV / CTIP / Sexual Exploitation and Anti Sexual Harassment service. This service must be integrated into guidelines and implemented throughout the projects via an MOU between MCA-Nepal and the National Women Commission (NWC). NWC will ensure that MCA-Nepal is informed of proven outcomes in its projects so that proper management of proven cases can be enforced.

This process is as yet unfinalized. In the interim, contractors must make employees and communities aware that the helpline is operated by the NWC in Kathmandu. "Khabar Garaun 1145" is the toll-free helpline service it operates. In cases of gender-based violence or violence against women, an individual can call this to get help. It is accessible 24 hours a day, seven days a week. The service covers all aspects of domestic abuse, harassment in the workplace, gender-based violence, sexual exploitation and harassment.

7.5 Countering Trafficking in Persons

Nepal remains a Trafficking in Persons (TIP) Tier 2 country as assessed by the US State Department (2022).[2] This means that it falls into the category of countries that do not fully comply with the Trafficking Victims Protection Act (TVPA) minimum standards, but are making significant efforts to achieve compliance. In 2018, the GON identified more male trafficking victims than in previous years, provided support for the operation of 732 local anti-trafficking committees (which are in the process of reformation as per the federal structure of Nepal), and established the Anti-Trafficking-in-Person Bureau. However, Nepalese laws do not criminalise all forms of forced labour and sex trafficking, and NGOs report that the Department of Labour remains reticent to take meaningful action against perpetrators of child and forced-child labour.

MCC and MCA-Nepal maintain a zero tolerance policy against Trafficking in Persons (TIP) and applies to all MCC consultants, contractors, subcontractors or other agents. The MCC is committed to working with partner countries to ensure appropriate steps are taken to prevent, mitigate and monitor trafficking in person risks in the projects it funds. MCC's Counter-TIP policy (2021) provides guidance on TIP definition, institutional commitments, and minimum requirements.[3] This policy defines TIP as (a) sex trafficking, in which a commercial sex act is induced by force, fraud, or coercion, or in which the person induced to perform such act has not attained 18 years of age; or (b) the recruitment, harbouring, transportation, provision, or obtaining of a person for labour or services, through the use of force, fraud, or coercion for the purpose of subjection to involuntary servitude, peonage, debt bondage, or slavery.

In general, the most direct way that TIP can impact infrastructure projects funded by MCC is through exploitative recruitment practices or labour conditions for workers. Exploitative practices include but are not limited to: abuses in the labour recruitment chain and labour gangs; denying workers access to their travel documents; penalising workers for leaving the workplace; violence or threats of violence against workers; restriction of movement of workers; non-payment or delayed payment of wages of workers; mandatory overtime for workers; and the use of child labour. TIP risk is associated with the actions of contractors and workers is through demand for sex workers, particularly where the project involves an influx of predominantly male workers. It is considered TIP when adults engage in sexual activities through force, fraud or coercion. It is also considered sex trafficking when the person induced to perform such an act has not attained 18 years of age. In Nepal, women and girls are especially vulnerable to trafficking due to gender discrimination, illiteracy or low

[2] See US State Department Trafficking in Persons Report for 2019: https://www.state.gov/wp-content/uploads/2022/04/337308-2022-TIP-REPORT-inaccessible.pdf
[3] See MCC's C-TIP Policy: https://www.mcc.gov/resources/doc/policy-counter-trafficking-in-persons-policy

education, and low socio-economic status. Those most targeted tend to be from traditionally excluded and socially marginalised groups. The risk of trafficking increased following the 2015 earthquake, which has left many families destitute. Although illegal, bonded labour also continues to exist in agriculture, brick kilns, the stone-breaking industry and domestic work, mostly in Western Nepal.

All projects that use contract mechanisms for works (large and small), non-consulting and consulting services are required to follow the Counter-TIP Minimum Compliance Requirements, as outlined in MCC's Counter-TIP Policy and per the requirement of Executive Order 13627.[4] For those projects categorised as high-risk, a TIP Risk Management Plan is also required (see Section 4 of MCC's Counter-TIP Policy). As part of the EIA for the ETP, the EIA consultant conducted a TIP risk assessment and concluded that all segments of the transmission line route are at high risk of TIP, thereby triggering contractual requirements to prepare a TIP Risk Management Plan. MCA-Nepal has developed TIP Risk Management Plan (final draft), and all Contractors are required to develop and implement their own TIP Risk Management Plan, subject to review by Engineer and approved by MCA-Nepal.

Clear guidelines need to be established and communicated to prevent TIP. All Contractors must include the following in the Worker Code of Conduct, with penalties for non-compliance:

1. All contractors have to commit to and publicise zero tolerance for proven offences concerning TIP issues.
2. Prohibition of transportation of non-employees in project vehicles, except in cases of medical emergencies;
3. Prohibition of the importation of women for provision of sex services for employees into work camps or in local villages;
4. Prohibition of sex with a child at any point or time;
5. Prohibition of sex in favour of cash or kind at any point, as commercial sex is illegal in Nepal;
6. Participation in the facilitation or procurement of another person of whatever age for trafficking purposes; and
7. Targeted education sessions to inform contractors' staff, workers, and at-risk women/men/boys/girls and vulnerable groups in project areas about TIP risks and prevention.

Contractors must also engage a Gender and Social Inclusion Specialist or a third party training organisation to implement a TIP Risk Management Plan that includes conducting awareness training on the social ills of trafficking as part of employee induction and reinforcement of the messages in regular tool box talks. Contractor must notify Engineer, MCA-Nepal for any incidents of TIP in the project site so that the victim/survivor is safeguarded and assist in paralegal services during the course of investigation. The procedure of preventing and managing TIP (Annex D.12) must include the following:

1. The Contractor must have anonymous complaint mechanism and make it widely available across project stakeholders, and those working on the Compact including public members; currently this involves the use of a dropbox located outside each worksite or office, although this provision will be updated in 2024;
2. Notification of the allegation to the Engineer's GSI specialist, MCA-Nepal immediately and notify MCC within 24 hours and respond to any TIP situations within 24 hours after the incident is reported;
3. Anonymity and support for the allegation maker and survivor-centred approach to manage the incidents;
4. Make employees and communities aware of the "1177" national helpline for reporting and actioning allegations of trafficking in persons.
5. Immediate removal of the perpetrator in the event that the allegation is proven – zero tolerance of such acts regardless of the importance or status of the perpetrator.
6. Report to the Nepal Police for further investigation if the offence is likely to have contravened Nepali law attracting Human Trafficking and Transportation (Control) Act 2064 (2007).

7.6 Awareness of HIV/AIDS, STD and Communicable Diseases

Project-related health risks are associated with the actions of Contractors and their workers through increased use of sex partners, particularly where the project involves an influx of predominantly male workers. The biggest risk is usually in the increased transfer of HIV/AIDs and other sexually transmitted diseases. Additionally, Covid 19 must be considered. Increases in other communicable diseases are likely to be facilitated by movements of personnel into and around the project area.

[4] This is a Presidential Order for "Strengthening Protections against TIP in Federal Contracts." Although MCA contracts do not need to follow the Federal Acquisition Regulations (FAR), MCC's policy requires adherence to the "spirit" of this Executive Order.

The Contractor is required to assess the risk of increasing the incidence of HIV/AIDS, STD and other communicable diseases into the project areas and plan for the reduction in likely impacts through managing worker behaviour and provision of health services for workers including supply of condoms.

The Contractor must engage a gender and social inclusion specialist or a third party organisation to conduct awareness training on the social impacts of all forms of communicable diseases as part of employee induction and reinforcement of the messages in regular tool box talks.

The Contractor must include conditions in the Workers Code of Conduct that require workers to notify the employer of incidences of all illnesses. The Contractor must maintain records of illnesses and treatments among its workforce.

7.7 Management of Cultural Heritage

All contractors must manage cultural heritage in relation to all project activities. The purpose of this provision is to ensure that there are no adverse impacts caused by construction phase activities on tangible cultural heritage, local communities' cultural practices and intangible heritage. Through project design these impacts have been limited as far as possible through adjustments to the transmission alignments.

The careful management of cultural heritage is needed to comply with the IFC Performance Standard 8 requirement for identification and protection of Cultural heritage in project-affected areas as the result of chance finds. This international standard defines chance finds as "tangible cultural heritage encountered unexpectedly during project construction or operation". This may include archaeological deposits, human remains, artefacts of historical importance, etc. This will be more likely in Nawalparasi and Tanahu districts.

Cultural heritage management actions include, as a minimum, the following requirements:

- Regular consultations with the local communities to notify them of construction work;
- Maintenance and updating a central list of tangible cultural heritage around the project areas for avoidance of heavy transport (to mitigate potential vibration damage); and
- Ensuring that all ancillary project facilities, including labour camps, are set up away from cultural heritage sites.

All Contractors must follow the Chance Finds Procedure (see Annex E.09), which includes the following required actions:

- Establishment of protection area around the find where no further work can be undertaken;
- Clear criteria for potential temporary work stoppages that could be required for rapid disposition of issues related to the finds;
- Record keeping and expert verification procedures;
- Chain of custody instructions for movable finds including coordination with relevant Department of Archaeology or other GON agencies;
- An outline of the roles, responsibilities and response times required from project staff, and any relevant heritage government authority, as well as any agreed consultation procedures; and
- An agreed treatment plan.

7.6 Community Support Programme

In the Electricity Transmission Project, the Community Support Programme is designed under the MCA Partnership Program. This is covered by a separate Framework Plan and Implementation Plan. This ESHSMP also makes reference (in section 4.7) to the environmental and social safeguards of the MCA Partnership program.

8. ENVIRONMENTAL COMPONENTS OF THE ESHSMP - OVERVIEW

This section provides an overview of the safeguards for all aspects of the physical and biological environments.

8.1 Protection of Soil and Land

In the steep terrain and monsoonal climate of Nepal, special measures are needed during construction works to minimise the erosion of soil. This is not only a direct environmental loss – soil is the source of all food and other crops – but it also leads to the pollution of watercourses. The project's mitigation strategy in this respect includes both temporary measures that must be implemented during the construction phase, and permanent measures that will remain in place once development is completed. Measures are identified to prevent controllable erosion and minimise adverse effects of sediment transport from on-site to off-site areas. The implementation and effectiveness of these measures can be easily verified by on-site monitoring.

Site activities shall be carefully managed in order to avoid soil erosion and sedimentation of downstream waterways that can affect aquatic ecosystems. Erosion and sedimentation shall be controlled during the construction of the project works by implementing the mitigation measures given in the management and monitoring matrix in section 10.2 of this ESHSMP.

8.2 Protection of Water Quality

Protection of water quality during construction is important on account of its value in hosting aquatic biodiversity, as well as its significance as a resource for drinking and irrigation uses.

No pollution will be tolerated of any water course or water body as a result of project activities. Care must also be taken to avoid activities that damage dry gullies or seasonal water courses, where pollution might be triggered the next time that water flows in that location. Runoff and effluent from construction sites and camps must all be contained on site using standard drainage and sanitation provisions.

The main way that water pollution is controlled is by minimising the disturbance of soil surfaces and therefore the potential for erosion, and the entrainment of sediment in water courses. Project construction sites are all designed to be at least 50 metres from a water course, but as sediment can be carried considerable distances, it is still important that it is stopped at the source by avoiding ground disturbance in the first place.

8.3 Protection of Air Quality

Fugitive dust – fine particulate material suspended in the air – is likely to be the largest threat to air quality as a result of project activities. Dust is mainly a dry season problem and is generated by vehicles moving on earth tracks and gravel roads, as well as from machines undertaking earthworks, rock crushers and by strong winds on unprotected soil stockpiles. Dust generation must be controlled at all times to avoid impacts on surrounding communities, and especially to vulnerable people (e.g. children and the elderly).

The only large earthworks undertaken by the project will be at the three new substations, and the site and construction characteristics are such that the usual preventative measure will not be feasible, that of using phased removal of vegetation to prevent large areas from becoming exposed to wind. However, a number of appropriate measures can be adopted instead, including restricting surface clearing to the project footprint, limiting vehicle speeds, placing dust screens around construction areas close to local communities, spraying water on dirt roads, excavations, soil stockpiles and loose fill material, and covering trucks transporting fine materials.

The other potentially significant threat to air quality is from exhaust emissions from vehicles and machines used during construction. This can be reduced to the greatest extent possible by maintaining strict rules, such as turning engines off when not in use, and ensuring the optimal operating conditions and maintenance regimes for diesel generators, construction machinery and vehicles.

Prevention of the leakage of the insulating gas sulphur hexafluoride from the project's gas insulated switchgear is of critical importance to ensure that this potent greenhouse gas does not pollute the atmosphere. It is of

paramount importance to ensure that this equipment is properly sealed to prevent any leakage, and to take proper precautions to prevent any damage to the switchgear.

8.4 Management of Vegetation Clearance

The following minimum requirements need to be followed by the Contractor.

- Construction activities for the ETP alignment must comply with all applicable Nepal laws and other legal requirements governing forest and biodiversity conservation, and must provide proof of such compliance as required.
- Vegetation clearance may only occur in designated areas, agreed in the EIA and the Forest Clearance Permit.
- Vegetation may only be cut by hand. Stumps and roots must be left in the ground. No vegetation may be removed using machines or winches. The use of chemical herbicides is banned. Fire is prohibited for the burning of any vegetation.

The objective of the vegetation clearance process is to reduce impacts to natural habitats, thereby reducing impacts to habitats for species of conservation significance. The minimum requirements are detailed in the procedure in Annex E.10.

8.5 Forest Compensation

The forest policy of Nepal states that the country will have not less than 44.74 percent of its land area under forest (MFSC, 2075). This means that forest cannot be converted for non-forestry uses unless an equivalent area, preferably of similar eco-zones, are replaced somewhere else by a project proponent. If the project is to be executed in the national forest area, the proponent must take prior approval from the MOFE justifying that there were no other alternatives than to use the forest land. Even if the Cabinet approves the proponent's proposal, the project will only have the use-right over such land but cannot own it. In addition, the proponent must plant ten times the number of trees that are felled (Forest Clearance Guidelines, 2076).

MCA-Nepal will undertake a forest compensation strategy in line with current government rules. This strategy will be undertaken separately from this ESHSMP. The details will be discussed and agreed with the MOFE, and also with sectoral stakeholders at Provincial and Division levels. At the FUG level, the loss of trees in community and leasehold forests will be compensated through the Resettlement Action Plan.

8.6 Protection of Biodiversity

Nepal's varied climates, dictated by the dramatic topography and its maintenance of 44.74 percent of forest cover and large protected areas, gives rise to a significant biodiversity. The ETP's transmission lines can potentially disrupt this by cutting swathes that disconnect areas of forest and by interrupting the airspace used by migrating birds that cross the Himalayas between the cooler northern steppes and the warmer winter feeding grounds of India. A number of practical measures are therefore required to mitigate these potential impacts.

In general the project will abide by the guidelines of IFC's Performance Standard 6, in that it will not significantly convert or degrade natural habitats or critical habitat unless there are no viable alternatives, consultation has been undertaken and appropriate mitigation measures put in place. To achieve this, the following main provisions are obligatory.

Fire management. The following actions will be carried out to prevent the collection of firewood and the spread of fire.

- A strict no open fire policy will be maintained throughout the ROW and any violation will result in penalties and fines.
- Cleared vegetation will be used for mulching and will not be burned.
- To prevent the use of the local firewood stoves, every Contractor must provide liquefied petroleum gas (LPG) canisters for cooking meals at the project sites.
- Project workers must be continually reminded not to throw lighted cigarette tips into the forest areas and not to use the forest area as picnic spots.
- Contractors must provide firefighting training to an adequate proportion of the construction work force.

Soaring and perching birds. Mitigation of collisions and electrocutions of birds from conductors and earth wires require the following actions.

- Alignments are re-routed to avoid the key identified migration routes and soaring zones, and must not be changed from the design in these areas (as described in the EIA).
- Markers must be placed on the conductors and earth wires to make them visible to birds.
- Conductors must be further apart and further from towers than the extended wingspan of the largest birds. The Himalayan griffon vulture is the largest, with a wingspan up to 3.1 metres.
- Anti-perching spikes must be installed at key positions on cross arms, as per designs.
- Insulation sleeving must be provided as per design, on conductors close to the insulators.
- Nesting platforms must be provided at safe locations as per tower designs.
- Monitoring must be arranged by MCA-Nepal at intervals once the cables are strung and being energized, to assess the effectiveness of these measures. Further mitigation may prove necessary.

Engagement of communities in the protection of biodiversity. The project's ESHS staff are responsible for actions to raise awareness among communities close to the project sites, of the importance and value of protecting biodiversity. A procedure for this is given in Annex E.11.

Project policy to counter illegal logging. The purpose of this is to prevent illegal loggers accessing forest areas via project areas and work sites. The following rules are to be maintained by MCA-Nepal, the Engineer, and all Contractors and Subcontractors.

- A "no access" rule is to be applied at all times to prohibit non-authorised personnel, their vehicles and any equipment used for illegal logging in all areas under project control.
- Personnel are to be briefed that anyone identified to have participated in illegal logging activities will be dismissed from employment and will not be re-employed at any later date.
- Any person associated with the project found conducting illegal logging will be reported and handed over to relevant authorities for investigation.

Project policy to counter poaching and hunting. The purpose of this is to prohibit the collection of wildlife and forest resources by people involved in the project. The following rules are to be maintained by MCA-Nepal, the Engineer, and all Contractors and Subcontractors.

- All personnel will be briefed on the zero tolerance policy for the possession of wildlife and forest resources that must be enforced by management in every organisation throughout all project activities.
- All project staff and workers are strictly prohibited from the possession, purchase, trade or collection of wildlife or forest resources that are legally protected under Nepalese law, are CITES-listed, or classed as threatened by the IUCN Red List.
- Personnel are to be briefed that anyone identified to be in possession, or having purchased, traded or collected any wildlife or forest resources will be dismissed from employment and will not be re-employed at any later date.
- Any staff member or Contractors identified to be involved in activities related to poaching and hunting will be reported and handed over to relevant authorities for investigation.

Biodiversity induction. A component on biodiversity awareness must be created by the Engineer's Environmental Specialist and incorporated into all staff and worker induction training programmes. A slide deck for biodiversity induction and training shall be made available in all languages required. The contents of the biodiversity induction will be regularly updated and improved, and will include the following topics.

- Requirements for the implementation of the project's anti-illegal logging policy and sanctions for non-compliance.
- Requirements for the implementation of the "no-poaching and no-hunting" policy within the project area, and sanctions for non-compliance.
- Awareness of biodiversity values that exist in the project area and surroundings, and potential impacts to these values from construction activities.
- Individual responsibilities to reduce biodiversity impacts relevant to related procedures outlined in the ESHSMP. These include wildlife shepherding (see Annex E.12) and the care of injured wildlife (see Annex E.13).

8.7 Noise Abatement

Construction noise will mainly be localised to work areas, although the communities in areas along roads used for access will have raised noise levels due to increased traffic. Noise will be limited to daytime only, by the prohibition of construction activities between 6 pm and 6 am and never on public holidays and religious festivals, other than in exceptional circumstances when the written permission of MCA-Nepal's Environmental Specialist must be obtained in advance. Noises exceeding the national standards must be mitigated, either by noise abatement measures if they affect communities or using hearing protection if they affect workers.

If helicopters are used to aid construction, separate but similar noise mitigation rules will apply. Helicopters will not be permitted to land or hover within 250 metres of houses or other buildings. If heavy-lift helicopters are used, then the separation distance may need to be increased in order to bring the sound level to acceptable limits at receptor points.

8.8 Chure Conservation Area

The Chure Conservation Area (CCA) is the zone defined by the President Chure-Terai Madhesh Conservation Development Board (PCTMCDB) for particular conservation-focussed development. Much of the area, particularly the Chure and Mahabharat ranges that largely fall within it, are characterised by steep slopes, often with unconsolidated geology, and deep water tables: these features make them inhospitable for human settlement and so they remain largely forested and of high biodiversity value. The PCTMCDB's main objectives are to maintain biodiversity habitat by controlling the loss of soil and forest.

Annex B.2 contains an English language version of the PCTMCDB's Environmental Guidelines which must be followed by any infrastructure project within the CCA. The content of these guidelines has been incorporated in the mitigation measures adopted in this ESHSMP for all areas, which represent standard good practices that ETP activities must follow. This means that all ETP construction should be compliant with the CCA requirements, whether they are in this area or elsewhere.

9. WASTE MANAGEMENT COMPONENTS OF THE ESHSMP - OVERVIEW

This section provides an overview of the safeguards against environmental damage from waste and other hazardous substances.

9.1 Spill Prevention and Response

The purpose of the spill prevention and response capability in the ESHSMP is to be able to respond effectively to an accidental leakage or spillage of diesel, lubricants, paints, chemicals or contaminated waste in the quickest and most environmentally safe manner.

All Contractors must be able to undertake the following.

- Establish the management approach and organisation to be prepared for and deal with emergency spills, either at any work site or in transit under the Contractor's responsibility.
- Establish the roles and responsibilities of key personnel during an emergency spill event.
- Provide response guidelines for dealing with specific spill scenarios to minimise as far as possible the impact to people and the environment.
- Provide the necessary spill response equipment to enable a quick and appropriate response.
- Establish communication and coordination protocols with MCA-Nepal and local authorities.

The spill prevention and response part of every Contractor's CESHSMP must include the following measures, as a minimum.

- Identify the required preventative measures.
- Identify the roles and responsibilities of personnel in the event of a spill.
- Detail the required spill control materials to be stored at all work sites and in vehicles carrying hazardous substances (particularly fuel tankers).
- Clearly document spill control procedures.
- Describe notification requirements.

9.2 Management of Hazardous Materials

Diesel fuel, jet fuel, lubricants and other hydrocarbons

Diesel and engine oil are highly toxic, and are the most common hazardous materials used by most projects. They will be widely used by all Contractors, and will need to be stored at laydown sites for the refuelling and maintenance of vehicles and machines. Jet fuel (effectively a refined form of kerosene) will be required if helicopters are used.

The mitigation of hydrocarbon pollution requires all sites where they are stored to have adequate preventative measures in place, and all storage and transfer facilities to have spill response equipment, personnel trained in preventing and cleaning spills, and a practised spill response plan. These items and plans are contract-specific and must be incorporated in each CESHSMP.

In certain circumstances, hydrocarbons can eventually be degraded in soil treated with the correct bacteria. Spill response plans must therefore have a provision for the bioremediation of soil that has been polluted by hydrocarbons.

Paints

Paints will be used mostly at substations, but may also be used for some components at tower sites. Oil-based paints and the solvents used with them are toxic in the environment and therefore need to be managed carefully. Covered stores, fire protection and bunding are all required. Used containers must be disposed of into lined landfill sites and are not disposable by simple burying at remote work sites.

Heavy metals in coatings of steel members

There is a potential for the leaching of heavy metals in laydown areas, prior to delivery of towers at each tower location. This is due to preventive measures usually taken by Contractors against what is known as the white rust problem. Freshly galvanised material normally needs three to six months to "cure", to build-up a protective thin film that guaranties the longevity of its galvanised coating. The reaction is fed by reacting very slowly with carbon dioxide in the air. Once the tower has been erected, the curing process reaches its maturity point and the zinc coating becomes almost insensitive to surrounding moisture.

If, shortly after galvanisation, the steel component is exposed to constant moisture, zinc will react with water to develop white zinc oxide. This reaction, if not prevented, may consume entirely the zinc coating within very few months, in the laydown yard; and when there is no more zinc to consume, black staining and then red corrosion starts to appear on steel members, before being used for tower assembly. To prevent this, galvanizers' associations have issued recommendations to store and stack steel components properly in laydown yards, ensuring perfect drainage from rain. However, Contractors quite often ask the galvaniser to add a coating on the steel member that seals it from the surrounding air, but that progressively gets washed out from the steel surface within a few months. This coating is usually based on chromates and other similar chemicals, which are toxic in agricultural soil. There exist alternative coating materials that are heavy-metal free, but they are more costly, and not widely known or used in practice.

For this reason, all coatings on steel elements must be recorded and certificates submitted to MCA-Nepal for approval before they are imported to Nepal. No coating that contains a heavy metal or other toxic substance will be permitted under the ETP.

9.3 Waste Management

The principles of managing waste to be used as part of the project's pollution prevention strategy are to minimise the production of waste, reuse materials, use products that can be reused many times, and recycle as much as possible of things that cannot be reused. This type of strategy usually saves money as well as resources. A distinction is to be made between waste materials that have a potential commercial value – which are classed as assets – and those with no value – which are considered non-assets.

All organisations involved in the ETP are therefore required to operate waste management strategies based on reduction, recovery, recycle and reuse. Recycling and waste reduction campaigns shall be conducted whenever there is evidence of unnecessary waste generation. In all project facilities and construction sites, waste materials must be collected and segregated at the source. Full records must be maintained of the types and quantities of waste generation, storage, transfers and disposals.

Detailed guidelines on waste management are provided in Annex E.9.3

9.4 Spoil Disposal

Careless disposal of construction spoil – unwanted soil and rock – is one of the largest environmental problems in the hills of Nepal. It can smother vegetation, give rise to erosion and landslides, damage natural forest and agricultural land and pollute rivers. In all construction projects involving foundation excavations, however much care is taken to minimise quantities of spoil, it cannot be eliminated altogether. It is therefore important to find ways to manage it without causing environmental damage.

Spoil problems can be minimised by taking two steps. The first is to identify those operations that will generate spoil, the places where it will be generated and the quantities involved, no matter how small. The second is to plan for its disposal by designating safe tipping sites. In the ETP, the Contractor is responsible for designating suitable spoil disposal sites and obtaining the Engineer's approval for them. The criteria for their selection must avoid all of the problems listed above. The Contractor must ensure that the construction workforce is aware of the restrictions on the disposal of spoil, the location of approved spoil disposal sites and specific requirements for the management of these sites. The Engineer must strictly enforce contract specifications regarding spoil disposal.

Detailed guidelines on spoil management are provided in in Annex E.14.

10. MANAGEMENT OF MITIGATION AND MONITORING

This section gives the full details of the mitigation measures that must be adopted in order to address the identified potential impacts.

10.1 Index of Mitigation Measures

Based on the topics covered in this ESHSMP, fifteen topic areas have been used to group the impacts and corresponding mitigation measures. These are as follows.

General Environmental Protection
Occupational Health and Safety
Community Health and Safety
Community Impacts Management including TIP Risk Management
Traffic Management
Cultural Heritage Management
Hazardous Materials Management
Construction Materials Management
Waste Management
Soil Erosion Control
Water Resources Management
Air Emissions Management
Biodiversity Management
Noise Abatement
Office Management

The topic headings above are used to group the mitigation measures in the large table in section 10.2.

Section 10.2 not only gives the full details of the mitigation measures that must be adopted in order to address the identified potential impacts, but it also states who is responsible to implement them and to what standard. It also states how they must be monitored to ensure effectiveness, who does the monitoring, when they must do it and what they must do with the findings.

10.2 Mitigation and Monitoring Matrix

Potential impacts	Mitigation measures	Responsibility for implementation	Budget provision	Standard or Guideline to be met	Monitoring			
					Check timing	Responsibility to check	Condition assessment	Action required
1. General Environmental Protection								
1.1 General environmental damage in the form of degraded land, lowered quality of living, reduced quality of resources, etc., in the communities near the work sites.	● Avoid damage to any part of the environment (soil, plants, animals, human resources and settlements) as far as possible. ● If damage cannot be avoided, then mitigate or compensate for the damage. ● Avoid any work beyond the agreed boundaries of the work sites. ● Agree on mitigation or compensation arrangements before starting any work. ● Do not hide any damage or pollution. In the event of an accident, it is better to consult the MOFE and agree on a mitigation plan than to risk prosecution under the law.	Contractor's Site Manager	Not applicable: these are a statement of professional working standards.	All standards and guidelines	● Before starting work. ● Monthly during site operations. ● After completion of site operations.	● MCA-Nepal Environment Specialist, for bio-physical matters. ● MCA-Nepal Social Safeguards Specialist, for socio-economic matters.	● Visual inspection ● Documents ● To be completed at each check.	*Complete at check if compliance is not satisfactory.*
1.2 Limited awareness or respect about the importance and value of the environment among labour force leads to excessive damage to resources or disruption of people's livelihoods in the areas around project work sites, laydown areas, etc.	● Ensure that the site supervisors brief all workers at the start of every job, and at the beginning of each week, on the main environmental messages. ● Ensure that all professional and technical staff respect the environment and understand why they must. ● Do not allow staff and workers to neglect environmental issues. This may lead to offences under environmental or forest laws. ● Do not ignore disregard for environmental and social issues by professional and technical staff.	Contractor's Environment Manager	Not applicable: these are a statement of professional working standards.	All standards and guidelines	● Monthly during site operations.	MCA-Nepal Environment Specialist	● Interviews with the site-workers ● To be completed at each check.	*Complete at check if compliance is not satisfactory.*

Potential impacts	Mitigation measures	Responsibility for implementation	Budget provision	Standard or Guideline to be met	Monitoring			
					Check timing	Responsibility to check	Condition assessment	Action required
2 Occupational Health and Safety								
2.1 Workers are unaware of the dangers from the sites (transmission lines, substations, quarries, etc.) they are working in, leading to high rates of injury.	● Ensure that workers are given safety inductions, toolbox talks and full daily and weekly briefings. ● Develop a culture of admonishment for unsafe acts. ● Obligate managers to set good examples for respecting safety on site. ● Ensure that all management staff from MCA-Nepal, the Engineer and Contractors always abide by the Safety Absolutes.	Contractor's Site Manager	Not applicable: these are a statement of professional working standards.	MCA-Nepal Safety Absolutes	Weekly during site operations	Engineer's Health and Safety Manager.	● Interviews with workers ● To be completed at each check.	*Complete at check if compliance is not satisfactory.*
2.2 Injuries due to inadequate provision of safety equipment	● Provide all workers with safety equipment appropriate to the work that they are doing ● Do not allow workers on to a site unless they are wearing the appropriate safety gear ● Keep first aid kits on all work sites, and ensure they remain stocked and all items are in-date. ● Ensure that there are two people on each work site who know what to do if there is an accident and how to use the first aid kit.	Contractor's Site Manager	BOQ items budgeted in all contracts.	MCA-Nepal Safety Absolutes C.01	Weekly during site operations.	Engineer's Health and Safety Manager.	● Visual inspection ● Documents ● Interviews with workers ● To be completed at each check.	*Complete at check if compliance is not satisfactory.*
2.3 Injuries from traffic accidents.	● Respect all traffic and road transportation rules. ● Every passenger must wear a seat belt. ● Every passenger must be in a proper seat, with no sharing of seats. ● Passengers must travel in jeeps or buses (not in the back of pick-ups or trucks). ● Report any accident to your manager.	MCA-Nepal, Engineer's and Contractors' Transport Managers	Not applicable: these are a statement of project rules.	C.04 MCA-Nepal's, Engineer's and Contractors' Traffic Management Plans	Monthly during site operations.	Engineer's Environment Specialist MCA-Nepal Environment Specialist.	● Visual inspection ● Interviews with workers ● To be completed at each check.	*Complete at check if compliance is not satisfactory.*

Potential impacts	Mitigation measures	Responsibility for implementation	Budget provision	Standard or Guideline to be met	Monitoring			
					Check timing	Responsibility to check	Condition assessment	Action required
2.4 Injuries from working at height or in excavations.	● Always put in place special safety measures for workers at height, including training and restraint equipment. ● Always put in place special safety measures for workers in excavations, including training and the provision of shoring materials.	Contractors' Site Managers	Not applicable: these are a statement of project rules.	C.02 Contractors' CESHSMP	Monthly during site operations.	Engineer's Health and Safety Manager.	● Visual inspection ● Interviews with workers ● To be completed at each check.	*Complete at check if compliance is not satisfactory.*
2.5 Injuries from the felling of trees.	● Always put in place special safety measures for workers involved in tree cutting, including training and all necessary tree felling equipment.	Contractors' Site Managers	Not applicable: these are a statement of project rules.	C.03 Contractors' CESHSMP	Monthly during site operations.	Engineer's Health and Safety Manager.	● Visual inspection ● Interviews with workers ● To be completed at each check.	*Complete at check if compliance is not satisfactory.*

Potential impacts	Mitigation measures	Responsibility for implementation	Budget provision	Standard or Guideline to be met	Monitoring			
					Check timing	Responsibility to check	Condition assessment	Action required
3. Community Health and Safety								
3.1 Injuries occur to the public, especially children, during works in the communities near the project work sites.	● Ensure full separation of the public from working sites and unauthorised entry of the public. ● Fence off working areas so that people cannot be injured by things dropped on them or falling on them when they are in excavations. ● Maintain a clean site so that dangerous articles are not left lying around near the work site, especially at night.	Contractor's Site Manager	Not applicable: represents good standard management practices.	D.02 D.03	● Before starting work. ● Monthly during site operations ● After completion of site operations.	Engineer's Health and Safety Manager.	● Visual inspection ● Documents ● To be completed at each check.	*Complete at check if compliance is not satisfactory.*

Potential impacts	Mitigation measures	Responsibility for implementation	Budget provision	Standard or Guideline to be met	Monitoring			
					Check timing	Responsibility to check	Condition assessment	Action required
3.2 Injuries occur to the public from exposure to hazardous substances (e.g. cement, diesel) in the communities near the project work sites.	● Ensure full separation of the public from storage facilities. ● Enforce the exclusion of non-project personnel from all sites with hazardous substances.	Contractor's Site Manager	Not applicable: represents good standard management practices.	F.01	● Before starting work. ● Monthly during site operations. ● After completion of site operations.	Engineer's Health and Safety Manager.	● Visual inspection ● Documents ● To be completed at each check.	*Complete at check if compliance is not satisfactory.*
3.3 Infectious and contagious diseases are spread amongst the communities near the work sites.	● Ensure that non-local workers are accommodated in sound, dry buildings, with good ventilation and clean water supplies, and with good cleanliness and sanitation arrangements. ● Provide awareness trainings to workers and nearby communities, on the prevention of contagion and infection from diseases such as Covid 19, influenza, sexually transmitted diseases and HIV. ● Encourage workers to abstain from sex with local people. ● Workers should have no paid sex	Contractor's Site Manager supported by the Community Liaison Manager	BOQ items budgeted in all contracts.	D.10 D.15	● Before starting work. ● Weekly during site operations.	Engineer's Health and Safety Manager.	● Visual inspection ● Documents ● Interviews with workers ● To be completed at each check.	*Complete at check if compliance is not satisfactory.*

Potential impacts	Mitigation measures	Responsibility for implementation	Budget provision	Standard or Guideline to be met	Monitoring			
					Check timing	Responsibility to check	Condition assessment	Action required
3.4 Sexual exploitation and gender-based violence (GBV) increase in communities near large work sites (substations and big laydown areas), due to the influx of temporary labourers.	● Issue policy statements on the project's adherence to Nepalese law regarding sexual exploitation (including children and prostitution) and gender-based violence and display of information in public spaces. ● Ensure that sections referring to GBV and sexual harassment are included explicitly in the Contract of Employment and workers Code of Conduct for each employee. ● Include a summary of sexual harassment, exploitation, GBV topics in the toolbox talk on a regular basis. ● Include awareness raising on these issues in trainings and site briefings including reporting mechanisms in cases of incidents. ● Set up GRM, Complaint dropbox, use of GoN hotline telephone "1145" for anonymous reporting mechanisms - ● Ensure reporting and responding of the allegation immediately to the Engineer's GSI specialist and MCA-Nepal. ● Ensure that all Contractors have a special investigation procedure under HR Manager is established for allegations against employees for sexual harassment, GBV. ● Ensure the perpetrator will be dismissed in proven cases.	Contractor's Site Manager	Not applicable: represents good standard management practices.	D.11 D.12 D.13 D.15 D.16 Social and Gender Inclusion Plan Trafficking in Persons Risk Management Plan	● Before starting work. ● Monthly during site operations.	Engineer's Health and Safety Manager, supported by Community Liaison Officers and MCA-Nepal GSI Specialist.	● Interviews with workers ● To be completed at each check.	*Complete at check if compliance is not satisfactory.*

Potential impacts	Mitigation measures	Responsibility for implementation	Budget provision	Standard or Guideline to be met	Monitoring			
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4. Community Impacts Management including TIP Risks								
4.1 The project causes general disruption of the communities near its work sites.	● Use the SEP and communication procedures in Annex D.01 to 4.1c, to inform communities about disruption caused by construction work. ● Liaise with the Supervising Engineer's Social Information System to enable liaison in community access and meeting records ● Ensure that communities know about and how/where to access the Grievance Redress Mechanism	Contractor's Social Safeguards Manager	Not applicable: represents good standard management practices.	D.01 D.02 D.03 D.04	Monthly during site operations.	Engineer's Social Safeguards Specialist.	● Interviews with community leaders and members of the public ● To be completed at each check.	*Complete at check if compliance is not satisfactory.*
4.2 Incoming workers do not respect local communities, leading to social disruption, particularly near large work sites (substations and big laydown areas).	● Ensure that the site supervisors brief all workers at the start of every job, and at the beginning of each week, on the main messages regarding respect for the local communities including vulnerable households (low-caste, female-headed and disadvantaged social groups). ● Ensure that all professional and technical staff respect the local communities and behave well. ● Do not ignore blatant disrespect for communities by professional and technical staff.	Contractor's Environment Manager	Not applicable: represents good standard management practices.	D.15	Monthly during site operations.	Engineer's Social Safeguards Specialist.	● Interviews with staff ● To be completed at each check.	*Complete at check if compliance is not satisfactory.*

Potential impacts	Mitigation measures	Responsibility for implementation	Budget provision	Standard or Guideline to be met	Monitoring			
					Check timing	Responsibility to check	Condition assessment	Action required
4.3 Houses and other structures are lost in the substation sites and transmission line rights of way.	● Pay the full and fair compensation as agreed following the procedures given in the Resettlement Action Plan. This includes assistance with the rebuilding process as per the RPF and RAP ● Assist the affected persons to relocate and re-establish their lives and livelihoods. ● Do not allow any work to commence on a site before full resettlement compensation has been completed and the Resettlement Verification report has been accepted ● Use the Land Access Release Permit protocols D.06, C5.2, C5.3	RAP Implementation Manager.	Resettlement Action Plan	Resettlement Action Plan D.06 D.07	● Before starting work.	MCA-Nepal ESP Specialist (Land Acquisition).	● Documents ● To be completed at special checks before construction is permitted to start.	*Complete at check if compliance is not satisfactory.*
4.4 Loss of land use and business sites in the substation sites and transmission line rights of way.	● Pay the full and fair compensation as agreed following the procedures given in the Resettlement Action Plan. ● Assist the affected persons to relocate and re-establish their livelihoods. ● Do not allow any work to commence on a site before full compensation has been completed. ● Use the Land Access Release Permit Protocols D.06, C5.2, C5.3	RAP Implementation Manager.	Resettlement Action Plan Livelihoods Restoration Plan	Resettlement Action Plan Livelihoods Restoration Plan D.06 D.07 D.08	● Before starting work. ● Monthly during site operations.	MCA-Nepal ESP Specialist (Land Acquisition).	● Visual inspection ● Documents ● To be completed at each check.	*Complete at check if compliance is not satisfactory.*

Potential impacts	Mitigation measures	Responsibility for implementation	Budget provision	Standard or Guideline to be met	Monitoring			
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4.5 Cultivated land and crops are disturbed or destroyed, mainly in the rural areas around the substation sites and along the transmission line rights of way	● Avoid the use of cultivated land wherever possible. This includes fallow agricultural land and tree plantations. ● Where use of such land is required, check with the ESP-CA at least four weeks prior to commencement of activities (ideally earlier) that mitigation measures have been agreed and implemented. ● Do not start using cultivated land before the occupier has fully agreed the compensation strategy, all amounts have been paid and this is confirmed by the ESP-CA. ● Avoid damage to crops or land beyond agreed boundaries.	RAP Implementation Manager.	Resettlement Action Plan	Resettlement Action Plan Livelihoods Restoration Plan D.06 D.07 D.08	● Before starting work. ● Monthly during site operations.	MCA-Nepal Environment Specialist assisted by the ESP-CA	● Visual inspection ● Documents ● To be completed at each check.	*Complete at check if compliance is not satisfactory.*
4.6 Local people's livelihoods are adversely affected by project activities.	● Establish an equitable and fair employment strategy. Liaise with the ESP-CA to ensure that it is understood in the local communities (i.e. that it is transparent). ● Give priority to local men and women in labour gangs, and those who used to earn livelihoods on land in the ROW. ● Pay at least the usual accepted district wage rates. ● Do not demand unpaid work or land donations by local farmers or others.	Contractor's Site Manager, supported by Community Liaison Manager	Part of Contractors' standard costs	Livelihoods Restoration Plan D.04 D.09	Monthly during site operations.	Engineer's Social Safeguards Specialist MCA-Nepal ESP Specialist (Land Acquisition).	● Interviews with communities ● To be completed at each check.	*Complete at check if compliance is not satisfactory.*
4.7 Cumulative losses are incurred by social groups unable to respond to change.	● Give priority to local men and women in labour gangs, and those who used to earn livelihoods on land in the ROW. ● Maintain an active policy to ensure gender equality and opportunities for vulnerable groups. ● Ensure equal payment for equal work.	Contractor's Site Manager supported by the Community Liaison Manager	Not applicable: represents good equitable management practices.	Livelihoods Restoration Plan D.04 D.09	Monthly during site operations.	MCA-Nepal GSI Specialist.	● Interviews with communities ● To be completed at each check.	*Complete at check if compliance is not satisfactory.*

Potential impacts	Mitigation measures	Responsibility for implementation	Budget provision	Standard or Guideline to be met	Monitoring			
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4.8 Incoming workers engage with local people resulting in TIP	● Maintain a zero tolerance policy against TIP. ● Issue policy statements on the project's adherence to MCC Policy and Nepalese law regarding TIP and display of information in public spaces. ● Develop and implement TIP Risk Management Plan. ● Include awareness raising on these issues in trainings and site briefings for contractors' team, toolbox talk on regular basis and also in the nearby communities, schools. ● Public outreach activities through IEC materials, local FMs. ● No homestay arrangement for Contractor's workers in nearby communities. Security checks to employee's quarters and work station including their mobility monitor. ● No transportation of community people in contractors' vehicle. ● Demolition of any structures erected for temporary accommodation or resting sheds after the work is completed. ● Set up GRM, Complaint dropbox, hotline telephone (rapid response) "1177" for anonymous reporting mechanism. ● Report TIP incidents immediately after being aware of the case and must reach MCC within 24 hours. ● Have an internal investigation process including the Gender and Social Inclusion Manager to deal with allegations leading to TIP or report to Nepal Police.	Contractor's Gender and Social Inclusion Manager	TIP Risk Management Plan	TIP Risk Management Plan D.12 D.16	● Before starting work. ● Monthly during site operations.	Engineer's Social Safeguard Manager, supported by Community Liaison Officers and MCA-Nepal GSI Specialist and ESP Team	● Interviews with communities and workers ● To be completed at each check.	*Complete at check if compliance is not satisfactory.*

Potential impacts	Mitigation measures	Responsibility for implementation	Budget provision	Standard or Guideline to be met	Monitoring			
					Check timing	Responsibility to check	Condition assessment	Action required
5. Traffic Management								
5.1 Use of public roads by project vehicles increases the accident rate and generates nuisance levels of dust.	● Minimise vehicle movements. ● Enforce transport rules and regulations rigorously. ● Conduct driving safety awareness campaigns among staff. ● Do not tolerate any poor behaviour, dangerous driving or even minor traffic infringements by any staff or workers of any project-related organisation. ● Do not allow dust generation to affect the ambient air quality outside the site. ● Spray dust suppression water as required, but ensure it is not applied at such rates that it causes erosion and washing out of the roads.	MCA-Nepal, Engineer's and Contractors' Transport Managers	Not applicable: represents good standard management practices.	C.04 MCA-Nepal's, Engineer's and Contractors' Traffic Management Plans	● Before start of work. ● Monthly during site operations.	Engineer's Environment Specialist MCA-Nepal Environment Specialist.	● Visual inspection ● Documents ● Interviews with workers ● To be completed at each check.	*Complete at check if compliance is not satisfactory.*
5.2 Vehicle use gives rise to unnecessary amounts of energy wastage.	● Turn off a vehicle's engine when it is stationery and open the windows for ventilation if necessary. ● Walk from one area to another within each work site. ● Minimise vehicle movements. ● Only use vehicles for journeys that are longer than 500 metres.	MCA-Nepal, Engineer's and Contractors' Transport Managers	Not applicable: represents good standard management practices.	C.04 MCA-Nepal's, Engineer's and Contractors' Traffic Management Plans	● Monthly during site operations.	Engineer's Environment Specialist MCA-Nepal Environment Specialist.	● Visual inspection ● Interviews with workers ● To be completed at each check.	*Complete at check if compliance is not satisfactory.*

Potential impacts	Mitigation measures	Responsibility for implementation	Budget provision	Standard or Guideline to be met	Monitoring			
					Check timing	Responsibility to check	Condition assessment	Action required
6. Cultural Heritage Management								
6.1 Cultural sites are damaged**,** **a**nywhere that land is cleared, such as for tower sites.	● Stop work as soon as potential cultural heritage and archaeological finds are discovered. ● Put in place the Chance Finds Procedure: see Annex E.09. ● Notify the Department of Archaeology. ● Fence the potential site to prevent disturbance before investigation.	● Contractor's Site Manager ● Contractor's Community Liaison Manager	Not applicable: represents good standard management practices. RAP contingency if any need to compensate.	E.09	● Before starting work. ● As required thereafter.	Engineer's Social Safeguards Specialist.	● Visual inspection ● Documents ● Interviews with communities ● To be completed at each check.	*Complete at check if compliance is not satisfactory.*
7. Hazardous Materials Management								
7.1 Pollution to air, soil or water and danger (illness or injury) from the delivery, handling and use of hazardous materials (including fuels, lubricants, paints and cement) at project camps, laydown areas and construction sites.	● Follow the hazardous materials management guidelines fully. ● Use the safest available transportation option. On roads, use convoys with accompanying support. ● Deliver only to prepared locations. ● Maintain supplies of spill kits and granules in all vehicles and at all offloading locations. ● Ensure competent drivers and close supervision. ● Provide emergency training to all personnel involved in the movement and handling of hazardous materials. ● Use both international and Nepali labelling for identifying hazardous substances. ● Maintain emergency response / fire-fighting teams trained for a spillage event and appropriate equipment at each substation and major laydown facility.	Contractor's Site Manager and Environment Manager	BOQ for spill kits and fire prevention equipment. Other measures: not applicable: represents good standard management practices.	F.01 F.02 F.05 F.06 F.07 F.08	● Before start of work. ● Monthly during site operations.	Engineer's Environment Specialist.	● Visual inspection ● Documents ● To be completed at each check	*Complete at check if compliance is not satisfactory.*

Potential impacts	Mitigation measures	Responsibility for implementation	Budget provision	Standard or Guideline to be met	Monitoring			
					Check timing	Responsibility to check	Condition assessment	Action required
7.2 Pollution to air, soil or water and danger (illness or injury) from fuel and oil storage at project laydown areas.	● Follow the hazardous materials management guidelines fully. ● Only use storage facilities located down gradient of public water supply boreholes and at least 100 metres from watercourses. ● Only use designated storage areas, with bunding of 150% volume of total capacity. ● Ensure that there are retention systems, including walls, bunds and lined drains to contain any spillages. ● Ensure that there is hard standing, with a drainage system that includes oil/water separators. ● Ensure spill kits and granules are available, and if used, dispose of waste appropriately. ● Check facilities, safeguards and procedures for any potential for explosions to occur. ● Maintain emergency response / fire-fighting teams trained for a spillage event and appropriate equipment at each facility where fuel is stored. ● Provide training for all personnel handling fuel and oil. ● Take rapid action if uncontained spills and leakages occur, to prevent soil contamination, and ground and surface water pollution. ● Do not allow soils to become contaminated and sterilised, or for water courses to be affected by runoff carrying toxic substances, affecting community water supplies, aquatic biodiversity and wildlife. ● Have controls in place to minimise opportunities for fuel pilferage.	Contractor's Site Manager assisted by Environment Manager	BOQ for storage facilities etc., spill kits and fire prevention equipment. Other measures: not applicable: represents good standard management practices.	F.01 F.02 F.05 F.07	● Before start of work. ● Monthly during site operations.	Engineer's Environment Specialist.	● Visual inspection ● Documents ● Interviews with workers ● To be completed at each check ● Sampling of surface water, groundwater and/or soil when accidents occur.	*Complete at check if compliance is not satisfactory.*

Potential impacts	Mitigation measures	Responsibility for implementation	Budget provision	Standard or Guideline to be met	Monitoring			
					Check timing	Responsibility to check	Condition assessment	Action required
7.3 Pollution to air, soil or water and danger (illness or injury) from refuelling operations at project laydown areas and construction sites.	● Follow the hazardous materials management guidelines fully, which include procedures for refuelling vehicles and site plant. ● Spill kits are to be carried by all refuelling vehicles. ● Refuel vehicles only on impermeable hard standings with controlled drainage (traps and interceptors). ● Plant refuelling on site is to be carried out according to strict protocols for refuelling in unprotected areas. ● Enforce the reporting system for spillage incidents.	Contractor's Site Manager assisted by Environment Manager	BOQ for spill kits and fire prevention equipment. Other measures: not applicable: represents good standard management practices.	F.01 F.02 F.05 F.07	● Before start of work. ● Monthly during site operations.	Engineer's Environment Specialist.	● Visual inspection ● Documents ● To be completed at each check ● Sampling of surface water, groundwater and/or soil when accidents occur.	*Complete at check if compliance is not satisfactory.*
7.4 Pollution to soil or water from the storage of steel members at project laydown areas.	● Ensure that the specifications are for no steel members to have coatings with heavy metals or other toxic elements or compounds. ● Submit certificates of coatings and the relevant MSDS for approval by MCA-Nepal before importing any steel members.	Contractor's Project Manager. Engineer's Environmental Specialist	Not applicable: represents good standard management practices.	F.01 F.02	● Before start of work. ● Whenever deliveries occur.	Engineer's Environment Specialist.	● Documents ● Sampling of soil at laydown areas.	*Complete at check if compliance is not satisfactory.*

Potential impacts	Mitigation measures	Responsibility for implementation	Budget provision	Standard or Guideline to be met	Monitoring			
					Check timing	Responsibility to check	Condition assessment	Action required
8. Construction Materials Management								
8.1 Damage to the land from aggregate sources and quarries	● Only obtain aggregates from locations with valid environmental permits from MOFE (including local government divisions) that cover the volume required by the project in addition to other production. ● Identify aggregate sources and quarry areas as early as possible, and create specific risk assessment and mitigation plans for these areas. ● Gain MCA-Nepal approval for all material sources. ● Allow adequate time for the consultation, resettlement and compensation of people whose land is affected. ● Install sediment control measures to prevent runoff from causing contamination and siltation of water bodies. ● Do not allow any vehicle or machine to operate in a watercourse. ● Take appropriate measures to prevent emissions and dust from affecting the ambient air quality outside the immediate site boundaries. ● Ensure proper geotechnical management so that excavation and tips do not trigger slope instability or affect water courses in any way. ● Ensure that material source areas are signed off by MCA-Nepal after project-related extraction, with rehabilitation completed where necessary.	● MCA-Nepal Environment Specialist to approve sources and inspect after project-related extraction ● Contractor's engineers ● Contractor's Site Manager ● Contractor's Environment Manager	Construction materials are BOQ items. Erosion protection and land stabilisation of material sources are BOQ items. Other measures: not applicable: represents good standard management practices.	E.01 E.06 E.14 E.16 - E.21	● Before start of work ● Monthly during site operations. ● After closure of quarries and pits.	Engineer's Environment Specialist MCA-Nepal Environment Specialist.	● Visual inspection ● Documents ● Interviews with the communities ● Air quality monitoring with meters ● Slope stability testing ● To be completed at each check	*Complete at check if compliance is not satisfactory.*

Potential impacts	Mitigation measures	Responsibility for implementation	Budget provision	Standard or Guideline to be met	Monitoring			
					Check timing	Responsibility to check	Condition assessment	Action required
8.2 Disturbance and danger from explosives and blasting	● Obtain formal licensing from the government. ● Involve the Nepal Army from the planning stage onwards. ● Abide by Nepalese laws and regulations regarding the handling, storage and use of explosives. ● Be particularly strict in enforcing safety regulations when using explosives. ● Follow the detailed specifications for blasting provided in the ESHSMP: see Annex F.04. ● Ensure that blasting does not create excessive noise and vibration disturbance to wildlife and communities. ● Do not allow any unauthorised person to have access to explosives. ● Do not allow anyone to use welding equipment, smoke, cook food light any fire or use a mobile phone within 50 metres of an explosives store.	Contractor's Site Manager	Blasting is a BOQ item. Other measures: not applicable: represents good standard management practices.	F.04	● Before start of work. ● Monthly during site operations.	Engineer's Environment Manager.	● Visual inspection ● Documents ● Interviews with the workers ● Noise measurements ● To be completed at each check.	*Complete at check if compliance is not satisfactory.*

Potential impacts	Mitigation measures	Responsibility for implementation	Budget provision	Standard or Guideline to be met	Monitoring			
					Check timing	Responsibility to check	Condition assessment	Action required
9. Waste Management								
9.1 Pollution of soil or water and ill-health from waste generation and management at camps, laydown areas and construction sites.	● Operate a waste management strategy based on principles of reduction, recovery, recycle and reuse. ● Collect and segregate waste into hazardous and non-hazardous at the source. ● Avoid waste spills during storage and handling. ● Dispose of all waste in an appropriate manner. ● Ensure use of PPE by staff when handling all forms of waste. ● Ensure that waste collection, segregation, storage and disposal systems avoid environmental degradation, contamination, and hazards to human and animal health. ● Dispose of waste to MOFE-authorised facilities (including local government approved facilities). ● If there are no alternatives, design and construct a landfill site that is lined and in an area that is not prone to slippage, cannot leach to surface water and groundwater, and is at least 500 metres from settlement. It should be located down gradient of any water supply springs or boreholes. ● Ensure that the landfill site is in a secure compound and that its operation conforms to MOFE standards. ● Deal with hazardous waste according to international best practice and MOFE guidelines.	● Contractor's Site Manager ● Contractor's Environment Manager	Waste management and recycling facilities are BOQ items. Other measures: not applicable: represents good standard management practices.	GON Solid Waste Management Rules F.09 F.11	● Before start of work. ● Monthly during site operations.	Engineer's Environment Specialist.	● Visual inspection ● Documents ● Interviews with the workers ● To be completed at each check	*Complete at check if compliance is not satisfactory.*

Potential impacts	Mitigation measures	Responsibility for implementation	Budget provision	Standard or Guideline to be met	Monitoring			
					Check timing	Responsibility to check	Condition assessment	Action required
9.2 Pollution of soil or water from poor sanitation at work sites – camps, laydown areas and construction sites.	● Provide proper water closet toilet facilities at all long term (> 1 month) work sites. ● Do not allow water to run out at toilets. ● Maintain all toilets in a clean and sanitary condition. ● Provide proper earth pit latrines at all work sites where work will be undertaken for periods of up to one month. ● Fill the latrines in once they become full and when site work is complete. ● Do not allow site workers to defecate in the open anywhere on the site or in its vicinity. ● Add the use of sanitation arrangements in workers' inductions.	● Contractor's Site Manager ● Contractor's Environment Manager	Sanitation is a BOQ item. Other measures: not applicable: represents good standard management practices.	E.08 F.10	Monthly during site operations.	Engineer's Environment Specialist.	● Visual inspection ● Documents ● To be completed at each check	*Complete at check if compliance is not satisfactory.*

Potential impacts	Mitigation measures	Responsibility for implementation	Budget provision	Standard or Guideline to be met	Monitoring			
					Check timing	Responsibility to check	Condition assessment	Action required
10. Soil Erosion Control								
10.1 Clearance of vegetation leads to excessive risk of soil erosion.	● Only disturb the soil where it is necessary to do so for the agreed works. ● Limit vegetation clearing to those trees approved by the Division Forest Office. ● Only cut vegetation using saws and axes. Never clear vegetation using machines or fire. ● Leave tree stumps and roots, smaller understory trees, shrubs, and the herbaceous layer intact to protect the soil from erosion. ● Use existing tracks and previously disturbed areas as far as possible. ● Do not make access tracks wider than 1.25 metre or make other cleared areas larger than is absolutely necessary. ● Allow small plants to grow back on the edges of tracks and other disturbed areas.	Contractor's Site Manager, supported by Environment Manager	Vegetation clearance is a BOQ item. This covers only the cutting and disposal of vegetation and specifically excludes ground disturbance.	E.10 E.16 – E.21	● Before starting work. ● Monthly during site operations. ● After completion of site operations.	Engineer's Environment Specialist.	● Visual inspection ● Documents ● To be completed at each check	*Complete at check if compliance is not satisfactory.*

Potential impacts	Mitigation measures	Responsibility for implementation	Budget provision	Standard or Guideline to be met	Monitoring			
					Check timing	Responsibility to check	Condition assessment	Action required
10.2 Access tracks and tower foundation excavations lead to erosion and physical damage of soils and earthworks.	● Where it is present, remove and stockpile topsoil to a depth of 200 mm for later site restoration use. ● Store soil excavated for access tracks and tower foundation construction in a designated location and replace it during site restoration. ● Do not allow erosion to happen without taking rapid control measures: install erosion and sediment controls as the very first physical site activity. ● Grade any newly formed slopes to the minimum angle possible. ● Cut slopes to grades appropriate to the material found. ● Level surfaces to prevent erosion as soon as works have been completed. ● Keep earth piles away from the edges of steep slopes and watercourses. ● Undertake soil erosion and sediment controls as necessary, to protect areas from slips and erosion. All soil slopes steeper than 10° must be revegetated according to the guidelines in this ESHSMP. ● Restore tracks and tower sites to the original profiles, along with full soil and vegetation assemblages.	Contractor's Site Manager, supported by Environment Manager	Topsoil removal, stockpiling and replacement are BOQ items. Sediment controls, and slope earthworks, stabilisation and protection are BOQ items.	E.01 E.02 E.03 E.04 E.05 E.14 E.15 E.16 – E.21	● Before starting work. ● Monthly during site operations. ● After completion of site operations.	Engineer's Environment Specialist.	● Visual inspection ● Documents ● To be completed at each check	*Complete at check if compliance is not satisfactory.*

Potential impacts	Mitigation measures	Responsibility for implementation	Budget provision	Standard or Guideline to be met	Monitoring			
					Check timing	Responsibility to check	Condition assessment	Action required
10.3 Earthworks of any other types lead to erosion and physical damage of soils and earthworks – all construction sites, camps and ancillary infrastructure areas.	● Where it is present, remove and stockpile topsoil to a depth of 200 mm for later site restoration use. ● Store soil that has to be excavated in a designated location and replace it during site restoration. ● Do not allow erosion to happen without taking rapid control measures: install erosion and sediment controls as the very first physical site activity. ● Grade any newly formed slopes to the minimum angle possible. ● Cut slopes to grades appropriate to the material found. ● Level surfaces to prevent erosion as soon as works have been completed. ● Keep earth piles away from the edges of steep slopes and watercourses. ● Undertake soil erosion and sediment controls as necessary, to protect areas from slips and erosion. All soil slopes steeper than 10° must be revegetated according to the guidelines in this ESHSMP. ● Avoid compaction of the soil in temporary use areas by limiting machine and vehicle access. ● Rip or deep-dig compacted soil at the start of site rehabilitation. ● Restore disturbed sites to the original profiles, along with full soil and vegetation assemblages.	Contractor's Site Manager, supported by Environment Manager	Topsoil removal, stockpiling and replacement are BOQ items. Sediment controls, and slope earthworks, stabilisation and protection are BOQ items.	E.01 E.02 E.10 E.14 E.15 E.16 – E.21	● Before starting work. ● Monthly during site operations. ● After completion of site operations.	Engineer's Environment Specialist.	● Visual inspection ● Documents ● To be completed at each check	*Complete at check if compliance is not satisfactory.*

Potential impacts	Mitigation measures	Responsibility for implementation	Budget provision	Standard or Guideline to be met	Monitoring			
					Check timing	Responsibility to check	Condition assessment	Action required
11. Water Resources Management								
11.1 Damage to water resources by pollution with sediment or chemicals in runoff entering any springs, streams, rivers, nearby wetlands or water supply boreholes.	● Do not dispose of anything into any kind of water body. ● Keep earthworks, tracks and other cleared areas as far as possible from watercourses or bodies. ● Where earthworks, tracks, roads and other cleared areas are within 50 metres of watercourses or bodies, take special care to ensure that fuel, oil and other hazardous substances, and any earthworks, are properly contained. ● Ensure that all community water supplies are safeguarded. Confirm the location of local water supplies with the ESP-CA. Be prepared to bring in clean water for communities if the works pollute their water sources ● Do not extract more than 20 percent of the flow from a spring or watercourse. Never take so much water from a supply that the normal users are short. ● Schedule earthworks only in the dry season. ● Use surface protection measures to control soil erosion and protect watercourses. ● Regulate water discharge and run off using sediment traps and ponds. ● Monitor downstream water quality routinely.	● Contractor's Site Manager, ● Contractor's Environment Manager	Sediment controls are BOQ items. Other measures: not applicable: represents good standard management practices.	GON Water Resources Management Regulations E.07 E.08 E.10 E.14 - E.21 F.08	● Before starting work. ● Monthly during site operations. ● After completion of site operations.	Engineer's Environment Specialist and ESP Community Assistant together.	● Visual inspection ● Documents ● Interviews with the communities ● Surface water sampling ● Groundwater sampling ● To be completed at each check.	*Complete at check if compliance is not satisfactory.*

Potential impacts	Mitigation measures	Responsibility for implementation	Budget provision	Standard or Guideline to be met	Monitoring			
					Check timing	Responsibility to check	Condition assessment	Action required
11.2 Damage to streams from construction works taking place in riverine areas, causing aquatic pollution with sediment or hazardous materials.	● Keep earthworks, tracks and other cleared areas as far as possible from watercourses or bodies. ● Where earthworks, tracks, roads and other cleared areas are within 50 metres of watercourses or bodies, take special care to ensure that fuel, oil and other hazardous substances, and any earthworks, are properly contained – follow the special guidelines for approved working in riverine zones. ● Schedule earthworks only in the dry season. ● Use surface protection measures to control soil erosion and protect watercourses. ● Regulate water discharge and run off using sediment traps and ponds. ● Monitor downstream water quality routinely.	● Contractor's Site Manager, ● Contractor's Environment Manager	Sediment controls are BOQ items. Other measures: not applicable: represents good standard management practices.	GON Water Resources Management Regulations E.07 E.08 E.10 E.14 - E.21	● Before starting work. ● Monthly during site operations. ● After completion of site operations.	Engineer's Environment Specialist and ESP Community Assistant together.	● Visual inspection ● Documents ● Interviews with the communities ● Surface water sampling ● Groundwater sampling ● To be completed at each check.	*Complete at check if compliance is not satisfactory.*

Potential impacts	Mitigation measures	Responsibility for implementation	Budget provision	Standard or Guideline to be met	Monitoring			
					Check timing	Responsibility to check	Condition assessment	Action required
12. Air Emissions Management								
12.1 Dust from construction sites and access tracks to ancillary infrastructure affects local communities and crops	● Enforce dust control measures during the dry season. ● Enforce strict speed limits (15 km/h) on earth tracks by placing speed bumps. Always provide warning signs with speed bumps. ● Spray water on to dry earth surfaces. ● Stop work in very windy, dry weather.	Contractor's Site Manager, supported by Environment Manager	Speed bumps and water spraying are BOQ items. Other measures: not applicable: represents good standard management practices.	C.04 MCA-Nepal's, Engineer's and Contractors' Traffic Management Plans	● Monthly during site operations. ●	Engineer's Environment Specialist.	● Visual inspection ● Documents ● Air quality monitoring using dust meters ● To be completed at each check.	*Complete at check if compliance is not satisfactory.*
12.2 Exhaust fumes affect local communities close to roads and all project ancillary infrastructure.	● Use only vehicles and equipment with engines that comply with national emissions standards. ● Maintain engines in good working order.	Contractor's Site Manager, supported by Environment Manager	Not applicable: represents good standard management practices.	Equipment Service Manuals	● Monthly during site operations. ●	Engineer's Environment Specialist.	● Visual inspection ● Documents ● Air quality monitoring using gas analysers ● To be completed at each check.	*Complete at check if compliance is not satisfactory.*

Potential impacts	Mitigation measures	Responsibility for implementation	Budget provision	Standard or Guideline to be met	Monitoring			
					Check timing	Responsibility to check	Condition assessment	Action required
13. Biodiversity Management								
13.1 Vegetation (both natural plants and farm plants but particularly natural plants in forests), other than invasive species, is damaged or destroyed unnecessarily beyond the agreed boundaries.	● Only cut vegetation that is in the way. This means plants that are in the direct area required for the agreed works. ● Do not cut any more vegetation than is necessary for site access and working. ● Do not use fire to remove vegetation. ● Do not burn cut vegetation.	Contractor's Site Manager, supported by Environment Manager	Not applicable: represents good standard management practices.	E.10	● Before starting work. ● Monthly during site operations. ● After completion of site operations.	MCA-Nepal Environment Specialist.	● Visual inspection ● Documents ● To be completed at each check.	*Complete at check if compliance is not satisfactory.*
13.2 Exploitation of forest resources, including NTFPs, by Contractors and workers.	● Instruct workforce not to collect or purchase NTFPs on site or in bazaars within 10 km of work sites. ● Avoid all use of fire. ● Provide workers with food when they are living in places where there is no affordable market source of food.	Contractor's Site Manager, supported by Environment Manager	Not applicable: represents good standard management practices.	D.10 D.15 E.11	● Before starting work. ● Monthly during site operations. ● After completion of site operations.	Engineer's Environment Specialist.	● Visual inspection ● Documents ● To be completed at each check.	*Complete at check if compliance is not satisfactory.*
13.3 Alien species invade areas of the ROW where natural forest is cleared, suppressing growth of low-stature native plants.	● Monitor areas where natural forest has been cleared. ● If invasive species start to become a problem, devise and implement a site-specific control plan.	Engineer's Environment Specialist	Not applicable: represents good standard management practices.	None	● Before site clearance. ● Annually during construction. ● After completion of construction.	MCA-Nepal's Environment Specialist.	● Visual inspection ● To be completed at each check.	*Complete at check if compliance is not satisfactory.*

Potential impacts	Mitigation measures	Responsibility for implementation	Budget provision	Standard or Guideline to be met	Monitoring			
					Check timing	Responsibility to check	Condition assessment	Action required
13.4 Wild animals other than very common or non-native pest species are killed.	● Instruct workforce not to hunt, deal in or transport wild meat on site. ● Provide meat from domestic animals if there is no alternative. ● Avoid all use of fire. ● Provide workers with meat from domesticated animals when they are living in places where there is no affordable market source of it.	Contractor's Site Manager, supported by Environment Manager	Not applicable: represents good standard management practices.	E.11 - E.13 D.10 D.15	Monthly during site operations.	Engineer's Environment Specialist, supported by Social Safeguards Specialist.	● Visual inspection ● Documents ● Interviews with workers ● To be completed at each check.	*Complete at check if compliance is not satisfactory.*
13.5 Birds are killed by colliding with conductors, or by electrocutions.	● Install marker spheres on earth wires at all locations where the EIA recommended this method to improve visibility. ● Construct transmission lines to design, so that the risk of electrocution of birds is eliminated.	Contractor's Site Manager, supported by Environment Manager	Conductor visibility marker spheres are a BOQ item.	APLIC Manuals EIA – pages 7.3.43 9.9 9.51	Monthly during site operations.	Engineer's Environment Specialist, supported by Social Safeguards Specialist.	● Visual inspection ● Documents ● Interviews with workers ● To be completed at each check.	*Complete at check if compliance is not satisfactory.*
13.6 Bird nesting sites are reduced by vegetation clearance and other project activities.	● If significant bird nesting sites are found to be destroyed during construction, install nesting ledges on towers (but not transmission towers) to provide alternatives.	Contractor's Site Manager, supported by Environment Manager	Towers and nesting ledges are a BOQ item.	APLIC Manuals EIA – biodiversity mitigation section	Monthly during site operations.	Engineer's Environment Specialist, supported by Social Safeguards Specialist.	● Visual inspection ● Documents ● Interviews with workers ● To be completed at each check.	*Complete at check if compliance is not satisfactory.*

Potential impacts	Mitigation measures	Responsibility for implementation	Budget provision	Standard or Guideline to be met	Monitoring			
					Check timing	Responsibility to check	Condition assessment	Action required
14. Noise Abatement								
14.1 Noise disturbance at excessive levels from construction activities, laydown areas, quarries, etc.	● Minimise site-generated noise to the greatest possible extent. ● Do not allow works to occur during the hours of darkness (6 pm to 6 am) within 500 metres of a dwelling. ● Do not allow works to occur on religious holidays. ● Provide warnings of blasting, starting at least 24 hours ahead, and ensure no one is within the 500-metre clearance zone. Siren to be blare before blasting activities. ● Provide communities, through the ESP-CA, with details of the works programme. ● Do not deviate from the agreed timing of works. ● Provide ear protection to all workers exposed to noise over 70 dB(A). ● Do not allow any person to come close to a machine without having ear protection in place.	Contractor's Site Manager, supported by Environment Manager and Community Liaison Manager	Workers' ear protection is a BOQ item as part of PPE. Other measures: not applicable: represents good standard management practices.	GON Noise Control Rules	● Before starting work. ● Monthly during site operations.	Engineer's Health and Safety Manager	● Visual inspection ● Documents ● Interviews with workers ● Interviews with communities ● Noise measurements ● To be completed at each check.	*Complete at check if compliance is not satisfactory.*

Potential impacts	Mitigation measures	Responsibility for implementation	Budget provision	Standard or Guideline to be met	Monitoring			
					Check timing	Responsibility to check	Condition assessment	Action required
15. Office Management								
15.1 Project offices cause unnecessary environmental pollution and energy waste.	● Open windows for ventilation rather than using air conditioners. ● Do not have heaters or air conditioners on when doors and windows are open. ● Turn off heaters, fans or air conditioning when you are not in a room. ● Turn off lights when you are not in a room. ● Do not print out documents unless you really need them. ● Avoid using plastic water bottles and plastic cups for drinking water. Instead, use glass bottles and mugs. ● Reuse water bottles by refilling.	MCA-Nepal Environment Specialist. Engineer's Environment Specialist. Contractor's Environment Manager	Not applicable: represents good standard management practices.	None	● Monthly during site operations.	MCA-Nepal's Environment Specialist	● Visual inspection ● To be completed at each check.	*Complete at check if compliance is not satisfactory.*

11. MONITORING, REPORTING AND ENFORCEMENT PROCESSES

This section explains the reporting and monitoring processes used for ESHS safeguarding by the Electricity Transmission Project.

11.1 Monitoring Processes

Project construction activities will be monitored and supervised to document that works are undertaken in accordance with the detailed project design, permits, approvals, contract conditions and the measures described in this ESHSMP.

Pre-construction inspections of project construction sites shall be undertaken jointly by MCA-Nepal, the Engineer and each Contractor, to establish the initial site condition at the time of the Contractor being granted access to the site.

The mitigation and monitoring matrix in section 10.2 identifies the monitoring frequency for each topic area at each part of the overall project site during the pre-construction and construction phases. The Contractors are responsible for the implementation of most mitigation measures, but some are the responsibility of other entities, particularly the engineer, the RAP implementation consultant and MCA-Nepal itself. Consequently the monitoring of compliance is mostly the responsibility of the Engineer on behalf of MCA-Nepal, but in some cases it is the direct responsibility of MCA-Nepal. However, as the Contractors will be using the same reporting format for ESHS activities, there is an element of self-monitoring: the purpose of this is to force the Contractors to review their own activities in relation to ESHS compliance on a regular basis.

Every Contractor shall submit monthly ESHS Performance Reports to the Engineer as part of the monthly reporting of each contract's activities. The Engineer will review these reports, and prepare its own independent monthly ESHS Performance Report, which will be submitted to MCA-Nepal along with the Contractors' monthly reports. MCA-Nepal will forward copies of all reports to MCC. The Engineer's reports will identify any discrepancies in the Contractors' ESHS Performance Reports, and whether each Contractor is in conformance with its environmental, social, health and safety performance requirements according to the contract and ESHSMP conditions. Where any of the sites or activities are not in full compliance, the Engineer must document these, identify opportunities for improvement, and provide directions to the Contractors on corrective actions. The Engineer will also provide a copy of its reports to the Contractors at the same time, for appropriate action; and the Contractors shall undertake all actions as specified.

The ESP and GSI staff of MCA-Nepal will also carry out monitoring. For the areas of responsibility falling to them in the mitigation and monitoring matrix in section 10.2, this will be done as per the specified timing. For all other areas, it will be done on a spot-check basis.

Any person identifying an ESHS non-compliance should use the standard ESHS monitoring format (see sections 11.2 and 11.3) to alert their line manager as appropriate, in order to ensure that action is taken promptly to resolve the problem. The same form will be incorporated in the next monthly report. As stated in section 11.4, non-compliances can also lead to immediate actions to stop tasks or close sites.

The Engineer and MCA-Nepal will carry out a post-construction audit of each completed project work area (i.e. substations, tower sites, laydown areas, construction material sources, camps, access routes, etc.). All outstanding work must be completed to MCA-Nepal's satisfaction before a Contractor will be allowed to hand over any part of the site.

MOFE may conduct monitoring of the Contractors' activities to evaluate project compliance with the ESHSMP, and other project commitments, project approval conditions and statutory requirements. MCA-Nepal, the Engineer and Contractors must provide MOFE with all necessary ESHS records and arrange for their relevant staff to be available during MOFE site inspections, if requested.

11.2 Reporting Processes

A single ESHS reporting form is used by all three tiers of organisation in the ETP. The format for the form is given in section 11.3.

The reporting system is as follows.

Contractors' reporting.

1. Each Contractor's ESHS team must complete Monthly ESHS Reports for the topics for which they are responsible, forming part of the overall monthly report for that contract. This will cover each area of responsibility for the respective Contractor, and the reporting must be broken down into appropriate sections of the Contractor's site. Particularly for transmission line contracts, this may require a number of each topic area reports to ensure that all sections of the site are reported; there must also be separate reporting for ancillary facilities, such as laydown areas, worker camps and construction material sources. The process of monitoring to compile the monthly reports should ensure that any areas of non-compliance are identified and resolved. Reports must include details on the site attendance of ESHS staff relative to the protocol for site visits approved by MCA-Nepal.
2. The Contractor's Monthly ESHS Report is to be combined with the Monthly Progress Report (covering all of the technical aspects) by the Site Manager and submitted to the Contractor's Project Manager.
3. The Contractor's Project Manager will review the combined report and issue instructions for any corrective actions required. Meanwhile they will also submit the combined report to the Resident Engineer.

Engineer's reporting.

1. The Engineer's ESHS team must complete Monthly ESHS Reports for the topics for which they are responsible, forming part of the overall monthly report for the project. The reporting must be broken down into appropriate sections of the project site. Particularly for transmission line contracts, this may require a number of each topic area reports to ensure that all sections of the site are reported; there must also be separate reporting for ancillary facilities, such as laydown areas, worker camps and construction material sources. Reports must include details on the site attendance of ESHS staff relative to the protocol for site visits approved by MCA-Nepal.
2. The Engineer's Monthly ESHS Report is combined with the Monthly Progress Report (covering all of the technical aspects) by the Site Engineer and submitted to the Resident Engineer.
3. The Resident Engineer will review the combined report and the Contractors' combined monthly reports. They will issue instructions for any corrective actions required. Meanwhile they will also submit the combined reports of the Engineer and Contractors to the relevant MCA-Nepal Project Manager and Deputy Executive Director for Project Delivery.

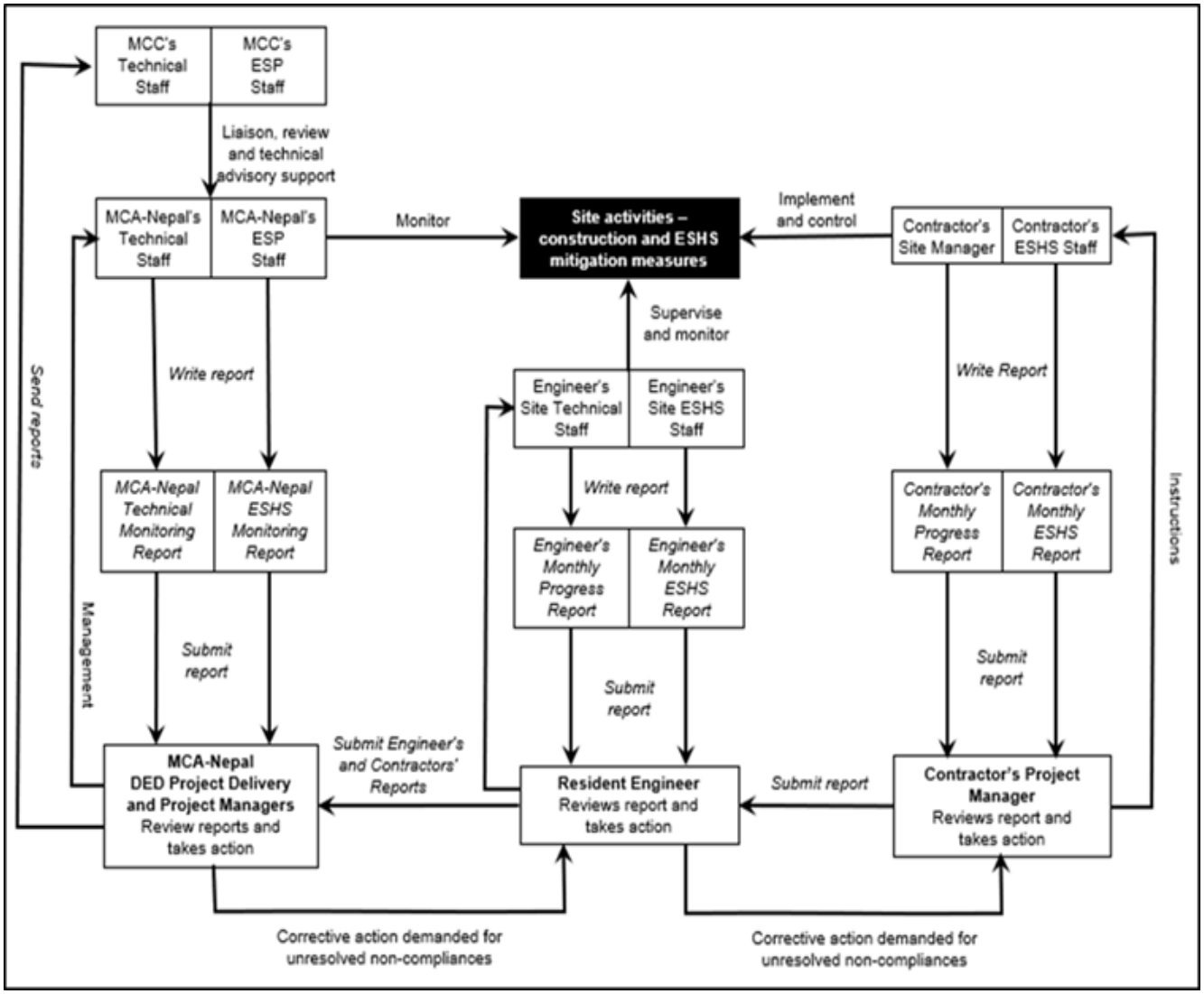
MCA-Nepal's reporting.

1. The MCA-Nepal's ESP and GSI team must complete monitoring reports for the topics for which they are responsible, in a rolling programme that is agreed with their respective Project Manager.
2. The Project Manager will review the ESP/GSI monitoring reports in connection with the Engineer's and Contractors' monthly reports. They will issue instructions to the Resident Engineer for any corrective actions required. Meanwhile they will also submit the reports to the Millennium Challenge Corporation.

The regular reporting and action flows are shown in the diagram below.

As well as the formal monthly reporting by the Contractors and engineer, and the agreed monitoring by MCA-Nepal's technical and ESP staff, non-compliance reporting can happen at any time. The process for this is described in section 11.4.

Regular reporting and action flows



11.3 Monitoring Report Format

The format for monitoring reports to be used will be as shown below.

Standard monitoring reporting format – all reports

Potential impact	Mitigation measures	Site location	Check date	Checker	Condition assessment	Compliance			Action required		
						Full	Part	None	Action	By whom	Deadline
Topic area											
From ESHSMP	*From ESHSMP*										

Some hypothetical worked examples of the monitoring report format are given below.

Example of the situation where everything is as it should be

Potential impact	Mitigation measures	Site location	Check date	Checker	Condition assessment	Compliance			Action required		
						Full	Part	None	Action	By whom	Deadline
12. Air quality management											
12.1 Dust from construction sites and access tracks to ancillary infrastructure affects local communities and crops	● Enforce dust control measures during the dry season. ● Enforce strict speed limits on earth tracks by placing speed bumps. ● Spray water on to dry earth surfaces. ● Stop work in very windy, dry weather.	Contract 01: Dandagaon Laydown Site	21 April 2024	MCA-ESP Specialist	Site is in good condition throughout. Contractor has all dust control measures in place and no problems were observed.				No action required	N.A.	N.A.

Example of the situation where the Contractor's compliance is incomplete

Potential impact	Mitigation measures	Site location	Check date	Checker	Condition assessment	Compliance			Action required		
						Full	Part	None	Action	By whom	Deadline
Topic area											
12.1 Dust from construction sites and access tracks to ancillary infrastructure affects local communities and crops	● Enforce dust control measures during the dry season. ● Enforce strict speed limits on earth tracks by placing speed bumps. ● Spray water on to dry earth surfaces. ● Stop work in very windy, dry weather.	Contract 01: Dandagaon Laydown Site	21 April 2024	MCA-ESP Specialist	Some dust control measures are in place, but trucks are driving too fast so that dust is blowing over the neighbouring Bari land from time to time.				Drivers to be re-trained; site in-charge to observe and take disciplinary action against any driver not obeying rules. Re-check to ensure that compliance is now full.	Contractor's Site Manager Engineer's Environment Specialist	28 April 2024 5 May 2024

Example of the situation where the Contractor is non-compliant, to be used as the basis for a Non-compliance Report by the Engineer's Environment Specialist

Potential impact	Mitigation measures	Site location	Check date	Checker	Condition assessment	Compliance			Action required		
						Full	Part	None	Action	By whom	Deadline
Topic area											
12.1 Dust from construction sites and access tracks to ancillary infrastructure affects local communities and crops	● Enforce dust control measures during the dry season. ● Enforce strict speed limits on earth tracks by placing speed bumps. ● Spray water on to dry earth surfaces. ● Stop work in very windy, dry weather.	Contract 01: Dandagaon Laydown Site	21 April 2024	MCA-ESP Specialist	There are no dust controls in place. The wind is blowing dust from the stockpiles and from moving trucks into the houses and shops in the nearby bazaar.				Dust control measures must be implemented immediately as per the ESHSMP. Check that the dust control measures are effective; if not, work at the site must be stopped until they are.	Contractor's Site Manager Resident Engineer and Engineer's Environment Specialist	23 April 2024 24 April 2024

11.4 Enforcement Processes

As stated in section 11.1, any person identifying an ESHS non-compliance should use the standard ESHS monitoring format (see sections 11.2 and 11.3) to alert their line manager as appropriate, in order to ensure that action is taken promptly to resolve the problem. The same form will be incorporated in the next monthly report.

However, non-compliances can also lead to immediate actions to stop tasks or close sites. This is essential where continued work will lead to a continuation or worsening of the ESHS infringement.

A non-compliance is any action or result of project-related activities that leads to an infringement of any aspect of the ESHS safeguards as described in the ESHSMP. A near miss is where there appears to be a 90 percent chance of injury or pollution resulting from an action.

ESHS Enforcement Matrix

ESHS infringement type (typical examples)	Authority level			
	Action to take	MCA-Nepal	Engineer	Contractors
• Death or serious accident involving hospitalisation	**Stop work at whole site**	Any MCA-Nepal staff ESP Team Members ESP-CA	Any of Engineer's staff ESP Team Members	Any of Contractor's staff ESP Team Members
• Accident requiring first aid • Spill or leakage of fuel or paint (> 10 litres) • Serious erosion of soil (> 5 m^3 displaced) or landslide	**Stop task**	Any MCA-Nepal staff ESP Team Members ESP-CA	Any of Engineer's staff ESP Team Members	Any of Contractor's staff ESP Team Members
• Near miss of accident with high potential for injury or pollution • Spill or leakage of fuel or paint (< 10 litres) • Non-compliance with PPE requirements • Vegetation damaged outside agreed areas • Drinking water supplies affected by sediment or other pollution • Houses, schools or clinics affected by dust • Workers, houses, schools or clinics affected by noise above ESHSMP limits	**Stop task**	MCA-Nepal HQ staff ESP Team Members	Any of Engineer's staff ESP Team Members	Any of Contractor's staff ESP Team Members
	Report immediately	ESP-CA		
• Harassment including sexual harassment of workers or local community members • Workers missing without notice • Workers causing disturbance due to drunkenness, gambling using drugs or prostitutes • Evidence of discrimination in workforce • Evidence of trafficking in persons • Transportation of community people • Children at work in hazardous conditions • Minor erosion of soil (< 5 m^3 displaced) • Streams and irrigation Kulos (Canal) affected by sediment or pollution • Agricultural and forest land affected by dust • Incorrect management of waste	**Report immediately**	Any MCA-Nepal staff ESP/GSI Team Members ESP-CA	Any of Engineer's staff ESP/GSI Team Members	Any of Contractor's staff ESP/GSS Team Members

Action sequence in the event of a non-compliance

If you witness a non-compliance, you should follow this simple procedure.

According to your position in the overall project, and following the guidance in the ESHS Enforcement Matrix, take the following action.

Events requiring **Stop work at whole site**.

1. Take any action necessary to save life, but do not endanger yourself or others.
2. Move people away from danger.
3. Take any action necessary to reduce pollution, if it is safe to do so.
4. Call for medical or other emergency assistance if necessary.
5. Contact the Contractor's site in-charge; inform them of the event; and instruct them to stop all work on the site.
6. Inform your line manager.
7. If necessary, inform the civil authorities.
8. Remain at the site and take any necessary action required to help resolve the crisis.

Events requiring **Stop task**.

1. Take any action necessary to administer first aid if needed.
2. Move people away from danger.
3. Take any action necessary to reduce pollution, if it is safe to do so.
4. Call for medical or other emergency assistance if necessary.
5. Contact the Contractor's site in-charge; inform them of the event; and instruct them to stop all work on the task.
6. Inform your line manager.
7. Inform Gender and Social Inclusion Specialist and Engineer's GSI Specialist of TIP infringements immediately.
8. If necessary, inform the civil authorities.
9. Remain at the site and take any necessary action required to help resolve the crisis.
10. Initiate the Procedure for Emergency Preparedness and Response as applicable.

Events requiring **Report immediately**.

1. If possible, talk to the site in-charge and tell them of the problem that you have seen, and discuss what should be done to rectify it.
2. Complete a monitoring report format and submit it to your line manager. If possible, send photographs as well. This should be done from the site using your mobile phone, or from the nearest place where you can get a signal.
3. If you cannot complete a monitoring report format, send the key details and photographs by phone, or call your line manager at the earliest opportunity. Follow it up with a completed monitoring report format as soon as you are able to.

If the Contractor has not taken appropriate action to achieve compliance with ESHS requirements after the expiry of the time period for action as notified, then the next level of enforcement is triggered. Examples follow.

Example 1. A significant spill of fuel occurs during the transfer from a tanker to a delivery tank. The person who discovers the incident, orders the task to be stopped and submits a report. The Resident Engineer formally issues a non-compliance order with a ten-day deadline for the problem to be resolved. After 12 days the Engineer's Environmental Specialist finds that no action has been taken. He or she must then order that all work is stopped on the site, and issue a further report.

Example 2. Minor soil erosion on a site is witnessed by the MCA-Nepal ESP Specialist (Environment). This is reported and with the instruction of the MCA-Nepal Project Manager, a non-compliance order is formally issued by the Resident Engineer a with a three-week deadline for erosion protection to be put in place. After one month the Engineer's Environmental Specialist finds that no such action has been taken. He or she must then order that all the task is stopped, and issue a further report. In this context, the task might involve the excavation of tower foundations, and therefore stopping the task would halt the key work of a tower construction site.

ANNEX A: TERMS OF REFERENCE

A.1 Environmental, Gender, Social, Health and Safety Roles

The terms of reference for ESHS management and monitoring by staff in each of the ETP implementation organisations are summarised in the table below.

Organisation	ESHS management responsibility	Reports to	Personnel	Personnel roles
MCA-Nepal	The Client or Employer in contractual terms. Lets contracts for Design and Build of the ETP, all to be completed in line with environmental and social protection safeguards. Participates in continuous monitoring and periodic auditing.	GON, with oversight by MCC to ensure compliance with MCC policies and procedures	Executive Director	Approves and submits reports to GON and MCC, as appropriate
			Deputy Executive Director (Project Delivery)	Reviews and rejects or approves the Engineer's and Contractors' reports. Approves corrective action plans for the Contractors. Communicates on ESP issues with MCA-Nepal ESP and MCC-ESP.
			ESP Specialists - Environment	Participates in monitoring physical and biological environmental aspects, health and safety issues.
			ESP Specialists - Land Acquisition	Participates in monitoring social environmental aspects, including compensation and stakeholder engagement.
			GSI Specialist	Participate in monitoring gender, social inclusion aspects of the project including stakeholder engagement.
			QAM (Environment, Health and Safety)	Monitors the level of achievement on all environmental aspects of the project, and health and safety issues.
			QAM (Social Inclusion and Resettlement)	Monitors the level of achievement on all resettlement and compensatory aspects of the project.
Engineer	The construction supervision consultant. Oversight of all construction contracts. Carries out monitoring as required by the ESHSMP. Reviews and approves Contractors' monthly monitoring reports. Performs completion audits.	MCA-Nepal	Project Manager	Reviews and rejects or approves the Contractors' reports. Approves ESHS monitoring reports. Develops corrective action plans for the Contractors.
			Site Managers	Supervises and monitors the Contractors' technical works.
			Health and Safety Specialist	Monitors the Contractors' health and safety performance.
			Social Safeguards Specialist	Carries out overviews and monitoring of social aspects, including stakeholder engagement.
			Gender and Social Inclusion Specialist	Monitors and reviews Engineer's and Contractors' performance, undertakes GSI awareness training for both Engineer and Contractors.
			Environmental Specialist	Carries out monitoring of physical and biological environmental aspects of project activities.
			Geomorphologist/ Soil Conservation Specialist	Responsible for checking the conditions around aggregate sources and completed work sites.

Organisation	ESHS management responsibility	Reports to	Personnel	Personnel roles
Contractors	The design and build Contractors. Carry out internal monitoring to ensure compliance with the ESHSMP and any Contractor's plans approved by the Engineer and MCA-Nepal.	MCA-Nepal, usually via the Engineer.	Project Managers	Ensure that their companies achieve all of the ESHS requirements. Submit monitoring reports to MCA-Nepal via the Engineer. Devise and implement corrective measures as necessary.
			Site Managers	Ensure that all of the ESHS requirements are achieved on their allocated sites.
			Health and Safety Managers	Support their companies in achieving all of the health and safety requirements. Prepare monitoring reports to MCA-Nepal. Ensure that corrective measures are completed.
			Social Safeguards Managers	Support their companies in achieving compliance with all social safeguarding requirements, including aspects of resettlement and the resolution of grievances. Prepare monitoring reports to MCA-Nepal. Ensure that corrective measures are completed.
			Gender and Social Inclusion Managers	Support their companies in achieving all of the gender and social inclusion compliances. Prepare monitoring reports to MCA-Nepal. Ensure that corrective measures are completed.
			Environmental Managers	Support their companies in achieving all of the environmental requirements. Prepare monitoring reports to MCA-Nepal. Ensure that corrective measures are completed.

A.2 Task Split between Social Safeguards, and Gender and Social Inclusion Specialists

Rationale

In the Electricity Transmission Project, the Supervision Engineer and each of the Design-Build Contractors are expected to engage both a Senior Social Safeguards Specialist and a Senior Gender and Social Inclusion Specialist. These staff members are contractually rated as Key Personnel and must be engaged by the Engineer and the Contractors as members of their senior leadership teams.

For the ETP implementation phase, the tasks should be split between personnel. The Gender and Social Inclusion (GSI) Specialists' inputs are in project design during the planning phase and then in a monitoring role during implementation. The Social Safeguards Specialists (SSS) must take greater responsibility on project policy and be fully involved in the actual implementation process. They are involved in management and implementation throughout the process, from design through implementation to monitoring.

The tasks outlined below are indicative of the work assigned to the two roles, but will necessarily vary according to the details of the different engineering and construction contracts.

Senior Gender and Social Inclusion Specialists – Supervision Engineer and Design-Build Contractors

1. Responsible for ensuring that the relevant contractual and Environmental, Social, Health and Safety Management Plan (ESHSMP) policies and sub-plans related to Gender and Social Inclusion and employment are written, presented to MCA-Nepal for approval and kept up to date: these should cover Counter-trafficking in Persons, Gender-based Violence, sexual harassment, workforce management and other policies.
2. Discuss with each Contractor the expectations and implementation policies required to implement the project social welfare policies.
3. Supervise the process to raise the employment rate of women and socially excluded persons, including through ongoing liaison with HR Departments in each organisation.
4. Work with each organisation's Community Liaison Assistants to promote women's rights and the hiring of the needy excluded groups in the project localities.

5. Assist in monitoring the evidence of signed contracts of employment and code of conduct of all workers in the Design-Build Contractors, sub-contractors and local hires.
6. Assist with the design and implementation of worker awareness programmes within each organisation, monitor and report.
7. Ensure each organisation has an internal grievance programme and discuss expectations of the project in terms of investigation responsibilities and the expected zero tolerance for breaches of policy, particularly with respect to allegations against the CTIP policy.
8. Liaise with management for the reporting of potentially criminal acts to the police.
9. Ensure proper records are kept and that there is adequate reporting according to the MCA-Nepal's schedule of reports.
10. Ensure all reports are presented and included in MCA-Nepal's, Engineer's and Contractors' weekly, monthly and quarterly meetings.
11. Responsible for raising issues to management that are likely to result in discrimination against women or any relatively deprived section of society as a result of project activities..

Senior Social Safeguards Specialists

1. Ensure procurement of all external consultancy and other services related to social impacts.
2. Manage budget allocations for the social safeguarding work.
3. Manage the different social teams
    a. Community Liaison
        i. Plan and deliver communication meetings, messages – Stakeholder Engagement Plan
        ii. Maintain an information and discussion centre for interested persons to discuss project issues and participate in local discussions – Communication Plan
        iii. Procedures for community conduct
        iv. Support Community Liaison Fora – via procedures
        v. Support MCA-Nepal's Environmental Specialist in providing technical supervision to Community Liaison Assistants
        vi. Ensure recording of all interactions – via the Environmental and Social Management System (ESMS)
        vii. Inclusion of activities into weekly, monthly and quarterly organisation reports
    b. Resettlement and Compensation
        i. Supervise assessment and compensation valuation process
        ii. Ensure full and timely payment to all entitled persons
        iii. Ensure transfer of land ownership, payment of costs and land tax issues
        iv. Sign off land access protocol
        v. Assist project affected people (PAP) to manage mortgage, ownership, inheritance and power of attorney issues, etc.
        vi. Consult on Livelihoods Restoration Programme (LRP) issues and transfer the PAP into the LRP
        vii. Procure verification surveys
        viii. Conduct enquiries into allegations received through the Grievance Redress Mechanism (GRM), respond and report
        ix. Inclusion of activities into weekly, monthly and quarterly organisation reports
    c. Livelihood Restoration
        i. Ensure LRP partners are in place and ready for when compensation and loss occurs
        ii. Monitor LRP programmes and revise where necessary
        iii. Supervision and monitoring – ongoing
        iv. External verification and review
        v. Inclusion of activities into weekly, monthly and quarterly organisation reports
    d. Community Development programmes
        i. Ensure procurement of community development construction or other programmes
        ii. Supervision and monitoring
        iii. Standard Operating Procedures and Community Policies
        iv. Inclusion of activities into weekly, monthly and quarterly organisation reports
    e. Grievance Redress Mechanism

i. Participation in MCA-Nepal's, Engineer's and Contractors' use of the project GRM for external grievances
ii. Support MCA-Nepal's, Engineer's and Contractors' Human Resources (HR) Departments in developing and using an internal grievance process
iii. Ensure correct reporting and management of responses
iv. Participate in HR investigations into grievances against workers, bringing the GSI team into all allegations against trafficking in persons, gender-based violence, sexual harassment, etc.
v. Facilitate the reporting of allegations to the police where this is appropriate
vi. Recording all GRM activities and include in the reporting structure

f. Ongoing support to Engineer / Contractor workforce education and training programmes
i. Ensure that each organisation has a Workforce Management Plan, and assist the HR Departments to check on employment issues
ii. Assist each organisation in implementing and monitoring the Worker Code of Conduct
iii. Assist in each organisation's investigations into breaches of the Code of Conduct
iv. Support all organisations to employ local workers and to achieve at least 30% women in workforce
v. Liaise with the Health and Safety teams, setting a good example at all times

g. Supervision of and participation in the Contractors' toolbox talk programmes

4. Ensure all reports are presented and included in MCA-Nepal's, Engineer's and Contractors' weekly, monthly and quarterly meetings.

5. Responsible for raising issues to management that are likely to increase project risks.

ANNEX B: NATIONAL AND INTERNATIONAL REFERENCE STANDARDS

B.1 Relevant Regulations Defined under Laws

Environment Protection Rules (EPR), 2054 BS (1997 AD)

The EPR establishes the process to be followed during the preparation and approval of Scoping determination, terms of reference for EIAs, and the preparation of IEE or EIA reports for proposed projects. It also includes provisions for:

- Compliance with findings included in the IEE and EIA reports
- Monitoring and environmental auditing
- Prevention and control of pollution
- Description of the functions, duties and powers of Environmental Inspectors
- Conservation of national endowments
- Establishment of environmental laboratories
- Mechanisms for operating the environmental conservation fund
- Rights to environmental compensation
- Other related matters

Forest Rules, 2051 BS (1995)

The rules provide guidance and mitigation measures in the implementation of development projects in any forested area.

Conservation Area Management Rules, 2053 BS (1996 AD)

The rule implements conservation efforts of the conservation area by dividing the area into multiple sub-areas (Ilakas) according to the need, and establishes unit conservation officers and other staff as necessary.

Section 2 describes the boundaries and management modalities of the conservation area.

Section 4 depicts the management plan and implementation of the conservation area stressing the management and operation of the development works, and the management and implementation of the work plan.

Section 5 focuses on the forbidden works that must be considered during the development works.

Labour Rules, 2075 BS (2018 AD)

Employment in Nepal is primarily regulated under the Labour Act, 2074 (2018 AD) and the Child Labour (Prohibition and Regulation) Act, 2056 (2000 AD) and the Labour Regulations, 2075 (2018 AD).

The Labour Act, 2074 received the assent of president and became effective from Bhadra 19, 2074 (2018 AD). The Labour Act, 2074 replaced the previous labour law completely (i.e. Labour Act, 2048 ceased to be in effect). The new Labour Act has been passed for provisions for the rights, interest, facilities and safety of workers and employees working in enterprises of various sectors.

On May 27, 2018, the Government of Nepal enacted the new Labour Rules 2075 (2018), which are formulated under the new Labour Act 2074 (2017). The Labour Rules came into effect immediately. The Labour Rules repealed the previous Labour Rules 2050 (1993), which were in force for over two decades. The Labour Rules provide additional guidance on various provisions in the Labour Act.

The rules set guidance on time for deploying children and women at work; stipulate the circumstances in which non-Nepalese citizens may be engaged in work; set guidance on no discrimination in remuneration; and set guidance on compensation against injury or grievous hurt resulting in physical disability and in case of death. Under this Act, the employer:

- cannot engage bonded labourers
- cannot supply labour without license
- cannot engage foreign nationals without work permit
- cannot engage a worker without employment agreement

- cannot discriminate among workers
- must make health and safety arrangements to serve the physical or mental health of the workers.

Full compliance with the Labour Act and Rules and Regulations is required under this ESHSMP.

Sexual Harassment at Workplace Prevention Act 2071 BS (2015 AD)

The Government of Nepal enacted specific legislation addressing sexual harassment at workplaces with the objective of protecting the right of every individual to work in a safe environment. The Sexual Harassment at Workplace Prevention Act, 2015 (2071) ("Sexual Harassment Prevention Act") came into effect on February 20, 2015 (Falgun 08, 2071). This Act defines the meaning of sexual harassment and responsibilities of the employer, The Act clearly states internal and external complaint mechanisms and also provides the victim protection measures. The internal mechanism, the manager having the authority to decide on administrative matters, handles the complaints whereas the Chief District Officer (CDO) will handle the external complaint mechanism. It also explains the punishments for anyone who has committed sexual harassment under the Act. This Act has provisions to protect the victim of sexual harassment and create conducive environment where the victim feels encouraged to register the complaints.

Human Trafficking and Transportation (Control) Act, 2064 (2007)

The Government of Nepal enacted law to control the acts of human trafficking and transportation and also to protect and rehabilitate the victims. The Human Trafficking and Transportation (Control) Act, 2064 came into effect on July 24, 2007. This Act defines the actions to be considered human trafficking and transportation. The Act explains the reporting and prosecution process, maintaining confidentiality of the reporter, provision of rescue and rehabilitation. The Act explains in detail the punishment and compensation for those who are proven to be guilty. The Government of Nepal becomes the plaintiff in all cases registered under this Act.

Solid Waste Management Rules, 2070 BS (2013 AD)

These rules specify the procedures for the management of solid wastes during construction and operation of the project.

Ancient Monuments Preservation Rules, 2046 (1989) with amendments in 2049 BS (1993 AD), 2053 BS (1996 AD), 2056 BS (1999 AD), and 2058 BS (2002 AD)

The rule aims to protect and limit acquisition of ancient monuments and archaeological, historical, or artistic objects; and requires approval from the department for any construction work.

Water Resources Regulations 2050 BS (1993 AD)

The regulation provides guidance and mitigation measures for aquatic life and water environment.

Electricity Rules, 2049 BS (1992 AD)

These regulations emphasise that the environmental study report should include the measures to be taken to minimize the adverse effects of the project on physical, biological, and social environments and should also elaborate on the utilization of local labour, source of materials, benefits to the local people after the completion of the project, training to local people in relation to construction, maintenance and operation, facilities required for construction site and safety arrangements.

Buffer Zone Management Rules, 2052 BS (1996 AD)

These rules prohibit the following without written permission from the warden:

- Using any harmful chemicals or explosive materials in rivers and water resource buffer zones.
- Clearing buffer zone land for agriculture or residential use.
- Cutting trees and denuding forests.
- Conducting any activities that cause destruction to the forest or setting those resources on fire.
- Mining stone, sand, soils, or any other mineral resources causing significant impact on the environment.

The rules also prohibit inflicting damages to wildlife. They also prohibit any damage to the public road, culvert, fence, or other public property inside the buffer zone.

Forest Regulation, 2051 BS (1995 AD)

The regulation stipulates that any loss or harm to any local, individual or community from the project, the proponents of the project shall bear the entire compensation/expenses, including harvesting, logging, and transporting forest products.

Standard of Establishment and Operation of Industry in Buffer Zones, 2062 BS (2005 AD)

The standard aims to regulate any industry that operates in the buffer zone while avoiding any adverse impact on biological diversity and the natural environment, and maintaining uniformity in construction and operation of the projects to uplift the livelihood of the people in the buffer zone.

Wildlife Reserve Rules 2034 BS (1977 AD)

The rules stipulate provision of entry pass into the Parks or Reserve, and restricts activities within the parks and reserves.

B.2 Chure Conservation Area Environmental Standards

This annex provides an unofficial translation of the Infrastructure Development and Environment Conservation Standards in Chure Region (2072), published by the President Chure-Terai Madesh Conservation Development Board.

1. Background

Chure range, which covers almost 12.78% of total land of Nepal is geographically weak and are directly related to 50% of the population is very important in terms of environment and social perspective. Many development construction / infrastructure development work have been implemented in this region. However, due to the geography and natural texture, much construction and infrastructure development not been unsustainable and the investment wasted. Most of the roads and irrigation canals are not usable soon after their construction.

The development and environment need to be interrelated as a complement. Thus, if the balance between environmental, social and financial aspects are kept in consideration while planning any project in this region, there will be proper utilization of the investment and will provide fruitful outcomes. It is necessary to be guided by certain standards during planning and design of infrastructural development projects to achieve such results.

Government of Nepal, President Chure- Terai Madhesh Conservation Development Board under section 5(A) has directed to follow the required guidelines, directives and circular before planning and designing any development projects under Chure region considering conservation of natural resources. The Infrastructure Development and Environmental Conservation Standards in Chure Region-2072 has been released to make the development works sustainable and environment friendly. These norms on the basis of additional study, research and experience will be reformed from time to time.

2. Objectives of Standards

Chure region has been declared as an environmental conservation area under environment conservation act 2053, environment conservation directives 2054, Section 10.
The main objective of this directive is to make the development projects sustainable and co-related to each other under developmental and environmental aspects. The main objectives of the directives are shown below:

1. To explain the technical subject and provisions to be considered during planning and implementation of development projects in Chure and Terai- Madhesh region.
2. To minimize the conflict during the project planning and implementation phase of the project.

3. Following the standards

To conduct Chure region development construction / infrastructure development, various government or non-government organizations should follow this standard during planning and implementation of infrastructure development projects.

4. Standards to be followed

Sector	Project / Activities	Standards to be followed
Forest region	Forest management and afforestation work	● Priorities should be given to local, multiyear and multipurpose, plants/vegetation plants must be planted while forestation ● Coordination of NGOs with the concerned District Forest Officer while conducting afforestation programs ● Stones, ballast and sand to be extracted from the forest in Chure area will follow/comply with the standards mentioned in Annex-1 approved by the board ● Scientific forest management in the Chure area to be done as per Annex-2
2. Road 2.1 National Highway and Feeder Roads	New Construction	● The EIA report should have complete analysis of details related to the Chure Area. ● Fully comply with the provisions of the EIA, as per the guidelines in the Environment Protection Act, 2053 and Environmental Protection Regulation, 2054 and Forest Act 2051 and Forest Manual 2051. ● Adoption of Road Department's Environment Social Management Framework (ESMF), 2000. ● Roads that pass through the forest should obtain route permits from the relevant authority ● Gentle slope of 20° should be maintained along with greenery up to 20 meters above the road ● Side drains should be built along the sides of the road. The drainage should have provisions to control flow and prevent cutting of soil ● Implementation of slope protection measures. ● On both sides of the road, appropriate forms of vegetation should be planted ● No shops or temporary houses should be constructed on the areas falling in the right of way of the highway ● Parking spots should be provided at every 2 kilometres and vehicles should not be allowed to stop at other points on the road ● Fully implement the Environment Social Management Framework (ESMF), 2000.
2.2 National Highway/ Major Feeder Roads	Upgrading, repair and maintenance	● While implementing maintenance works, preparation of matrix and screening should be done and such works should follow the provisions of Annex-3 ● Gentle slope of 20° should be maintained along with greenery up to 20 meter above the road ● Before and after the rainy season of every year, mainly during Jestha and Asoj (May- early June and Oct-Nov) months, repair and maintenance of the side drain and roads should be done ● Blockage of side drains due to landslide in the Chure area should be cleared immediately ● Implementation of slope protection measures. ● Replantation works should be done ● Construct run-off drainage systems
2.3 District Road/Local	New construction/ Maintenance	● Realistic EIA should be prepared, including detailed analysis of the impacts on the Chure region and alternatives, before the construction of roads under DRCN (District Road Core Network) or DTMP (District Transportation Master Plan). ● Mandatory EIA should be prepared for roads constructed in Chure region under DOLIDAR, DDC or VDC. The report should include details regarding the impact of the existing road and measures to reduce the impacts. ● Fully comply with the Environment Social Management Framework (ESMF) - 2070 prepared by DOLIDAR. ● Provisions of the EIA should comply with the Environment Protection Act 2053 and the Environment Protection Regulation 2054 ● While implementing maintenance works, preparation of matrix and screening should be done and such works should follow the provisions of Annex-3

Sector	Project / Activities	Standards to be followed
2.4 Major Bridge Construction	New Construction	● Greenery should be developed to some level above the road surface in the hillside at a gentle slope (<20) ● Timely maintenance of side drains and the road. ● Measures to prevent soil erosion ● Replantation should be adopted ● Provisions mentioned in Environmental Protection Act, 2053 and Environmental Protection Regulation 2054 should be strictly followed. ● Environment Social Management Framework (ESMF), 2000 prepared by Department of Roads should be adopted ● Structural design should be performed considering the Massive Sediment Load obtained from Chure Region. ● Excavation should not be performed on both sides of the bridge and locations having direct structural impact on it.
2.5 All kind of maintenance works (Routine, Recurrent, Specific, Periodic, Emergency)	● Resealing ● Regravelling ● Gabion/stone masonry works for toe/slope protection ● Concrete works, side drain, drain repair, parapet wall, pothole repair, maintenance of concrete work	● Program should be implemented after necessary screenings. (on the basis of annex 3) ● Soil erosion mitigation measures should be adopted ● Periodic plantation, maintenance of side drains and regular maintenance of areas adjacent to road ● Annex – 3 should be referred for repair and maintenance
3. Agricultural Roads	New Construction	● The EIA report should be mandatorily prepared and approved from the concerned authority. ● Preparedness for possible effects on Chure region should be developed and alternative solutions should be explored ● A detailed report containing the effects on Chure region and (1) activities should be prepared and shared with the committee ● To comply with the activities of the road construction as outlined in s.no.2.3. ● *(1) An activity means all activities performed in connection with the construction.*
4. Irrigation Canal/Channel	New Construction	**In areas susceptible to soil erosion:** ● Identify any possible alternatives ● Construct foundation on hard rock ● In areas where large landslides, continuous deep-seated slide, continuous landslide and flow of water occurs, flow of water should be diverted and alignment should only be established if the control measure adopted is durable. ● Planning of channel/canal should be done only after slope stability analysis ● Stop construction in areas where seepage of water occurs ● Plant vegetation and maintain greenery in areas next to the irrigation canal/channel
4.2 Irrigation Canal/Channel	Repair and Maintenance	● Study of the existing condition of the canal/channel regarding their durability should be done with consultation with the users to develop plan ● Durable solutions for prevention of soil erosion to be adopted and provide pipelines for such ● Soil erosion prevention through biological technology in the soil ● Provide retaining wall, upslope, downslope as per requirement ● Construct catch drains to intercept the upslope drainage ● Promote greenery at least 100-200 meters upstream and downstream from the lined canal ● In relation to the impacts on the Chure region

Sector	Project / Activities	Standards to be followed
		● Detailed description in the EIA report with implementation of mitigation and preventive measures in project areas ● Periodic repair and maintenance ● River cutting and landslide that can affect should be repaired ● Management of minimum drainage system ● Constructing channel/canal irrigation for multi-useful water storage ● To make social security (children) friendly ● In the canal water should be allowed to flow more than its capacity. When it is not used for irrigation, water flow should be stopped or safe drain should be done
5. Building construction	Construction of community building	● Building codes should be strictly followed ● Houses should not be built in steeper slopes ● (steeper > 30 degree) ● Concerned authorities should follow land use policy. ● Earthquake risks should be carefully studied
6. Water supply projects/Distribution system	New Construction	● Hoarding boards relating to quality of water should be kept in areas of maximum reach for public awareness ● Storage tanks should not be constructed in environmentally sensitive areas ● Leakage should be prevented ● Dependency should be increased on methodologies establishing balance between quantity and quality of water source ● Provision for Periodic (monthly) inspection of quality of water
7. Hazardous chemical waste management		● Dumping site should be located in such a way that the disposals do not get mixed with source of drinking water ● Provision for safe disposals should be made by the concerned authorities
8. Collection, removal and excavation of river based materials (Stone, aggregates, sand, mud, etc.)		● Any kind of wastes and bio-chemicals should not be disposed in to the river system ● Provisions in Annex – 1 should be adopted ● Devices such as graduated pegs should be used for depth measurements in areas of excavation and production ● Hoarding boards with information relating to method and quantity of excavation should be kept at the site for public knowledge ● Excavation should be performed in the form of Sheet layer by making a uniform layer in the river instead of excavating at a single location ● Identification and mitigation measures of all possible effects that can occur in the Chure region should be described in the EIA.

Annex – 1: Chure Region River / Stream Material (Stone, Gravel, Sand, Soil etc.) for Removing or Collecting, Excavating Work Permission Related Work Procedure B.S. 2071

According to the decision made by the Government of Nepal on 16 June 2014 (2071/03/02), President Chure – Terai Madhesh, Conservation Development Committee was formed. Also according to another decision made by the government on the same date, Chure region was declared environment conservation area. In this regard, as from the river/stream of Chure area, huge amount of river materials are excavated causing cuts to the river banks, risk in infrastructure or human settlement and minimizing these problems, to re-establish the environmental balance of the entire Chure area, to manage and to grant permission to remove or collect, excavate river materials (stone, gravel, sand, soil etc.) from river/stream, President Chure – Terai Madhehs, Conservation Development Committee (formed) order, B.S. 2071, Article 20 and using the authority, this work procedure is made and applied.

1. First condition (condition for removing for risk minimization):

1 (a) Due to flood, landslide, etc., piling up of stone, gravel, sand, soil at the river / stream or its bank. By not removing, it can cause serious damage to human settlement and important physical structure and District Natural Disaster Relief Committee recommends and related District Development Committee requests to remove:

(1) Quantity of required removal of river materials, location (with GPS data), duration of removal and technical report with method must be received. If removal location lies in forest area, National Park / Wildlife Reserve or central area, along with the technical report, related District Forest Office, park / reserve office recommendation must be mandatorily attached. In the technical report, District Natural Disaster Relief Committee office bearers' signatures are needed.

(2) After receiving the technical report, this committee's technical team will do on-site inspection. It is mandatory for the team to include a geologist. On-site inspection is not allowed without permission.

Within 30 days of receiving the technical report, permission to give or not has to be informed to related agency.

(3) From on-site inspection, if it seems appropriate to remove river materials, conditional or unconditional permission can be given. Record of the permission given must be updated by the committee.

(4) According to the technical report and the committee's condition, the committee does on-site monitoring / inspection according to necessity to ascertain whether it is removed or not.

(5) After the completion of removal of river produce, work completion report revealing the removed amount, place and duration has to be submitted to the concerned agency.

Whatever is mentioned above, if by the flood or landslide in the river / stream causes piling up of stone, gravel, sand, soil etc. and not removing it immediately will be dangerous to human settlement and important physical structure and to save them by the decision of the District Natural Disaster Committee can remove it.

Note: (1) Team that prepares the technical report must comprise of official level technicians of the related subject.

(2) In the technical report, according to the need, map, sketch and photos with the GPS reading must be attached.

1 (b) If by the flood or landslide in the river / stream causes piling up of stone, gravel, sand, soil etc. and not removing it immediately will be dangerous to human settlement and important physical structure is found on-site inspection by the office bearer / technician or if the committee is informed by the trusted source:

(1) Contact the District Natural Disaster Relief Committee and determine it.

(2) The committee's technical team comprising of geologist must immediately do on-site inspection and prepare technical report. If the technical report confirms that it has to be removed, along with committee's approval letter, the technical report must be submitted to the District Natural Disaster Committee.

(3) District Natural Disaster Relief Committee will remove the river materials through the related agency / DDC. DDC by coordinating with the local level, to remove it, hire in contract.

2 Second Condition (Condition for Commercial excavation, collection from the river system):

If DDC requests for excavation and collection from the river systems within the Chure for river materials (stone, gravel, sand, soil etc.) based on completed environmental study (Primary Environmental Examination, IEE or Environmental Impact Assessment, EIA) and with recommendation of District Monitoring Committee, then:

(1) Letter should come with approved IEE or EIA report for the excavation, collection of river materials.

(2) Technical study report conducted by the District Monitoring Committee should be attached. The technical study report with approved IEE / EIA should include any changes that may have occurred subsequent to the IEE preparation, if applicable. The technical report must be approved by the District Monitoring Committee.

(3) On-site inspection has to be carried out immediately after studying the report mentioned above in points 1 and 2. While carrying out on-site inspection, it is mandatory to include a geologist. Technician involved in on-site inspection has to point out the effects of the excavation and collection of river materials on the village, settlement and physical structures situated at the upper and lower banks of the river.

(4) From the on-site inspection, permission to excavate and collect river produce can be given with condition or without condition. The approved data must be updated.

(5) Whether excavation and collection is done or not as specified by the attached technical report has to be verified by field monitoring / inspection when necessary.

(6) After the completion of excavation and collection, the concerned agency must submit work completion report to the committee.

Note: According to the provision of the approved IEE / EIA, the concerned ministry has to provide the monitoring reports to the committee.

3. Third Condition (If the implementation of Chure Conservation Program's activities like excavation and collection does not change the local environmental balance, then it can be implemented)

After an approval of annual program, Communities related to Chure Conservation and Consumer Community or Governmental bodies will work on:

(1) River Bank Protection
(2) River cuttings, Landslide control/ treatment
(3) Water Source Protection
(4) Establishment and Operation of Nursery (plant garden)
(5) As for the implementation of program, construction of concrete poles for fencing, check dams, embankment, irrigation canal etc. are made. If there is recommendation letter from the bodies, for the activities like excavation and collection of materials like boulder, gravel, sand, soil etc. then:
(6) For the execution of the program, the accepted letter from the agency and letter of the agreement (technical report) from the concerned district's monitoring or coordination committee for the location, quantities, and excavation/collection method and time period are required.
(7) Conditional or unconditional permission will be given only if, as mentioned in the technical report, the activities like excavation or collection of the quantity of boulder, gravel, sand, and soil for local level does not create any disturbances in the environmental balance of the Chure Region.
(8) So the concerned agency, of the implementation of the work scheme, has to do monitoring if the excavation and collection activities are made according to technical report and complying with the regulations.
(9) The monitoring report should be submitted to this committee.

4. Fourth Condition (Condition related to Domestic Consumption and livelihood)

For the purpose of local livelihoods, collection of river materials from the rivers/rivulets of Chure Region are allowed. Since the committee has disallowed the use of heavy machinery/equipment while extracting or collecting the boulder, sand and aggregate on 2071/05/25 (10 September 2014) the committee further highlights on implementation of above provision in coordination with local stakeholders.

Note: Regarding this, the provisions made on number 5 and 6 of the 6-point agreement made by this committee on 2071/05/25 (10 September 2014) is as follows:

Decision Number 5: For the local consumption, the extraction of boulder, and gravel from the rivers of the Chure Region must be based on the provision of Environment Impact Assessment, made by the District Development Committee. Then this work must be checked by the municipality/ rural municipality and the Local Natural Resource Consumer (Forest, Water etc.) committee.

Decision Number 6: For the livelihood group, the extraction of boulder, and gravel from the rivers of the Chure Region must be based on the provision of Environment Impact Assessment, made by the District Development Committee. Then this work must be checked by the municipality/ rural municipality and the Local Natural Resource Consumer (Forest, Water etc.) committee.

Addendum: Irrespective of above conditions, the river material must be collected from the middle sections after leaving one third of the river width at both sides of the river banks.

Annex – 2: Prepare Forest Management Work Plan in the Chure Region on Policy based and Work Procedure

Chure region extends from Ilam in the east to Kanchanpur in the west including 36 districts in it. It occupies 12.78% of the total area of Nepal. Encroachment of forest region, excessive exploitation of forest and natural sources found in this region, uncontrolled grazing of livestock and unscientific land use has led to depletion in the water accumulation of this region and cultivability of lower lands affecting the entire present system. Since both upper and lower lands have been bearing the negative impacts of Chure destruction, giving priority to its reason and result, implementation of policy for durable management of forest resources in Chure region is necessary.

From time to time various decisions for Chure conservation since B.S. 2057 have been made by the Government of Nepal, Council of Ministers, Ministry of Forest and Land Conservation and Department of Forest. Circular from the Department of Forest and President Chure Conservation Program Implementation Procedures 2070 has classified community forest on the basis of steepness and vulnerability into different zones and prepared

conservation focused work plan. Despite this, in the Chure region, Annual Allowable Cut has been suspended and collection of only dry standing and fallen trees are allowed.

The Ministry of Forest and Land Conservation and the Department of Forest plan to implement scientific forest management in all types of forest along with the community forest. Due to lack of guidance, forest management work and Chure conservation policy seems not to be in synchronization. According to the circular from time to time by the Government of Nepal, Ministry of Forest and Land Conservation, "From community forest of Chure region, collection of wood, log is done for the limited use only. For one year after the handover of community forest, collect no other item except fallen trees. From the second year, collect only for internal consumption. From the third year on, forest products can be sold outside the group. For cutting trees from the community forest, take stock of fallen trees, 4 D (Dead, Dying, Diseased and Deformed) and old trees and collect based on annual accepted cutting, allow 85 percent for internal consumption and 60% for external groups." These provisions have disallowed execution of scientific forest management work plan. This has created dilemma in forest management. As a result, fulfilment of consumers' needs is not met, and has led to continuation of stealing and exporting of forest products.

As forest conservation means protection with wise use, production should be emphasized to some extent. As the important part of forest management is reproduction, conservation (tending operation) and cutting, forest work plan must encompass these three parts while executing in order to manage sustainably.

According to the decision made by the Government of Nepal on 16 June 2014, President Chure – Terai Madhesh, Conservation Development Committee was formed. Also according to another decision made by the government on the same date, Chure region is declared environment conservation area. In this situation, along with Chure region forest, sources of forest through sustainable management and for environmental balance and to manage in a scientific and integrated way President Chure – Terai Madhesh, Conservation Development Committee (formed) order, B.S. 2071, article 20 and using the authority, this work procedure is made, applied and recommended.
In this condition forest conservation, forest management, utilization of source and fulfilment of the necessity of the community, maintaining an understanding and to act accordingly is necessary and to prepare a purposeful forest work plan based on the following suggestions.

Distribution of Chure's forest on the basis of Steepness

On the basis of steepness at Chure, 387,170 hectares (28.18%) forest area fall under 8.5° steep, likewise 357,502 hectares (26.02%) falls between 8.5° to 19°, so 744,672 hectares (54.2%) forest area covers 19°, 431,257 hectares (31.39%) forest area fall under 19° to 31°, is 184,896 hectares (13.46%) falls under 31° to 45°, and 12,917 hectares (0.94%) falls under 45° and above. (Chure Forest of Nepal, DFRS 2014). On the basis of forest productivity and necessity of management about 85% Chure land covers below 31-degree steepness area. It is also important as it is accessible to the community people. Forest management of this area also includes watershed conservation activities. In this context, by making an operational plan considering given provision, can help in forest conservation and forest management. It also helps to fulfil the needs of people.

Steps of forest management operation plan of Chure

1. ***Forest Territory Determination and Block Division***
   - Conduct surveys by GPS and make clear signals or signs in the territory.
   - Divide the forest block and find out the area.
   - Chure range has sensitivity, varied geographical structure, and geographical steepness. So, it can be divided into different zones. Like
     a) Highly sensitive Zone (steepness 31° above)
     b) Sensitive Zone (21°– 31° steepness)
     c) General area (up to 20° steepness)
   - Conduct forest resource survey on the basis of steepness, and territory and draw map's block.
   - Transfer forest map into Google earth and separate block considering condition of the forest.
   - Show block territory along with other features like river, landslide area, road etc.
   - Establish a sample plot according to forest block and conduct forest resource survey.

2. ***Sources of Forest (Timber and Non-Timber) and to collect other information about the forest***

   - For this, establish block wise sample plots in accordance with Ministry's resource survey guidelines.

- Collect data of forest resource, volume of forest block's trees plants and others (from the perspective of forest condition and importance)
- Analyze forest resources data, analyze volume and number per square hectares of seeding, sapling diameter (10-20 cm), pole (20-30 cm), tree (30-40 cm) or above per square hectares and include in operational plan.
- Illustrate quantity of Non timber and others per hectare.

The main objective of forest resource assessment or survey is to find the condition and volume of plants and trees of forest division and subdivision. From this, one can find out which program is suitable for the conservation or preservation program. In the survey, information of watersheds of that plot area should be gathered so that conservation measures can be included in the operational plan.

3. Objective Determination of Forest and Block Management

What is the objective behind the suitable land use for forest management?

Since, objective determines management activities, objective should be clear block wise. Forest is a good source of timber (woods, grass) and ecosystem service (water, eco-tourism) or conservation (biodiversity and water and land). Be assured, for which purpose forest is required to be managed?

Similarly, determining block wise objective and participatory field visit should be conducted with forest technicians and forest users and block management.

4. To Recommend Conservation Measures and Techniques to Achieve Objectives of Forest Management.

On the basis of forest survey statistics and objectives of forest management, identify which preservation measures and methods should be adopted, which and how measures are launched technically in division and subdivision area?

To address the following issues, an operational plan should be prepared after discussion with forest users. Land and watershed preservation measures should be included in the operational plan. Following measures given in 4.1 and 4.2 can be adopted for implementation according to the condition of the forest.

4.1 Chure's geographical structure is varied in nature

Most of the Forest of inner Terai is located in plain area. On the basis of sensitivity to erosion, forest can be classified and can be recommended appropriate preservative measures in operational plan for implementation.

Forest according to steepness	Erosivity	Subject to be considered for operational plan	Subject include in forest management plan
Slope forest area (30 degree above)	Highly sensitive Zone.	Condition of soil erosion with different aged plant and trees, wetlands	● To adopt forest conservation activities policy based on forest conditions. ● On slopes above 45 degree in the High Sensitive Zone, collect only fallen trees.
	Naked, river cutting, less load bearing, possibility of landslide etc.	Hotspot, river side, river cutting, gullies etc.	● There is low possibility of landslides in 31 to 45 degree slope forest areas. If reproduction of tree is needed, it should cut only 10 percent of the increased stock per hectare and remove only those with more than 50 cm diameter. While removing trees, maximum of 2 trees to be cut at one place. Keep mother/parent trees. ● Maintain sufficient numbers of trees and poles, sapling of different ages to stop denuding the land surface. ● Depending upon the condition of soil erosion hotspot conservation wetland, water source and river side, river cutting has to be controlled and conserved.

Forest according to steepness	Erosivity	Subject to be considered for operational plan	Subject include in forest management plan
From 21 degree to 31 degree slope forest area.	Sensitive zone (Soil erosion, river cutting and load bearing and landslide going situation etc.)	Different age group trees, soil erosion condition, wetland region, hotspot, river side, river cutting, gullies etc.	● Depending upon the condition of the forest, if reproduction in the forest has to be done in a small area (maximum 0.5 hectares area) old age trees having more than 60 cm diameter have to be cut so that similar distribution is maintained. While cutting trees preserve good mother tree ● Depending upon the condition, hotspot conservation, wetland conservation, water source conservation, river and river side conservation, river cutting has to be done with considering restraints activities and making integrated plans for forest management.
Up to 20 degree steep area	Normal Zone	Management of Landslide, Sensitive area of Landslide, Wetlands area, Bank of River, River cutting etc.	● Forest area is less than 20 degree steep and if major species crop cycle are covered by half of the forest area then it can be managed according to shelter-hood forest conservation system. ● Management area should be divided by different compartments or annual basis. After completing the survey of forest sources, under the shelter hood forest development management system, reproduction cutting should be 25 to 30 per hectare, only keeping various different species good parent trees and cutting the rest. ● Reproduction cutting should not be done in one place, but can be done in different compartments of small region which can be categorized under the felling series. ● Making integrated plans by noting the condition of landslide with considering hotspot conservation area, wetlands, source of water, and bank of river conservation and including with river cutting controllable managing activities for forest management. ● All the activities should be conducted specified by the management plan.

4.2 Management methods of community forest with small area

In the Chure area, small productive forest cannot be compared to crop cycle on the basis of annual cut area (coop or compartment) division and manage it. As most of the forest area is less than 40 hectares. In this condition, forest can be made into various blocks by selection system and under this can be managed as follows:

- For what reason and how to manage small area forest depending upon the condition of the forest and its purpose. In the forest with uneven aged tree plants, trees with all age mixed groups grow in one place. Old trees die and in their place new plants grow and this natural process goes on.
- For the required species under the selection cut system it can be managed. It is not easy to work in the entire forest following this system annually. For this, the entire forest area is divided into various blocks and each year one works in one block or sub-block.
- Blocks should be divided according to the purpose. Separated blocks for productive forest, it should be managed according to felling cycle.
- Ordinarily from the growing stock, it is estimated to extract 2 percent volume, if felling cycle is 5 years, from the coop about 10 percent forest product of the growing stock, and if the felling cycle is 10 years, from the block about 20 percent forest product of the growing stock can be extracted. In the above block, after the felling cycle duration only, re-cut should be done. By the time of next cutting, forest growing stock would again increase.
  Annual felling volume = Block growing stoke x 0.02 x Felling cycle year (after how many years to cut here again)
- Seeing the condition of the erosion at the forest, hotspot conservation, wetland, water source and stream / river bank conservation and including river cutting control activities, and making integrated plans, forest has to be managed.

5. Inclusion of other subjects in forest management work plan

Forest management of Chure area means not only forest production, but also provision of situational services. For this forest conservation is one of the important features. Forest conservation includes the following features:

- Re-production conservation
- Bird feeding management and control
- Forest fire control
- Pests control
- Theft export control
- Erosion and water conservation, etc.
- Control of Forest Encroachment
- Wildlife Protection

Grazing in Chure Region:

The Chure hill area is highly sensitive due to the erosion point of the view, so open grazing/pasteurizing on this area should not be conducted. When the practice of open grazing is done, then there will be destruction of plants, causing erosion due to softening of soils. As they even graze small plants where further growth of small plants stops. So, as per the requirement the grazing activities should be stopped in such a sensitive area, but need to promote the animal husbandry in this area. From the erosion perspective view, we can practice the rotational grazing system in common places.

Control of Forest Fire:

Forest fire is the main cause of the forest destruction and degradation of Nepal's forest. From the different facts, the forest fire is more due to human activities than the natural process. Forest fires can cause major damage to forests and wildlife as well as affect ecosystems. One of the biggest disadvantages of deforestation is the destruction of tree seeds and the impact of this is the destruction of forest regeneration and hinder on the expansion of forest areas. The following things should be included in the action plan for the control of fire:

- Consciousness should be raised among all stakeholders.
- Information should be spread about fire damage and control.
- Construction of fire lines in the forest and cleanliness should be made.
- Related stakeholders must control if there is fire.
- If the arsonist is found in the forest, the concerned body should punish according to the law.
- Pamphlets and Hoarding boards regarding the information of fire control need to be placed.

River and Rivulet Protection:

For the preparation of a forest action plan, it must be based on the forest condition and facts along with the recommendation regarding the forest. In the action plan, it must clearly state the River Protection Scheme (Prohibition of cutting down the trees up to 10 m from the bank of river on both sides), Fishery Improvement Scheme, Landslide Control Scheme, Plantation on open spaces Scheme etc. And need to implement those schemes.

Apart from this provision, control of diseases, control of illegal export, control of soil erosion and protecting watershed, control of forest encroachment, and protection of wild animal etc. need to be mentioned.

6. Making Plantation Plan based on Condition of Forest

Why plantation is to be made in forest? For what purpose? And it's not like that we will get from the plantation after six months or a year. As we need to wait a long time for this, the vision must be cleared about wood, logs, add grass, soil protection etc. In the Forest Action plan, if there is provision of yearly tree plantation scheme then it must include about; where to regenerate or plantation? Which species need to be planted and for what purpose? Afforestation plan must be included in the forest work plan.

7. Implementation of accepted Forest Work Scheme - Chure Region

This Forest Action Plan is prepared based on the provision mentioned on 2071 Work Scheme. After acceptance of the Forest Action Plan from the District Forest Officer, the enlisted activities can be implemented.

To use Forest Resources from the Community Forest of Chure Region for the current purpose, it has allowed the activities like Thinning, Pruning, and Plantation. However "Presidential Chure Conservation Program Implementation Work Scheme 2070" has suspended the provision of Annually Allowance for Clearance.
Until the issuance of Forest Management Plan as per the Management of Chure Region Work Scheme 2071, the fulfilment of internal demands of the consumer's group can go ahead with activities such as Thinning, Pruning, and log collection. But thinning activity is not allowed in the Forest's sensitive region.

Annex – 3: The process and activities to be followed during maintenance of road and bridges

S.N	Activities	Process	Remarks
1	Site Clearance (Removing trees/plants and to make the site clean)	• According to the rule and agreement with forest related bodies	The committee must be informed compulsorily when implementing the activities.
2	Earthwork excavation	• As per the process mentioned in EIA • Balance between cut and fill in hills (Chure hills) as far as possible.	
3	Camp site and storing of construction materials	• Storing of construction materials near to site • Cleaning and revival of site after completion of work	
4	Extraction of boulder, sand and aggregate, collection and selling activity of forest products	• Selected area by District Development Committee or as per mentioned in approved EIA/IEE • IEE/EIA should have to be done when collecting boulder, sand and aggregate from private land for commercial purposes.	
5	The use of bitumen, fuel, cement, gabion wire	• Social security has to be considered when using these • Prohibition of use of firewood as fuel	
6	Emergency track opening and other emergency maintenance work	• No need of EIA/IEE • Coordinate with concerned agencies • Prohibition of wood/firewood as construction material as far as possible	Inform the committee with the report containing detail description

ANNEX C: HEALTH AND SAFETY PROCEDURES AND GUIDELINES

C.01 Personal Protective Equipment Provision to Site Staff and Workers

The Contractor shall supply high quality personal protective equipment (PPE) meeting international standards, as appropriate to the needs for each work site and worker's task. The necessary equipment is to be provided to all staff and workers entering the site, irrespective of rank and level of seniority. The equipment is to be comfortable for prolonged use, and is to be replaced as soon as it loses its effectiveness.

The site in-charge is responsible for ensuring that all staff and workers use appropriate safety gear during all hours of work on each site.

Fluorescent jackets shall be worn when on any construction or operational site, or in the proximity of other workers operating machines or tools, or engaged in potentially dangerous activities such as erecting structures. Helmets shall be worn when on any construction or operational site, or whenever there is a danger of head injury from falling or moving items, such as loose formwork, unsecured overhead structures and the tools of other workers.

Goggles shall be worn whenever there is a risk of flying debris, from the use of hammers, drills or other fast-moving or impact-creating tools and machines, welding and other UV/high solar illumination areas.

Gloves shall be worn whenever there is a risk of hand injury from hard or sharp materials such as wood or metal, or sparks; they shall also be worn when handling caustic materials such as cement.

Boots with steel toe and side protection shall be worn when on any construction or operational site, or whenever there is a risk of foot injury from fast-moving or impact-creating tools and machines, such as drills, sledge hammers and pick axes.

Ear protection shall be worn whenever a person is within 20 metres of any machine making a loud noise, including generators, drills, compressors, power saws, grinders, or earth-moving and compacting machines. No individual shall be exposed to noise levels in excess of 85 dB without wearing ear protection. Environmental Department staff can measure site noise on request.

Face Masks shall be worn in areas where there is dust or light smoke blowing due to movement of vehicles, operation of machines, wind blows or open fires.

C.02 Working at Height and in Excavations

Working at height – introduction

Falls whilst working at height remain one of the biggest causes of fatalities and major injuries from "accidents" at work. When you do a task that involves a risk of falling liable to cause personal injury, you are working at height. So this can include falling from the ground into a pit or other opening in the floor, or from an edge or through a fragile surface. You do not have to be very high to fall and injure yourself.

The following rules must be followed.

- Work at height must be avoided where possible, for example by using equipment so the work can be done from ground level.
- Where work at height is not avoidable, then work equipment or other measures must be used to prevent falls (such as a permanent barrier).
- Where the risk of falling cannot be eliminated, then work equipment or other measures must be used to minimise the distance and consequence of potential falls (such as a safety harness).

Contractor's responsibilities – working at height

If working at height cannot be avoided the Contractor must:

- assess all the risks – conduct a risk assessment;
- properly plan, organise, and appropriately supervise the work thoroughly and ensure it is carried out in a safe manner;

- ensure those involved in the work (including the planning, organising, supervising, and carrying out of the work) are competent - this means that they have the skills, knowledge, and experience to do the job or are supervised by a competent person if they are being trained;
- make sure the working area is safe and so far as possible includes features to prevent a fall (such as a railing or barrier);
- provide suitable measures such as using an existing safe place of work or a safe means of access to prevent a fall. If preventing a fall by doing the work from a safe place is not possible, then provide suitable equipment to prevent falls and appropriate equipment for the work involved - and ensure they are used. When choosing suitable and appropriate equipment, preference should be given to collective systems which protect many (such as a physical barrier, guard rail, or working platform) above personal systems which protect the individual (such as a harness);
- where a risk of falling remains, use work equipment or other measures to minimise the distance and consequence of any fall if possible, and if not possible to minimise the distance then to minimise the consequences of the fall, and provide additional training and/or instruction to prevent the risk of falling;
- inspect and maintain work and safety equipment as appropriate and the place of work at height on each use;
- only allow working at height when weather conditions mean it safe to do so;
- prevent where possible or otherwise minimise risks posed by fragile surfaces (such as loose slope surfaces) or falling objects (including not working on or near or passing across fragile surfaces if possible, or otherwise displaying prominent signs);
- create a plan for dealing with emergencies and for rescues.

Workers' responsibilities – working at height

If working at height, an employee must use the equipment supplied (including safety devices) properly and follow any training and instructions unless they think this would be unsafe (in which case they should seek further instruction). Employees must also report any safety hazards (activity or defect) to their employer.

Working in excavations - introduction

Excavation failures are particularly dangerous because they may occur quickly, limiting the ability of workers (and in some cases others nearby) to escape, especially if the collapse is extensive.

The speed of an excavation collapse increases the risk associated with this type of work. The consequences are significant as the falling earth can bury or crush any person in its path resulting in death by suffocation or internal crush injuries.

Excavations for the installation of large retaining structures in the hilly section between Dhan Khola and Bhalubang where slopes are composed relatively loose and hazardous material characteristic of the Siwalik hills are potentially hazardous while scope for limiting hazards, such as battering slopes and providing space for passing traffic, is limited. Some excavations will extend more than 10m below road level, depths at which only excavators with special long reach capability can excavate. The Contractor's Environmental, Social, Health and Safety Management Plan (CESHSMP) must include a method statement for the construction of the scheduled retaining walls on the Dhan Khola to Bhalubang section, which include cantilever walls. This must state, among other details:

- Either how manual digging will be excluded (for example, by the use of a long reach excavator) or details of shoring (materials to be used and method of support) to protect workers
- Traffic management arrangements (this will include arrangements for prompt removal of spoil to avoid further disruption from the placement of spoil stockpiles
- Identification of safe sites for heavy loads such as stockpiles and heavy equipment at a safe distance from the excavation (or any other slope)
- PPE to be provided including helmets and harnesses
- Arrangements to protect workers from falling objects
- Minimum training and experience level of laborers and plant operators
- Supervision arrangements
- Main construction details (eg if large pre-cast sections will be used, how these will safely be lowered into the excavations and secured)
- Arrangements for prompt access to emergency care

Contractor's responsibilities – working in excavations

If working in excavations cannot be avoided the Contractor must:

- assess all the risks – conduct a risk assessment, verifying that there are no underground services and assessing risks of collapse, harm from falling objects, slope failure during construction;
- develop specific plans for major excavation sites in the CESHSMP, to ensure the work is thoroughly supervised and carried out in a safe manner; and submit to the Engineer for review and approval
- ensure those involved in the work (including the planning, organising, supervising, and carrying out of the work) are competent - this means that they have the skills, knowledge, and experience to do the job or are supervised by a competent person if they are being trained;
- inspect and maintain work and safety equipment as appropriate and the place of work at height on each use;
- only allow working in excavations in the dry season and when weather conditions mean it safe to do so;
- prevent where possible or otherwise minimise risks posed by fragile surfaces (such as loose slope surfaces) or falling objects (including not working on or near or passing across fragile surfaces if possible, or otherwise displaying prominent signs);
- create a plan for dealing with emergencies and for rescues;
- avoid underground services and make sure not to undermine nearby structures – use safe digging practice and dig away from them.
- check the excavation each day before starting work and after any event that may affect its stability;
- provide safe access to get in and out;
- prevent collapse – shore up, bench, or batter back – do not assume ground will stand unsupported;
- prevent people and materials falling in – with barriers strong enough not to collapse if someone falls against them.
- Ensure any significant loads on the slope – such as heavy equipment and stockpiled material, is
- Bring spoil from excavations to the surface and dispose of in accordance with plan D5, only allowing release of soil downslope in emergency situations

Engineer's responsibilities

Review of provisions for safe excavations work in the CESHSMP for adequacy and effectiveness in all aspects requiring additions and revisions as necessary, and formal approval. Daily monitoring of site operations for compliance with CESHSMP.

Workers' responsibilities – working in excavations

If working in excavations, an employee must follow all safety procedures, use the equipment supplied (including safety devices) properly and follow any training and instructions unless they think this would be unsafe (in which case they should seek further instruction). Employees must also report any safety hazards (activity or defect) to their employer.

C.03 Guidelines on Tree Felling and Safe Use of Chainsaws

General

These guidelines provide methods for the safe felling of trees using chainsaws. It is assumed that all larger plants – anything greater than about five meters in height – will normally be cleared using chainsaws, and detailed guidance is given on this aspect.

The felling of trees using bulldozers and excavators is not allowed in the Project.

Pre-felling safeguards

Before any tree felling starts on a worksite:

- contact the owners of any overhead power lines within a distance equal to twice the height of any tree to be felled to discuss whether the lines need to be lowered or made dead;
- check whether there are underground services such as power cables or water pipes which could be damaged when the tree strikes the ground;

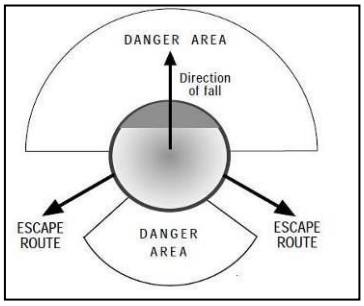
- if there are roads or public rights of way within a distance equal to twice the height of the tree to be felled, ensure that road users and members of the public do not enter the danger zone – you may need to arrange warning notices, diversions or traffic control;
- do not start work until agreement has been reached and all necessary precautions have been taken.

Safe tree felling procedure using chainsaws

Timing. Only start to fell a tree when there is adequate time to do so safely. Tree felling is inherently dangerous and should not be rushed. Once cutting is started, the tree must not be left alone until it has been safely felled and the branches trimmed out.

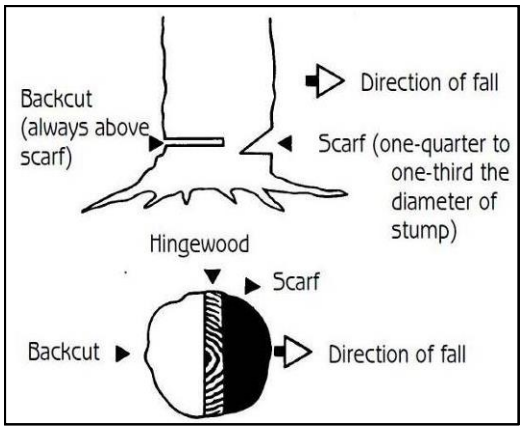
Condition of the tree. Check if the butt of the tree is affected by rot. In addition, be especially careful to check for dead or broken crowns and branches which might fall during the operation. Check both the tree to be felled and those nearby which might be hit by the tree being felled.

Line of fall. Assess what could affect the direction of fall, such as wind conditions and whether the tree is leaning, has uneven growth or branches which could foul other trees. A tree should always be felled along its natural line of fall. Attempts to fell it in another direction should be aided by equipment such as wedges for small trees and winches for larger trees (see below).



Clearing the area. The area around the base of a tree should be cleared of vegetation for a minimum of two to three meters. An escape route should be made clear on the side of the tree where the operator will be when making the final cut. The escape route should be in the 45-degree quadrant between 90 and 135 degrees from the line of expected fall. Any tripping hazards should be removed.

Where to cut. Trees should always be cut as low to the ground as possible. No tree should be cut more than 500 mm above the level of the surrounding ground. This might require the removal of buttresses and trimming of a splayed tree trunk to form a regular cylinder.



Dip, scarf or wedge cut. As low as possible, make a horizontal cut one third of the way through the tree on the side where it is expected to fall. Then make another cut, cutting down at 15 to 30 degrees from the horizontal, to remove a wedge of wood from above the first cut. Clean out the dip to ensure that an even, open wedge is formed, facing exactly the direction of felling.

Final cut or back cut. Do a final check that the area all around is clear and that there is no danger of anyone entering the felling zone. Make the final cut 50 to 75 mm above the base of the dip cut, starting on the opposite side of the tree and working towards the dip. Keep it horizontal and keep the cut face parallel to the thin end of the dip cut. As the cut is approaching the dip, look closely for signs of movement in the trunk of the tree. Once it starts to fall, remove the saw from the cut and move away from the tree without rushing. You should normally move at right angles to the direction of fall in case the butt jumps backwards off the stump. Keep watching the tree in case it twists or starts to fall in an unexpected direction.

Trimming out. Once the tree is down, the branches should be trimmed out to ensure that the trunk is lying along the ground and that it cannot roll over. Especial care is needed in cutting the branched on the underneath of the lying trunk, as these will be under tension.

Additional tools and equipment. Operators may need to use aid tools such as alloy or plastic wedges, a breaking bar, a cant hook, a winch, or high-lift wedges and a sledgehammer. They should understand when it is important to use additional equipment, and it is the manager's responsibility to make sure operators have the right equipment available and the skills to use it correctly. This is in any situation where there is any doubt as to whether a tree can be felled safely using only a saw. Additional equipment introduces different forces, however, and always complicates the process of felling.

Hung-up trees. If a tree is likely to become hung-up on another during felling, operators will need to have the knowledge and the equipment to bring the hung-up tree down safely. Dealing with leaning trees or wind-blown trees also requires special skills.

Fitness to operate a chainsaw

To use a chainsaw safely, the operator needs to be reasonably fit, both physically and mentally. People with disabilities need not necessarily be excluded from work with chainsaws, but medical advice may restrict the tasks they can do and require increased supervision. It is recommended that workers undertake pre-employment screening when selecting chainsaw operators. Seek further medical advice if prospective operators have any condition affecting:

- mobility (e.g. arthritis, stroke);
- alertness (e.g. diabetes or alcohol/drug dependency);
- physical strength (e.g. heart conditions);
- vision (which cannot be corrected by glasses or contact lenses);
- manual dexterity/grip strength (e.g. vibration white finger);
- balance (e.g. vertigo or giddiness).

Operators should inform their supervisor when they are taking prescribed medication. Check with the operator's medical practitioner if the medication can affect a person's ability to operate a chainsaw safely.

Health risks

Chainsaws expose operators to high levels of noise and hand-arm vibration which can lead to hearing loss and conditions such as vibration white finger. These risks can be controlled by good management practice including:

- purchasing policies for low-noise/low-vibration chainsaws (e.g. with anti-vibration mounts and heated handles);
- providing suitable hearing protection;
- proper maintenance schedules for chainsaws and protective equipment;
- giving information and training to operators on the health risks associated with chainsaws and use of personal protective equipment (PPE) etc.

Encourage existing chainsaw operators to report any signs or symptoms which may affect their ability to use a chainsaw safely or may indicate adverse health effects from noise and/or vibration.

Training and competence: all chainsaw use

Chainsaws are potentially dangerous machines which can cause major injury if used by untrained people. Anyone who uses a chainsaw at work should have received adequate training and be competent in using a chainsaw for that type of work. The training should include:

- dangers arising from the chainsaw itself;
- dangers arising from the task for which the chainsaw is to be used; and
- the precautions to control these dangers, including relevant legal requirements.

Training for use of chainsaws in tree work

All workers who use chainsaw should be competent to do so. Before using a chainsaw to carry out work on or in a tree, a worker should have received appropriate training and obtained a relevant certificate of competence, unless they are undergoing such training and are adequately supervised.

This means everyone working with chainsaws on or in trees should hold such a certificate or award.

Training provision

Training should be carried out by specialist instructors at organized training courses. Where training is being consolidated through workplace-based experience, the trainee should be supervised by a person competent in the use of a chainsaw for the work being done by the trainee and who holds the relevant competence certificate or award.

It is recommended that all chainsaw operators have regular refresher training to ensure they work to industry best practice and maintain their levels of competence. The suggested intervals for such training are:

- occasional users – every two to three years;
- full-time users – every five years.

Supervision of trainees at training courses and training at work
Instructors need to organize training to maintain a suitable ratio of trainees to instructors. Factors to be considered include:

- the level of experience of trainees;
- the content of the training;
- the location and terrain where the training is being carried out.

Personal protective equipment
Suitable personal protective equipment (PPE) should always be worn, no matter how small the job.

Protective clothing must comply with high international standards to provide a consistent level of resistance to chainsaw cut-through. Other clothing worn with the PPE should be close fitting and non-snagging. However, note that no protective equipment can ensure 100% protection against cutting by a hand-held chainsaw.

The following PPE are obligatory:

- Safety helmet
- Hearing protection;
- Eye protection – mesh visors or safety glasses;
- Gloves;
- Leg protection;
- Chainsaw boots – knee-length safety boots with steel shin guards and toe caps.

In addition, upper body protection (i.e. a cut-proof chainsaw jacket) is recommended.

Lone working
Avoid working alone with a chainsaw. Where this is not possible, establish procedures to raise the alarm if something goes wrong. These may include:

- regular contact with others using either a radio or telephone;
- someone regularly visiting the worksite;
- carrying a whistle to raise the alarm;
- checks to ensure operators return to base or home at an agreed time.

First aid
Anyone working with chainsaws needs to understand how to control major bleeding and to deal with crush injuries, so it is recommended that operators hold an emergency first-aid certificate. Make sure operators always carry a personal first-aid kit (incorporating a large wound dressing) with them and have reasonable access to a more comprehensive kit.

C.04 Guidance for Traffic Management Plans

MCA-Nepal, the Engineer, all Contractors and all Subcontractors must develop a Traffic Management Plan (TMP). The Engineer's TMP will be reviewed by MCA-Nepal prior to commencement; Contractors and Subcontractors' TMP will be reviewed by the Engineer.

Every TMP shall take into consideration applicable national laws and regulations pertaining to traffic movement, road use, vehicle ownership, and maintenance and driving permits (including heavy vehicles for goods transport, driving on hilly roads etc.); construction material transport permits and labour laws; and the project's ESHS provisions.

As part of a TMP, there must be prepared route maps for the duration of activities. These must cover all origin-destination points. Stakeholder engagement must be used in the vicinity of construction sites to identify suitable routes, and to highlight areas and issues of community concern. In addition to these aspects, route planning (for route selection, use and maintenance) will include consideration of the following:

- Are vehicle routes clearly separated from pedestrian routes by fencing or a kerb, or other suitable means?
- Are routes wide enough to accommodate safely the number of vehicles likely to use them at peak times?

- Do routes allow easy access to construction areas?
- Are routes kept free of obstruction?
- Do selected routes have clear and suitable signage?
- Can pedestrians safely cross the selected vehicle routes, especially where routes go through settlement areas?
- Do pedestrians have a clear view of traffic movements at crossings and at gates which lead on to traffic routes?
- Do selected routes minimise the nuisance to local residents from noise, dust and traffic?
- Do routes eliminate or reduce the need for reversing?
- At the point of exit from construction sites, can the driver see pedestrians on the road?
- Are temporary structures protected from vehicle impact?
- Are parking areas available at suitable locations and have they been approved by the ESHS staff for project use?

Each TMP will include driver training and safety measures, including:

- Ensuring details are checked at the time of hiring a driver and maintenance workers, including valid driving licenses, proof of identification, age and reliability, etc.; and
- Providing training and awareness regarding driving safety, road signage and speed rules, use of seat belts, and other safe practices, to drivers and helpers.
- Ensure that drivers do not transport any community people in their vehicle..

Each TMP will address the following traffic management measures (including on the access roads to substation construction sites):

- Make adequate arrangements to manage traffic, particularly at the entry and exit points, and at locations identified by communities for specific management;
- Plan traffic movements to have flexible timings to avoid congestion and minimise disturbances to local communities;
- Include traffic calming and management measures at stretches on routes with narrow roads or bridges, which are prone to congestion;
- Manage vehicular entry into the site to avoid queuing on the road outside;
- Plan for and provide drop-off zones for workers coming by buses, clearly identified for easy access;
- Plan and provide adequate parking of vehicles to avoid using public or private land, unless prior arrangements have been made;
- Install adequate signage that is easily understood by both drivers and local communities;
- Undertake periodic stakeholder engagement activities to introduce corrective measures as necessary to improve traffic movements and minimise disturbances to local communities; and
- Ensure regular and ongoing reporting of incidents and accidents with actions taken to understand the causes and take remedial action.

Each Traffic Management Plan will include dust suppression measures on public roads used for project-related traffic movements, such as:

- The use of hard surface roads, rather than gravel roads, to the extent possible;
- The provision of easily cleaned hard surface areas for vehicle parking, and loading and unloading; and
- Sheeting of all project vehicles carrying potentially dusty material (such as construction aggregate and excavated spoil) or likely to deposit loose materials on roads.

C.05 Guideline on the Scope of Emergency Preparedness and Response Plans

Every Contractor must submit an Emergency Preparedness and Response Plan for approval by MCA-Nepal at least three months before mobilising to any site.

The Emergency Preparedness and Response Plan shall stand alone, and shall include the following measures as a minimum:

- Identify the required preventative measures;
- Identify the roles and responsibilities of personnel in the event of an emergency;
- Detail the required emergency control materials to be stored at the work sites;
- Clearly document emergency control procedures (see below), and
- Describe notification requirements.

The plan will clearly outline the control procedures listed below.

Fire control and fire emergency method statement, describing:

- The reasonable steps to be taken by the Contractor to avoid increasing the risk of fire through activities on site;
- The fire-fighting equipment that the Contractor will keep available and well-maintained at all camp areas and facilities;
- The identity of the Contractor's Fire Officer who shall be responsible for ensuring immediate and appropriate action is implemented in the event of a fire;
- The procedures to be followed by the workers in the event of fire;
- The method for ensuring that all site personnel are aware of the procedure to be followed in the event of a fire; and
- The details of mock fire drills that shall be conducted to prepare workers in case of an emergency (records of which will be maintained by the Contractor).

Earthquake response procedure, including:

- The actions to be taken by personnel in responding to earthquakes; and
- Collaboration and integration with any Disaster Management Plans or Procedures of the surrounding community administrations during an emergency situation.

Triggered landslide event, covering:

- The Contractor's diligence approach to the assessment and monitoring of ground stability in the vicinity of its work sites;
- Slope stabilisation procedures to be implemented during construction;
- Routine monitoring and inspection processes to aid in the rapid identification of insufficient control measures, and identify areas with potential for landslides;
- Guidelines for personnel to notify management and implement remedial action as required to limit slope instability; and
- Mechanisms to ensure that work will be scheduled or suspended to avoid periods of heavy precipitation or prolonged periods of saturated ground conditions.

Traffic accidents, including:

- A detailed statement on the management of traffic to maximise the safety of both personnel, members of roadside communities and other road users;
- A system to ensure that all project drivers will observe all local and national traffic rules and laws;
- A system to ensure that all project drivers are appropriately trained and licensed;
- The designated light vehicle and truck routes, and the speed limits and weight restrictions to be observed on all roads near the work sites;
- Actions to be taken by personnel in the event of a traffic accident; and
- Notification arrangements for local communities about proposed changes to local traffic access due to construction activities, and the clear signage of changed traffic conditions that would be provided in this event.

Accidental spills of hazardous materials, including:

- A detailed spill prevention and response statement, which will identify all potentially hazardous substances (including fuels and lubricants) to be used by the Contractor, the required leakage and spillage preventative measures, the required spill control materials to be located at all work sites and on transfer vehicles, the roles and responsibilities in the event of a spill, and the spill control documentation and notification procedures;
- The appropriate containment for any fuel or hazardous materials, including secondary containment (e.g., bunding) around any diesel storage tanks, that will be provided at all work sites and camps;
- The prohibited activities near all fuel and other hazardous material handling and storage areas;
- The schedules of manufacturer-recommended maintenance for all equipment and vehicles; and
- The regular check protocols of storage tanks and vehicles for leaks.

ANNEX D: SOCIAL SAFEGUARD PROCEDURES AND GUIDELINES

D.01 Procedure for Using the ETP Stakeholder Engagement Plan (SEP)

Introduction

MCC is committed to the principle of direct engagement with communities through the requirement that each selected country undertakes a timely, participatory and meaningful process of consultations with key stakeholders who are likely to be affected by the development and implementation of proposed compact programs. The MCC issued a Compact Development Guidance Report in February 2017 (https://www.mcc.gov/resources/story/story-cdg) in which Chapter 4 describes the MCC guidance on public consultations and stakeholder engagement. MCC requires that each country has engaged in a process of public consultation and stakeholder engagement that includes civil society organizations, the international and domestic private business community, and other international development agencies, among other stakeholders.

Further, the MCC Gender Policy requires that consultation process and procedures be designed and implemented to allow for the meaningful participation of both women and men, that social and gender analyses be informed by consultations with different stakeholders, and that evidence of participation in consultations throughout the compact development process is demonstrated.

Reference Standards

The Stakeholder Engagement Plan and its internal grievance redress mechanism has been prepared as per the requirements and standards set out in:

- MCC Environmental Guidelines,
- MCC's Gender Policy and Gender Integration Guidelines,
- MCC's Counter Trafficking in Persons Policy,
- Guidance on the Implementation of Involuntary Resettlement (2008),
- IFC Performance Standards,
- Nepalese regulations, and
- Best practices from other projects in Nepal.

MCA-Nepal has developed a Stakeholder Engagement Plan and associated recording matrix for the project over the life of the project. The aim is to identify, plan, determine and record interactions with and regularly update information on all stakeholders affected by or interested in the project, including the management and resolution of project related grievances.

The intent of the SEP is to demonstrate informed and inclusive stakeholder consultation and participation for the duration of the project. The SEP must be extended and updated over the life of the project and as such is a living document.

Purpose of Engagement during Construction

The intention of the SEP during construction is to ensure that the concerned stakeholder groups have an understanding and are informed of all engineering related work including construction, further Geotech surveys, LIDAR, ground level route alignment surveys (if required), bio-diversity and environmental sampling surveys etc. The engagement activities in this phase of the project is critical to ensure the 'social license to operate' for the project and to reduce the potential for delays. The information disseminated under the SEP is managed through the public information and dissemination component of that plan, for which compliance is also required.

The purpose of the engagement activities at this stage of the project is as follows:

- To obtain and retain the regulatory permits and formal/ informal consents from the various stakeholders, as required;
- To conduct engagements – meetings, announcements, contacts and visits in accord with international best practice standards.
- To allow stakeholder groups to understand the implementation of the project, its key components, timing, purpose as well as the potential social, gender and environmental risks and impacts (positive and negative) on the stakeholder groups. This allows for informed engagement, consultation and understanding by stakeholders through the life of the project;

- To allow for the stakeholder groups to actively participate in engagement activities as part of the present project phase;
- To ensure that the stakeholder feedback and inputs are adequately incorporated into the project management plans;
- To provide the stakeholder groups, (especially the project affected families, local community, impacted CFUGs and vulnerable groups)' information on the ongoing social and environmental mitigation measures identified as part of the management plans for the project.

Scope of Stakeholder Engagement during Construction

The Stakeholder Engagement Plan covers:

1. Identification of stakeholders,
2. Updating and maintenance of contacts matrix.
3. Process for initiating contacts with stakeholders.
4. Programming and conduct of meetings, information exchange, participation in project activities.
5. Recording information and discussions/ communications on areas of interest of stakeholders, ensuring effective dissemination of SE information within the project entities in an appropriate and timely manner.
6. Methodologies for undertaking, recording and actioning issues raised during SEP activities.
7. Requirements for coordination, supervision and monitoring of contractor stakeholder engagements with and by MCA-Nepal.
8. The SEP implements information designed and disseminated under its provisions for public information and dissemination, which must be adopted by each Contractor.
9. The Contractor must develop their SEP, coordinate with the Engineer and MCA-Nepal communications team and prepare materials and procedures before initiating any visits to the site.

Implementation

Each Contractor must appoint a senior level Social Safeguards Manager/ Officer (and Community Liaison team as appropriate to the level of activity) to manage stakeholder engagements prior to mobilisation. The Contractor must:

- Adopt the Stakeholder Engagement Plan and methodologies developed before any site activity is permitted.
- To the greatest extent possible, takeover the employment and deployment of the District CLO, trained and deployed during the project development phase, as the Contractor's local level representative as part of the Contractor's social safeguards team.
- Liaise with the MCA-Nepal social safeguards and gender and social inclusion team prior to mobilisation to be briefed on the SEP process, required methodologies, approval of materials and recording mechanisms.
- Prior to any survey, field or construction work, the Contractor CLO(s) and MCA-Nepal ESP on-site Community Assistant must liaise and inform and obtain any required permissions from the district and local authorities as well as the communities.
- Record and report stakeholder engagements as required by MCA-Nepal.
- Participate in and use the project wide grievance redress mechanism as required by MCA-Nepal.
- Maintain, staff and support the Public Information Centre set up under the project design phase.

Process for Implementing the SEP

Actions and Responsibilities for Stakeholder Engagement

Step	Action	Responsibility
1	Adoption of stakeholder engagement matrix for Districts, Municipalities, Wards and PAPs in affected area	Contractor
2	Ensure harmonising of stakeholder matrices, liaison with MCA-Nepal Communication Specialist and MCA-Nepal Project manager	Contractor
3	Review and update lists of stakeholders from MCA-Nepal SEP matrix	Contractor
4	Add stakeholder groups by level of interest/ impact against location and interests	Contractor
5	Align methodologies for appropriate contact and notification periods for stakeholder groups with those of MCA-Nepal to ensure continuity of awareness and participation using procedures in Annex C 4.2 Procedure for Undertaking Community Engagement	Contractor

Step	Action	Responsibility
6	Compile a Stakeholder Engagement Manual listing MCA-Nepal compatible processes defining: ● Roles and Responsibilities ● Management ● Training ● Resources required ● Cooperation and communication channels within ETP ● Planning tasks ● Training ● Recording ● Reporting ● Monitoring	Contractor
7	Agree on the SEP Manual with MCA-Nepal	Contractor
8	Estimate information/ communication requirements, numbers of meetings required and reporting requirements at which level/ group over the life of the ETP construction period as per the SE Manual	Contractor
9	Estimate planning requirements, costs and logistics required for community and stakeholder engagements	Contractor
10	Integrate meeting purpose and information/ participation requirements with MCA-Nepal public information and dissemination component of the SEP as per Procedure in Annex D.03	Contractor
11	Calculate and agree budget for SEP activities	Contractor
12	Adopt, update and implement the project Grievance Redress Mechanism – use the detailed Procedure in Annex D.04. The GRM must incorporate the provision of anonymous complaint system in case of sexual harassment, TIP incidents.	Contractor
13	Calculate and agree budget for SEP activities	Contractor
14	Update the SEP throughout project life	Contractor
15	Regular consultation of MCA-Nepal ESP Specialists, , Gender and Social Inclusion Specialists, ESP-CAs and Quality Assurance Managers	Contractor
16	Submit SEP to MCA-Nepal	Contractor
17	MCA-Nepal review	MCA-Nepal
18	MCA-Nepal review and approval	MCA-Nepal

D.02 Procedure for Undertaking Community Engagement

Introduction

Stakeholder/ Community sensitivities are high in projects involving loss of land, relocation and potential employment opportunities. These sensitivities are best managed by careful, considerate engagement that demonstrates willingness to include communities and encourage participation in planning and implementation as far as possible.

This procedure is designed to promote international best practice in stakeholder/ community interactions – casual encounters, meetings for whatever purpose, specific consultations etc. - and ensure harmonisation with the methodologies and reporting mechanisms for stakeholder/ community engagement developed for ETP by MCA-Nepal and with reference to the same standards.

The procedure is compliant with international standards prescribed under the IFC Performance Standards 1-8 (as appropriate to context) and their guidelines, as required by the Millennium Challenge Corporation. It is intended that this procedure is integral to the Contractor's Stakeholder Engagement Manual mandated in this ESHSMP for guiding stakeholder engagement. Of particular relevance to this procedure is IFC PS 7 Guidance on interactions with Indigenous Peoples.

Principles

The principle and practice of Free, Prior Informed Consent (FPIC) prescribed in IFC PS 7 requires the utmost highest standards of community engagement to achieve the best levels of understanding and involvement by all communities impacted by the project. IFC PS 7 requires that all persons – not just indigenous groups - are informed, consulted and enabled to participate in project planning and implementation through:

- Engagements conducted in languages used by the community
- Timely contacts allowing sufficient time for awareness, attendance and comprehension
- Sufficient engagements to ensure full understanding and participation by all sub groups

- Materials designed for both literate and non-literate
- Use of appropriate media to maximise engagement – radio, newspapers, noticeboards, regular advice meetings, specific topic engagements etc.
- Ensuring full information to concerned GoN Administrative Offices at all levels of decentralised Government
- Outreach to civil society organisations and umbrella interest groups
- Inclusion of key persons of community influence.

Purpose

The procedure intends and requires that all engagements are conducted with respect, politeness and consideration. Engagements envisaged under this Procedure are anticipated to be:

- Casual meetings,
- Complaints presentation
- Formal meetings,
- Interviews for whatever purpose,
- Surveys,
- Consultations,
- Participatory planning.

Engagements are expected to reach all ethnic and indigenous groups equally and are to be conducted in languages understood by participants with the use of interpreters where needed. There must be no discrimination in contact or communication on the basis of gender, caste/ethnicity, minority status, language, education, religious belief, sexual orientation, political influence, wealth, health, (dis)ability or age. Ensuring that no discrimination occurs requires commitment and resourcefulness, flexibility and willingness on the part of the Contractor to adapt processes to local circumstance and to actively investigate ways in which community groups may be excluded from each engagement in order to secure the participation and inclusion of these groups.

Process for Undertaking Community Engagement

The objective of the procedure described below is to enforce best practice in community contacts and reducing community anxieties and concerns that may evolve into pressure on the project and delays in construction. Further, this procedure is intended to ensure that engagements are properly planned, conducted and recorded such that the objective above is fulfilled and demonstrated to be achieved.

The procedure is envisaged to apply to all forms of local contact at Municipality and ward levels in casual contacts/ informal meetings, more formal community meetings and smaller focus group consultations for all ethnic groups, IPs, documenting the location and degree of project impact. The procedure looks first at the planning and modalities for communicating through community meetings, and secondly at the requirements to be fulfilled when reporting chance encounters or individual conversations/ informal meetings.

MCA-Nepal require compliance with these Procedures in order to promote:

- Best quality interactions,
- Maximise community satisfaction with ETP,
- Reduce duplication of effort, confusion and misunderstandings that might cause delays into construction
- Ensure that all ETP partners and MCA-Nepal are aware of and participate (where necessary) in community engagements.
- Ensure that communities are approached and engagements set up to the high standards expected by MCA-Nepal.
- Records of all engagement are made, kept, stored and shared between ETP partner organisations.

Steps to undertake community engagement

Step	Action	Responsibility
Formal Meetings		
1	For each phase of ETP, Review work schedule requirements for community interactions Plan community engagement – SEP matrix, meeting purpose, location, audience/ attendance, key invitees, translators, resources, Contractor and Other project partner staff required.	Contractor
2	Liaise with MCA-Nepal ESP Specialists and GSI Specialists so as to collaborate/ reduce duplicated efforts	MCA-Nepal
3	Plan the engagement activities – consultation, participatory design, monitoring, verification, grievance resolution	Contractor
4	Plan/ design materials and key information/ messages to be disseminated.	Contractor
5	Estimate the required budget and agree within the contracting organisation.	Contractor
6	Liaise with MCA-Nepal ESP Specialists and agree format, wording of each meeting/ message and engagement plans	MCA-Nepal
7	Liaise with ESP-CAs to make arrangements for meetings etc. Agree responsibilities for booking venues, informing GoN administrative officials, issuing invitations, translators, minutes taking and attendance recording	Contractor
8	Make bookings for venues, hire or arrange support staff/ translators, produce meeting support materials, make media announcements, book resources as required, ensure set up time is planned for.	Contractor
9	Draft a meeting planning note setting out the agenda - topics to be discussed, meeting facilitation, translation and order of discussion.	Contractor
10	Deliver specific invitations to meetings or announce the arrangements for a general meeting through multiple ways, letters, telephone calls, personal visits, and radio and media announcements as appropriate – record invitations issued. Ensure sufficient notice is given for people to make arrangements to attend and to request access arrangements, make transport arrangements, request specific translators etc.	Contractor
11	Set up the room where required, ensure a note taker is present, set up recording machines where appropriate and where communities agree. Set up attendance list compilation.	Contractor
12	Introduce the meeting, introduce speakers, distribute copies of the agenda where appropriate, and describe the topics to be discussed and the order of discussion and opportunities for community discussion and involvement in the meeting.	Contractor
13	Undertake the engagement, ensuring all parties get the opportunity to present opinions and information, ensure women, disadvantaged and marginalised groups have the opportunity to participate, if necessary, plan for small groups/ meetings where discrimination, lack of confidence, and/or self-censorship may be a barrier that prevents some groups or individuals from attending or speaking.	Contractor
14	At the conclusion of the meeting, thank all attendees, give feedback through a summary of topics discussed, information exchanged, actions agreed and areas of disagreement. State next steps and information on where and when the next project progress will happen.	Contractor
15	Write up the meeting notes on the standard meeting note proforma within 24 hours	Contractor
16	Distribute meeting notes as agreed with MCA-Nepal to participants and project entities and ensure actions agreed are programmed into Contractor or MCA-Nepal activities, ensure external bodies are informed according to need and prior agreement.	Contractor
Casual meetings/ Informal meetings:		
17	As soon as an unplanned engagement has occurred, regardless of level, subject or length of discussion, the Contractor's concerned individual must make a meeting note on the agreed meeting note proforma recording: Location, date, All persons' names and organisations where appropriate. Notes of information exchanged Notes of agreed outcomes or actions Note on who this information is to be passed for action, recording and filing	Contractor
18	The supervisor receiving the note must log the note with the MCA-Nepal and the Contractors stakeholder engagement team	Contractor

Step	Action	Responsibility
19	Note with actions must be recorded in the IMS as organised, ensuring that the note is included in the file for each appropriate community	MCA-Nepal
For all meetings		
20	Maintain a filing system – on paper and digitally of all community engagements – on paper in the Public Information centre and Contractor's District Project Offices, digitally on the ETP Information management system as per the Contractor's Stakeholder Engagement Manual for ETP	Contractor

D.03 Procedure for Public Information and Dissemination Plan

Introduction

The MCA-Nepal has a project specific component of public information and dissemination (PID) as required by international policies and standards as described below. The Public Information and Dissemination plan for ETP has been written to manage all project related communications and system of message delivery to ensure accuracy and consistency in message delivery throughout the whole project. The ETP PID requires contractors to manage all public information activities to the design and quality standards of the plan through the MCA-Nepal vetting, approval and, where appropriate, procurement processes. It is required that this procedure is implemented in close cooperation and integration with Procedure C4.1 on Using the ETP Stakeholder Engagement Plan.

MCA-Nepal is aware of the ETP related issues and potential for delays to construction through the poor management and poor quality of information dissemination. To reduce damage to the MCA-Nepal reputation, public perceptions of ETP and impacts on the project achievement on schedule, MCA-Nepal requires the contractor to incorporate the ETP PID and its mechanisms in all public information activities. The range of activities envisaged are:

- Public Information Centre Activities and programmes
- Leaflets, brochures,
- Media announcements, radio broadcasts, community phone-ins on radio
- Newspaper articles,
- Official Notice Publications

Reference Standards

The IFC Performance Standards are the starting point for standards required for projects under the MCC organisation. The IFC Performance Standards are based on the World Bank Group Environmental, Health and Safety Guidelines (EHS Guidelines) and relevant Policies. The World Bank Policy OP/BP 4.12, Involuntary Resettlement, revised in April 2013, is the source document for ETP community interactions as these are caused by the need to acquire land through involuntary process of compulsory purchase. OP 4.12 requires compliance with the World Bank Policy on Disclosure of Information, 2010 which directs the ways in which project specific information is disseminated to communities and other stakeholders as affected by the project.

The MCC have adopted the IFC Performance Standards derived from the World Bank Policies and require their consistent and full adoption in the project process. MCA-Nepal have a Communications and Public Affairs Team with two Communication Specialists. Additionally, the ESP Environmental and Social Safeguards specialists and GSI Specialists with responsibilities for information outputs design and dissemination.

Process for the Use of the ETP Public Information and Dissemination Process

This procedure requires that all public information materials are designed and agreed with and approved by the MCA-Nepal team before dissemination as per the ETP Public Information and Dissemination Plan. The aim is ensure consistent high quality information is designed at the best standards possible, is delivered at the most appropriate time and manner, is uniform across all ETP elements and enables the project to have a single public relations process. The plan describes the processes for managing the information process over the life of the project and is mandatory for all implementing agencies.

Steps for Using the ETP Public Information and Dissemination Process

Step	Activity	Responsibility
1	Contractor Gender and Social Inclusion Team discuss communication and information needs and the ETP plan with MCA-Nepal Communication Specialists and ESP/GSI Team	DB Contractors
2	Define and list all types of messages to be delivered to stakeholders over each project phase by audience type	DB Contractors
3	Agree substance of messages, delivery mechanisms and format with MCA-Nepal PM and Specialists Team	Engineers, DB Contractors
4	Design message text, media, language, costs and production schedule	DB Contractors
4.1	Consider purpose of the communication, language, media, illustrations, suitability for literate/ non literate audiences, delivery agent	DB Contractors
4.2	Pilot material designs prior to production for quality, comprehension and achievement of purpose – consult and include CLOs and ESP-CAs in design process	DB Contractors
5	Agreement for budget for activity within Contracting organisation	
6	MCA-Nepal Draft and arrange publication of Official notices,	MCA-Nepal
7	Specific Items needing Contractor publication	MCA-Nepal
7.1	Message on works commencement, schedule, inputs from bodies, contact points, information points, grievance reporting process	MCA-Nepal
7.2	Message on use and maintenance of the Pubic Information Centre, access to Community Liaison Officers, rights to assistance	Engineers, DB Contractors
7.3	Detailed message on entitlement to compensation for contractor caused damage and process	MCA-Nepal
7.4	Message on how to use Grievance Redress Mechanism/ complaints forms	Engineers, DB Contractors
7.5	Messages updating works progress	DB Contractors
7.6	Other progress messages	DB Contractors
7.7	Frequently Asked Questions leaflet – project wide – staff training	DB Contractors
7.8	Project General Information Brochure/ Leaflet	MCA-Nepal
7.9	Any other message as required	DB Contractors
8	Integrate progress reporting of communication plan implementation with MCA-Nepal project wide report process	DB Contractors
9	Produce communication materials	DB Contractors
10	Brief ESP-Community Assistants	MCA-Nepal
11	Implement message delivery programme	DB Contractors
12	Monitor message delivery, review and revise as required	MCA-Nepal and Engineers, DB Contractors

D.04 Procedure for Using the ETP Grievance Redress Mechanism

The ETP has a well-established and efficient Grievance Redress Mechanism in place. The ETP Grievance Redress Mechanism has been established and operated throughout the Design phase for ETP by all project partners. It provides a central system for receiving all complaints and managing the response and outcomes of grievances made to the project from all areas and to all partners.

A Grievance Redress Mechanism (GRM) is a required project process under World Bank Policies on Involuntary Resettlement, included therefore in IFC PS 5 and its guidelines and covers complaints about all aspects of the project over all phases. Reference to a requirement for an effective GRM is also made in the Nepal National Resettlement Policy – agreed by cabinet in 2015 but yet to be enacted into an updated Land Acquisition Act.

The GRM for ETP is designed and has been operated to date, as a way to receive and coordinate response to public complaints from all areas of all project related operations. The advantage is that MCA-Nepal are made aware of all complaints and can identify hot spots of concern and address problem areas at project-wide levels. All contractors are mandated to operate the same process, use the same reporting system through MCA-Nepal and ensure consistent approaches to grievance resolution. The use of the existing ETP GRM makes project wide monitoring, response and reporting easy to implement and enable MCA-Nepal to demand rectification of activities and working practices where these are identified.

ETP Grievance Redress Mechanism

The ETP GRM recognises that the majority of complaints during construction arise through contractor/ affected person problems:

- Damage to property by contractor vehicles or staff.
- Damage to the person from vehicle movements, poor contractor staff behaviour, theft, assault, incitation to trafficking in persons.
- Damage to communities through poor worker behaviour at work camps.
- Lack of access to employment for local people at local levels.
- Perceptions of unfairness and/ or preferential benefit by sub-groups in the community.
- Allegations of anti-social behaviour by employees.

The Stakeholder Engagement Plan (SEP) and Grievance Redressal Mechanism (GRM) have been prepared as per the requirements of the MCC environmental guidelines, MCC's Gender Policy and Gender Integration Guidelines, MCC's Counter Trafficking In Persons Policy, Guidance on the Implementation of Involuntary Resettlement (2008), IFC Performance Standards, GoN regulations and best practices from other projects in Nepal with an intent of demonstrating informed consultation and inclusive participation for the duration of the project.

The GRM and SEP were implemented during the Base Period Contract and will be used during the construction phase of the project. Stakeholder engagement is fundamental to building trust with the communities. The purpose of SEP is to enable the project to identify key stakeholders. Identify women, socially excluded, marginalized and vulnerable communities at the early stage and understand sensitives within each stakeholder groups to develop appropriate engagement mechanism. SEP ensures that communities are aware of the project and its impacts, are consulted on a regular basis, and establish a two way communication through the MCA-N district based office, and through regular meetings with concerned stakeholders.

Grievances are complaints raised by stakeholders regarding the Project, including concerns related to various activities and impacts of a project. The grievance mechanism is designed to manage those grievances raised by stakeholders to address them in a systematic way. While it is a formal platform whereby communities can register their concerns, it also allows the project proponent to be informed of issues raised by stakeholders to find an amicable solution in a timely manner. Grievances may take the form of specific complaints for actual damages or injury, general concerns about project activities, incidents and impacts or perceived impacts.

MCA-Nepal aims to allow the stakeholder engagement and grievance redressal to be undertaken in a systematic and transparent manner that will allow the various stakeholder groups to express their individual views and opinions about the project, and the proponent to respond them appropriately. The plan is focused at enabling active meaningful engagement with the stakeholder groups by identifying different mechanisms for the participation of stakeholder groups, especially women and vulnerable groups.

There are several ways through which communities can register the grievances in MCA-Nepal project. ETP had set up a Public Information Centre (PIC) in each affected district. The PIC served as a grievance cell and was operated by Community Liaison Officers (CLOs) during the base period. In addition, ESP on-site Community Assistants (ESP CAs) are also serving as a grievance cell. PICs had been set up in a location that were closer to the proposed alignment and was a mid-point for affected municipalities within that district. ESP CAs are either based in the district headquarters or around the project affected areas. There were two grievance cells within each affected district but only MCA-Nepal's district offices stationed by ESP CAs are functional after the base period and demobilization of PPTS team.

Despite careful consideration into setting up the PIC in locations where it is easily accessible to most communities, given the geography and terrain of the proposed ETP, it was observed that access still remain a constraint. ETP therefore established mechanism whereby communities can register grievances remotely. The communities will be able to lodge grievances with the ESP CAs at their office or MCA-Nepal Central Office itself. This has ensured that the communities have various accessible platforms to register their grievances which is most feasible to them. Contractors must have a dropbox for complaints that is accessible to both employees and the community at all sites, with a protocol for managing the box, opening and addressing complaints. This must complement and be integrated with the project GRM. In particular, grievances of sexual harassment, abuse, violence and trafficking in persons must be communicated to MCA-Nepal and the Engineer's GSI team according to the protocol.

All site grievances are usually received either by the ESP Community Liaison Officers or MCA-Nepal central office for registration. However, all project persons – Contractors, Engineer and MCA-Nepal staff can receive a complaint and forward it through the system. The grievance register are maintained at the district offices with a copy at MCA-Nepal central office. The ESP CLO will record complaints in the specified format and will report to the Grievance Coordinator who will be responsible for notifying and discussing within the relevant team at MCA-Nepal and report to the higher management for appropriate solution. The GRM is organized to have three tiers of decision-making to address grievances of increasing scale and/or complexity.

Tier I

Tier I is the basic group for addressing the registered grievances within the district. It consists of MCA-N ESP CA as the member secretary and Engineer/ESP lead from Contractor, ESP lead or CLO from Consultant as members. The Engineer's team provides an initial response for consideration of every grievance and submit it to MCA-Nepal. MCA-Nepal reviews and finalize the response to be sent out to the claimant. Each response are documented in the prescribed format and sent to MCA-Nepal for signature from ESP CA. The ESP CA ensures that the complainant has received the response and is satisfied with the response. If the complainant is not satisfied with the response, this will be further discussed internally. ETP ensures multiple rounds of consultation between MCA-N, Engineer, Contractor and the complainant in order to facilitate full understanding and collaboration on a solution prior to escalating issues. Each round of communication are documented in the grievance form and database. ETP takes all feasible means to resolve grievances within Tier I.

The ETP team will provide an initial response within 7 days of the receipt of such complaints.

Due to the sensitivity of TIP related grievances, the project has to operate an anonymous complaint mechanism. The Contractor must have complaint box or similar system where the victim can report the incidents in a safe environment. In case of Complaint box, it must be placed in easily accessible location and locked. The complaint box key is under the jurisdiction of the Engineer GSI Specialist who is responsible to open and record the complaints in everyday basis, on the presence of MCA-Nepal field staff. The project broadly classified the probable TIP cases into three types and addressed accordingly.

Category 1: Missing persons: any person missing for more than 24 hours from work or in the Project area without notice.

Category 2: Suspicious circumstances: any person or group of people consistently visiting the Project premises (including work sites, worker accommodation facilities, the route of commute between the two, canteen or place of eating for the Project workers, rest areas allotted to Project workers, etc. or interacting with the Project workers on regular basis.

Category 3: Labor related grievances: grievances related to labour issues like recruitment, payment, accommodation, discrimination, health, safety. These cases are treated as breach of contractual obligations in relation to labour practices and will be addressed as contract dispute and through the GRM process explain here in this section.

Immediate actions needs to be taken in case of Category 1 and 2, the complaint will be recorded and reported to the Engineer and DB contractor immediately from the time of receiving the complaint. In cases where the complaint reached to MCA-Nepal directly, it will be forwarded to the concerned DB Contractors and Engineers. The DB Contractor team shall provide an immediate response. The Grievance Officer and GSI Specialist at MCA-Nepal shall review and finalize the response to be sent to the claimant after assessing the situation within 24 hours. The TIP complaints will be notified to MCC within 24 hours and follow up report will be submitted within 7 days after the incident occurred.

For the grievance that cannot be resolved will escalate to the Chief Legal Officer of MCA-Nepal. In cases of criminal nature, or cases that is out of MCA-Nepal scope, such shall be immediately transferred to the Nepal Police within the jurisdiction where the incident was reported to have happened for further procedure. For the TIP incidents, Human Trafficking and Transportation (control) Act, 2064 will be triggered for prosecution.

Tier II

In cases where the complainant is not satisfied with the decision of Tier I committee, the complaint are forwarded to Municipal Grievance Committee (MGC) formed under the chairmanship of the ward chair of the respective

ward from where grievance has been raised. Other members of MGC include ESP CA, Ward representative of LCF (female preferred), ESP/resettlement lead from Engineer's team, and contractor representative (E&S team). Grievance Coordinator from MCA-Nepal, if required and municipality chair plus other invitee as required are invited to the committee meetings depending on the severity of the grievance. However, ESP CAs are responsible to ensure that Grievance Coordinator from MCA- Nepal is up to date with all the grievances. Tier II grievance committee has been formalized through a formal meeting with each ETP Ward chair.

The ETP team will provide an initial response within 15 days of the receipt of such complaints.

Tier III

If the complainant is not satisfied with the decision made by MGC, the grievances are escalated to the District Grievance Committee (DGC) chaired by the CDO. Other members of DGC include District Coordination Committee Chair, Representative of Divisional Forest Office, Representative of District Land Survey Office, District Land Revenue Office, ESP lead from Consultant, Grievance Coordinator- MCA Nepal, LCF member and Municipality/RM chairs as needed. The ETP team will provide an initial response within 15 days of the receipt of such complaints.

The GRM allows any stakeholder to submit a grievance for review and response by MCA-Nepal. The grievances can be filed in person, by phone, by letter, or by email at the district office of MCA-Nepal, or directly to the central office at Kathmandu. The grievance is reviewed by MCA-Nepal and a timely response is provided. If the complainant is not satisfied with the response, they can appeal the decision. However, for reasons that a grievance cannot be solved at Tier III, the claimant can seek legal recourse. MCA-Nepal team maintains a Grievance Log that tracks all grievances filed regarding the Project and their ultimate resolution. Elaborated form of GRM is outlined under SEP. Contractors are to develop their own GRM following this guidance and are to be approved by Supervisor Engineer and finally by MCA-Nepal.

Managing a Complaint

Step	Responsibility	Timeframe	Action
1. Receiving a complaint: Complaints can be delivered verbally, by written letter or email.	Any Community Liaison Officer (CLO), ESP-CA or Contractor or sub-Contractor employee	Day of receipt	All complaints are recorded on the complaint form and registered into the grievance management matrix The receiving person must ensure that all the facts: ● Complainant(s), group, body ● Details of the complaint and contact details ● Accompanying papers if any ● Date and place of complaint delivery Are recorded on the complaint matrix form
2. Forwarding the complaint	The recipient of the complaint	Day of receipt	The complaint materials and complaint details form should be forwarded to the Construction Manager depending on site and nature of the complaint, Contractor's CLO and Contractor's Gender and Social Inclusion team.
3. Notification of the complaint to MCA-Nepal In case of TIP, sexual harassment related complaint	Contractor's Social Safeguard Officer (CSSO) Contractor's Gender and Social Inclusion Manager (GSIM)	Within 24 hours Immediately to Engineers and MCA-Nepal (MCA-Nepal reports to MCC within 24 hours)	CSSO contacts MCA-Nepal Grievance Officer and agree level of investigation and response required Report to Engineer, MCA-Nepal Grievance Officer and GSI Specialist, assess the situation and respond within 24 hours.

Step	Responsibility	Timeframe	Action
4. Allocating responsibility for investigation In case of TIP and sexual harassment related cases	Contractor's Social Safeguard Officer (CSSO) Contractor's Gender and Social Inclusion Manager (GSIM)	Within 24 hours of receipt Within 24 hours of receipt	The CSSO and MCA-Nepal will allocate responsibility to a named team member – usually the CLO - for leading the investigation, setting the time frame for response and analysing the facts The Contractor must have internal grievance mechanism and conduct investigation under HR Manager, a special specialist in the same sector can be in the team and for the TIP related cases the investigation should have survivor-centred approach. The CLO from MCA-Nepal will be in the investigation team.
5. Recording the Process	Responsible Investigator (CLO)	Within 24 hours of receipt	An officer for recording complaints should be designated. The designated investigator will record all actions, requests for information from other departments and units on the stakeholder engagement grievance matrix and be responsible for recording all actions by all parties. In local level issues, The CSSO/ CLO is responsible for keeping records of such complaints on the stakeholder engagement grievance matrix and including details in monthly reports and reporting to MCA-Grievance Management Officer.
6. Contacting the complainant	Responsible Investigator (CLO)	Within 48 hours of receipt by Responsible Investigator	The designated investigator will contact the complainant and inform them that their complaint is being investigated, that there is a process and how the complaint will be dealt with. The CLO can lead or assist.
7. Determination of the facts	Responsible Investigator (CLO)	Within 14 days	The responsible investigator must conduct a balanced inquiry into the allegations bearing in mind the rights, responsibilities and obligations of all parties. The investigator shall record the facts and outline appropriate lines of action and report to the CSSO and Construction manager.
8. Agreeing action	MCA-Nepal, Construction Site Manager and CSSO	7 days of receipt of report	The Construction Manager/ CSSO/ MCA-Nepal will determine the response required, and if it can be dealt with locally, agree actions to be taken and assign responsibility for implementation and for communication of the result to the complainant as described as tier 1
All Tiers			
9. Implementing action	Nominated Informing Officer/ CLO/ contractor unit	14 days from agreement by Construction Manager/ CSSO/ MCA-N	The officer, contractor or sub-contractor designated to perform remedial actions where these are appropriate and justified shall arrange for a budget and materials and labour for the remedial works or actions to be carried out or value of compensation to be paid.
10. Researching complainant satisfaction	Nominated Informing Officer/ CLO	7 days	The nominated informing officer is responsible for following up with the complainant to ascertain receipt of payment or satisfaction with the works and for informing the Construction Manager and MCA-Nepal if the remedial action is unacceptable.
11. Monitoring and evaluating the outcome	CLO	After follow up	Responsibility for monitoring and evaluating the outcome of the Grievance Process is by the MCA-Nepal Grievance Officer and is recorded in both the Grievance Matrix and the Stakeholder Engagement Matrix by MCA-N, reported back to the CSSO/ CLO and included in Contractors' reporting.

Step	Responsibility	Timeframe	Action
12. Ensuring transparency through the Stakeholder Engagement Policy	CSSO	Monthly report	The CSSO will ensure transparency in making the process and outcome of the complaint investigation transparent and making public the findings using appropriate media.

D.05 Anonymous Complaints System

This procedure will be updated following completion of the CTIP Policy review and updated plan expected late 2024.

In the interim, MCA-Nepal, the Engineer, Contractors and Subcontractors will operate a dropbox facility located at all sites, offices and camps and operate the processes set out in the Workforce Management Plan and Proforma.

D.06 Land Access Release Protocol

Permanent Acquisition: Land needed permanently for the project is acquired using the legal acquisition process set out under the Land Acquisition Act (1977) and IFC PS 5. The land acquired for ETP will be acquired through the RAPs devised for this project and acquired as per the provisional design. The GON acquisition defines the process as:

1. Defining the plot boundaries and location and verification of the Land Survey Office Data per plot;
2. Verification of plot and plot boundaries for acquisition on the cadastral mapping versus modern GPS location of boundaries;
3. Reconciliation of area and redrawing cadastral map (if necessary);
4. Where a plot has to be subdivided, a resurvey has to be undertaken;
5. Household census and asset loss inventory;
6. Review of relevant documentation –
   - title holder ID,
   - possession of valid title deed,
   - correct names and spelling,
   - inheritance resolution – letters of administration of estates/ powers of attorney,
   - mortgage and loan encumbrances;
7. Assessment and valuation of losses;
8. District Compensation Determination Committee valuation of losses;
9. Agreement of valuation with land title holder, signing of compensation agreement;
10. Payment of compensation;
11. Start of land title transfer and purchase of replacement land;
12. Commencement of livelihood restoration;
13. Rebuilding of house;
14. Relocation of household to new location; and
15. Verification of Resettlement Completion.

The process is lengthy and can take 1 to 2 years to complete depending on the complexity. Where new houses have to be built, this can create additional delays to completion.

MCA-Nepal will hire a third party organisation to undertake a survey of affected households once the RIC states that completion has been achieved in a certain area/ group of plots.

The Resettlement Verification survey visits 100 percent of affected families in the group of plots to be released together and checks that full payment of compensation has been received, that replacement land where required has been acquired, that eligible members of the household are entered into the selected livelihood restoration programme, that the household has moved to the new house – where applicable.

Once the verification survey team has reported successful completion of resettlement, the MCA-Nepal will issue a Land Access Release Permit per acquired plot. MCA-Nepal will group these permits into groups for handover to the Engineer or contractors. The permit will be signed by MCA-Nepal ESP Specialist (Land Acquisition), the Project Manager for the relevant site and the Environmental Specialist MCA-Nepal.

Copies of the Land Access Release Permit will be kept by the Engineer, each Contractor and subcontractor. The Land Access Release Permit shall be used to define access to land on a daily or task based permission to access land as per the Work Access Permit Protocol, Annex C.5.3. Every job card and work instruction on site should have a copy of the land access release permit affixed so that all work teams know where the work is permitted and where not.

D.07 Temporary Land Access Procedure

Overview

The Project will occupy and use land for storage, labour camps, laydown areas, helipads, and as work areas around each tower of the TL. Some areas will be needed for less than 6 months – others such as laydown, helipads and storage, may be taken on a voluntarily agreed long lease/rental and arranged between the Contractors and the Owners for periods longer than 6 months. If left unmitigated, such temporary access could potentially have a major adverse impact on local communities and the environment. To ensure adequate mitigation is applied, the following measures are proposed must be adopted, that adhere to National regulations[5], MCC's guidelines and IFC's Performance Standards, as noted in Chapter 5.3 and referenced in the Resettlement Policy Framework.

Minimum requirements

The following general principles will apply to all temporary access sites throughout all project activities:

- This procedure covers all land use for less than 6 months and land needed temporarily even if longer than 6 months. If land is needed for longer periods, even if intermittently, it will require a long term lease.
- In Nepal, temporary access compensation is paid by the contractor and is allowed for in the BoQ for the work.
- For use for periods less than 6 months, a short term, written formal rental agreement is agreed, signed and paid and verified before a Land Access permit can be issued by the Engineer.
- Leases will be paid annually and cover the period of land rehabilitation
- For periods where temporary access is required for more than 6 months, a formal lease arrangement will be signed.
- If a temporary rental agreement signed for up to 6 months, requires extension, the full annual rate must be applied and a lease signed to this effect.
- Homestead areas, cultural sites and forest areas will be avoided to the extent feasible;
- Temporary land access will minimise the extent and duration of land requirement wherever feasible;
- Where there is more than one option, the preference will be first for barren government land, followed by fallow land. Cultivated land will be selected only as a last resort;
- If the land is cultivated, then avoid such lands where this is standing crop or productive trees;
- The land footprint will include area required for access/entry; laydown areas for equipment; temporary storage needs; and the core work area. This footprint will be physically demarcated and fenced;
- Compensation for the demarcated temporary land area will include a component of rental and replacement cost for crops or assets on the land cleared and/or damaged as agreed with the land owner. The landowner has the right to negotiate the maximum compensation he can.

[5] Public Roads Act 1974: This act empowers the government to acquire any land on a temporary basis for storage facilities, construction camps and so on during the construction and upgrading of roads. Any buildings and other structures such as houses, sheds, schools and temples are to be avoided wherever possible. The government is required to pay compensation for any damages caused to buildings, standing crops and trees. Compensation rates are negotiated between the government and the landowner.

- As a minimum, the negotiation will use the District rates for valuation of losses as agreed by the CFC plus an additional 10% per annum for the nuisance and disruption.
- Annual increases in lease payments will be calculated either on updated District Compensation Fixation Committee rates or the Cost Price Index whichever is the higher.
- Compensation for structures will follow the methodology and components defined in the Resettlement Policy Framework.. The negotiations will be observed and supported by the District CLO and/ or the Contractor's Social Specialist team. Compensation for structures will follow the methodology and components defined in the Resettlement Policy Framework.
- Whilst access for tower construction, erecting and stringing may require intermittent temporary land access around the tower pads in several phases, over the construction period, the Contractor/subcontractors may only negotiate a long term temporary access agreement with each owner/user to compensate them for loss of standing crops or potential crop loss for the whole period of occupation during Project activities;
- The grievance mechanism put in place at the District Public Information Centre of the district, within which the activity is being carried out, will be explained to the landowner prior to any access. Any inadvertent destruction of property or impacts from site activities will be handled under this grievance mechanism;
- The subcontractors will ensure that local authorities and land owners are consulted and their agreement to access the land area has been documented and the rental payment made and receipted prior to the commencement of activities; and
- The subcontractors must restore the land to its pre-activity state using properly agreed rehabilitation works and standards to full productive quality after the completion of construction works whilst within the rental period.

Assets under the scope of the TLA process include the following:
- All assets (crops, structures and trees), which are located within the demarcated area for temporary access.
- Fences and other structures demarcating areas belonging to the plot holder, will be avoided wherever possible, or otherwise will be replaced on completion of the works. Fences shall be built to demarcate the loaned area.
- Other assets (unproductive) such as boreholes, graves, sacred sites, structures etc. will be avoided and fenced off during the temporary land access delineation.
- Other potential social impacts not resulting in actual physical damage may be managed via the Grievance Mechanism. Examples include: noise disturbance, traffic, labour influx, workforce behaviour etc.
- The ETP Chance Finds Procedure will be followed to avoid or minimise impacts to cultural, sacred and heritage sites.

Site demarcation

Temporary land access. Temporary land access areas and plans will be provided by MCA-Nepal to subcontractors, for use during the construction phase. Should additional land be required by subcontractors for temporary use during the construction phase, the following siting criteria will be applied and the additional areas will be mutually agreed with MCA-Nepal, based on community consultations:
- No clearing of forest or residences;
- No impact to cultural sites;
- No physical displacement;
- No significant grading;
- At least 200 m from the nearest residence;
- Outside any protected area;
- Not within any community forest; and
- Must have a voluntary agreement in place with the property owner.

The agreed/planned temporary access areas will be demarcated on site in the presence of the land owners and/tenants, as applicable.

Compensation assessment. The Contractor/subcontractors will:
- Identify the specific individual and/or community groups that have rights on the identified land parcels;
- Determine the type of rights on the affected land parcel (e.g. ownership being different from the actual use);
- Identify the stakeholder group who will be eligible for receiving compensation;
- Together with the ETP DLO and/ or the Contractor's Social Specialist, explain to the owners/other stakeholders the principles of temporary or long term lease land access and MCA-Nepal's Grievance Redress Mechanism;
- Calculate, negotiate, agree and pay the appropriate

Access to land. Once the temporary land access compensation evaluation has been performed, and the agreement has been signed on the compensation amount, the Contractors will provide a clear understanding of the timeline, start date and details of any rental agreement to be signed etc. Payment must be paid before gaining a Land Access Permit (D.08). Prior to initiating any work, the Contractors will demarcate the area required, so as to restrict the access to the land parcel and avoid any safety concerns for the local community. Where appropriate, signage shall be put up to inform the local community of the activities being undertaken and to restrict access to the area.

Restoration. Once the construction phase activities are complete, the Contractors will undertake the following:

- Restore the affected land parcel and affected structures to its pre-activity status (i.e. refilling of "preserved" top soil; rebuilding irrigation channels etc, any other state as agreed with the land owner);
- Ensure that all personnel and equipment that were in use are to be moved out;
- Ensure that any temporary structures have been dismantled;
- Ensure that the affected individual/community group has validated closure of the activity on the land parcel. Get a written sign off form the owner/owners; and
- Obtain approval from the MCA-Nepal ESP-CA.

The final compensation amount for any due rental/access amount and for any unintended damage shall then be paid and the final receipt of acknowledgement shall be taken from the landowner.

The TLA process will be supported by stakeholder engagement and the GRM. These are described in the Annex to the RPF.

Documentation and record keeping

All communication and interaction with external stakeholders regarding temporary land access activities, before, during and after handover, will be clearly documented. Records will include the location, people consulted, summary of key points discussed, concerns, action items etc. Consensus and agreements reached will be documented and signed by the relevant stakeholders.

Key documents to be maintained by the subcontractors seeking land access will include:

- Records of key meetings;
- Demarcated Land Compensation Form (below) for temporary land access compensation and
- Permission for land access
- Payment Receipt
- Any rental agreement or contract with the land owner (if applicable); and
- Summary notes with photographs of the site before and after access along with any remarks.

Record Form for Key Meetings

Date	Location	Name of Representative	Key Discussion Points	Reference to Previous Actions or Commitments	Actions for the current meeting	Signature

Demarcated Land Compensation Form

Reference number of the form							
Location/Settlement/Ward/Municipality/District							
Date							
Asset owner's name/Lal Purja Number/Identification Number							
CROP			TREES			STRUCTURE	
Crop type	Area	Amount (NPR)	Type of Trees	Number	Amount (NPR)	Type of Structure	Amount (NPR)

Actual damage (to be completed if there has been accidental damage only)							
CROP			TREES			STRUCTURE	
Crop type	Area	Amount (NPR)	Type of Trees	Number	Amount (NPR)	Type of Structure	Amount (NPR)
Any other unintended damage:							
Total Compensation:							
Comments (if other type assets are found and photographic reference)							

- I _____ (Land user and/or asset owner), confirm that:
    - I own the above-detailed crops/fruit trees to be impacted by the _____ Project work;
    - The asset inventory table completed above is accurate;
    - I permit damages to the crops or trees for the duration of the required access in agreement that I will be compensated for any losses as stated; and
    - I understood and agree with the compensation and grievance processes as explained by the subcontractor, in the presence of the ESP CA.
- I _____(ESP CA) , confirm that I have explained the compensation and grievance process to the Asset Owner and have left a copy of this form with them.

- MCA-Nepal confirms that:
    - Compensation will be paid for losses to assets as a result of the _____ Project work using agreed rates (reference rates applied, to match replacement cost_____)
    - In case of a formal rental payment, a separate rental agreement will be signed;
    - Compensation will be paid before initiation of work and will be reassessed based on unintended damage at the time of completion of activities; and
    - The contractor will restore the land.

Signature of subcontractor Representative	Signature of Land Owner	Signature of MCA-Nepal ESP CA	Signature of local ward secretary

Payment Receipt Form

Date			
TLA Form 2 Reference Number			
Rental Agreement Reference Number			
Total Payment before access			
Payment due			
Total Payment received			
Signature of Contractor Representative	Signature of Land Owner	Signature of MCA-Nepal ESP CA	Signature of local ward secretary

D.08 Work Access Permit Protocol

MCA-Nepal requires all Contractors to prepare a Work Access Permit Protocol, which will apply to all areas where project activities will be located on acquired private land or in community or leasehold forest areas and covers both temporary and permanent access. The protocol will be applicable for the entire duration of each step of the project - from preparatory work to closure and site hand over.

The purpose of the worker access management protocol will be to manage and mitigate the risks associated with workers accessing new areas and providing clear guidelines on prohibited and permissible activities in situations where the workers are accessing private or community resources (e.g., Community Forests/Leasehold Forests/Religious Forests, community water sources, recreational areas, cultural sites).

All Contractors will ensure that the following measures are all in place as a minimum.

- A list of permits, approvals, prohibited and restricted access (based on MCA-Nepal's guidance) for each construction site.
- Review and obtain all permits and approvals for accessing every new area for investigative or construction activities, prior to starting mobilisation.
- Obtain a Land Access Release Permit against plot identification, map and GPS coordinates showing what land is open to which sort of activity: this must follow this Land Access Release Protocol (Annex C.5.3 and indicates completion of resettlement or completed rental and release for construction.
- Provide each worker with an induction prior to the initiation of work at each new site. As part of this, an understanding shall be provided of the local customs and practices in the area, including prohibited and restricted access and use.
- Undertake regular tool box talks at the start of each work day. As part of these tool box talks, a reminder shall be provided of the prohibited activities and any specific access-related instructions including how to gain access to the plot and where access is not permitted.
- Implement the worker code of conduct.
- Restrict the workforce to their designated work areas, so as not to enter prohibited and restricted areas unless required for project purposes (when prior notice will be made to the communities by the Contractor, and with the permission of the person in charge).
- Require the use of existing trails and the processes to be followed for establishing new narrow trails to minimise soil disturbance.
- Prohibit unapproved tree clearing.
- Provide designated areas for the discarding of rubbish and removal from site, with random spot checks.
- Ensure adequate provision of cooking fuel, heating, lighting and food, to mitigate the risk of workers needing to access community forests for fuelwood or to buy excessive amounts from local shops.
- Ensure adequate arrangement of recreational activities for workers during non-working hours.
- Provide transportation for workers, from and to the work sites in cases where the camps are not located within the ROW.
- Put in place robust monitoring and patrolling provisions for the work sites. The possibility of engaging the local community in the monitoring process shall be explored, based on the regional context and risk levels. This must be decided in advance of starting work.
- Implement the Grievance Redress Mechanism.
- Provide the community with sufficient advance notice of each phase of construction activities, in keeping with the SEP requirements.

D.09 Procedure for Recruiting Local Labour

The employment of local labour is the single most effective way for a Contractor to maximise community relations, reduce delays and reduce grievances from local people. Employing local people as unskilled labour reduces the need for work camps and the potential for damage to communities is thereby reduced. Local people, particularly those affected by land loss and disruption to lives and livelihoods, welcome the opportunity for local work. The Contractor will ensure a safe and enabling working environment for encouraging women and people from traditionally marginalized community to join the workforce by developing and implementing a Worker's Code of Conduct and an Anti-sexual Harassment Policy and must have separate camps for women and men workers.

The form of construction of the tower sites and stringing is for small localised teams working in different areas, and this requires small gangs over a few weeks rather than extensive teams over long periods. By contrast, substation construction will require larger workforces for longer periods in static locations.

Each Contractor is required to have a Gender and Social Inclusion Manager with either Social Safeguards Officers or Community Liaison Officers in the field. These people will liaise with the MCA-Nepal ESP Community Assistants to identify those wanting to work in their local areas.

The Contractor's Gender and Social Safeguards staff and MCA-Nepal's ESP-CA will work together to identify those wanting to work. They will then prioritise the interested persons as follows:

1. Potential workers from Project Affected Households
2. Women workers
3. Workers from Adivasi Janajati and Dalit groups

The aim is for as many women and disadvantaged groups to be employed as possible, with a minimum of 33 percent women workers.

The Contractor's Gender and Social Safeguards staff and MCA-Nepal's ESP-CA must also identify local people with useful skills (i.e. semi- and skilled workers) who may be usefully employable on site. These would be drivers, welders, masons, cooks, etc. The lists of such personnel should be updated regularly and circulated to all nearby project Contractors and Subcontractors.

D.10 Guidelines on Labour and Employment Conditions

For labour and employment conditions, MCA-Nepal requires its contractors to follow the guidance of the International Finance Corporation, as provided in the latest version of Performance Standard 2.

Performance Standard 2 recognizes that the pursuit of economic growth through employment creation and income generation should be accompanied by protection of the fundamental rights of workers. The requirements set out in this Performance Standard have been in part guided by a number of international conventions and instruments, including those of the International Labour Organization (ILO) and the United Nations (UN). Project Implementation under IFC Performance Standards require that the PS 2 is fully complied with as laid out in the Standard and accompanying guidelines.

The standards define trafficking in persons as the recruitment, transportation, transfer, harbouring, or receipt of persons, by means of the threat or use of force or other forms of coercion, abduction, fraud, deception, abuse of power, or of a position of vulnerability, or of the giving or receiving of payments or benefits to achieve the consent of a person having control over another person, for the purpose of exploitation. Women and children are particularly vulnerable to trafficking practices.

The scope of application of this Performance Standard depends on the type of employment relationship between the client and the worker. It applies to workers directly engaged by the client (direct workers), workers engaged through third parties to perform work related to core business processes of the project for a substantial duration (contracted workers), as well as workers engaged by the client's primary suppliers (supply chain workers).

Following IFC PS 2 requires organisations to adopt and implement human resources policies and procedures appropriate to its size and workforce that set out its approach to managing workers consistent with the requirements of the Performance Standard and Nepalese law. As far as the ETP is concerned, these have the following requirements.

- The Contractor will provide workers with documented information that is clear and understandable, regarding their written contract of employment, rights under national labour and employment law and any applicable collective agreements, including rights related to hours of work, wages, overtime, compensation, and benefits on starting the working relationship and when any material changes occur.
- The Contractor will provide reasonable working conditions and terms of employment.
- The Contractor will identify migrant workers and ensure that they are engaged on substantially equivalent terms and conditions to non-migrant workers carrying out similar work.
- Accommodation services (work camps) will be provided in a manner consistent with the principles of non-discrimination and equal opportunity. Workers' accommodation arrangements should not restrict workers' freedom of movement or of association.

- The Contractor shall not avoid local women or other marginalized groups in their workforce in order to avoid possible TIP risks which is discriminatory recruitment practice. But the Contractor will exercise special measures of protection to remedy past discrimination. The Constitution of Nepal has provision of positive discrimination and the Contractor shall comply to have diverse workforce from all caste and ethnicity and are encouraged to at least employ 33 percent of the workforce are women. The Contractor will base the employment relationship on the principle of equal opportunity and fair treatment, and will not discriminate with respect to any aspects of the employment relationship, such as recruitment and hiring, compensation (including wages and benefits), working conditions and terms of employment, access to training, job assignment, promotion, termination of employment or retirement, and disciplinary practices. The Contractor will take measures to prevent and address harassment, intimidation, and/or exploitation, especially in regard to women. The principles of non-discrimination apply to migrant workers.
- The Contractor will provide a grievance mechanism for workers (and their organizations, where they exist) to raise workplace concerns. The Contractor will inform the workers of the grievance mechanism at the time of recruitment and make it easily accessible to them. The mechanism should involve an appropriate level of management and address concerns promptly, using an understandable and transparent process that provides timely feedback to those concerned, without any retribution. The mechanism should also allow for anonymous complaints to be raised and addressed. The mechanism should not impede access to other judicial or administrative remedies that might be available under the law or through existing arbitration procedures, or substitute for grievance mechanisms provided through collective agreements.
- The Contractor will not employ, or allow employees to employ, children under the age of 18 in any manner that is economically exploitative, or is likely to be hazardous or to interfere with the child's education, or to be harmful to the child's health or physical, mental, spiritual, moral, or social development. Children may only be employed in conformance with ESHSMP section D.11 (Procedure for Controlling the Employment of Children).
- The Contractor will not employ forced labour, which consists of any work or service not voluntarily performed that is exacted from an individual under threat of force or penalty. This covers any kind of involuntary or compulsory labour, such as indentured labour, bonded labour, or similar labour-contracting arrangements. The Contractor will not employ trafficked persons.

Provisions to ensure compliance with these requirements must form part of the Contracts for the project.

D.11 Procedure for Controlling the Employment of Children

The Labour Laws and Rules require that no children – any person under the age of 18 years – are employed on a construction site in any capacity whatsoever. MCC-TIP Policy 2021 and IFC PS 2 prohibit children's employment in any kind of work. However, the Nepalese Labor Act 2017 and the Act Relating to Children 2018 provide for limited child employment in non-hazardous conditions.

During construction, there are chances of exploitative labour practices which could be 'forced child labour', 'bonded labour', 'debt bondage' or 'child sex trafficking', which are the extreme form of child exploitation. There is a likelihood that adult workers themselves may contribute to this exploitation by bringing in children as domestic workers or helpers in the work site.

MCA-Nepal has therefore adopted the following rules.

No Employment

- **No person under the age of 18 may be employed on a construction site.**
- **All work sites where any form of personal protective equipment is required constitutes hazardous conditions where no one may be employed before reaching the age of 18.**

Employment of Minors 15 to 17 years in compliance with the Labour Act 2074

- Children between the ages of 15 and 17 (i.e. up to their 18th birthday) may be employed in non-hazardous conditions, not on a construction site.
- Non-hazardous conditions include off-site offices, canteens and domestic areas. If the off-site office, canteen or domestic area is adjacent to a construction site, there must be separate access so that worker groups do not mix.
- They must have a consent from their guardian, written contract of employment, understand and sign the

Worker's Code of Conduct, be included in information briefings and trainings and entitled to usual healthcare benefits.

- They may be employed for a maximum of 8 hours per day or 40 hours per week.
- They must be fairly remunerated for their work on an hourly, daily, weekly or monthly basis, on the Contractor or Sub-contractor's overall pay scale.
- Their employment must not prevent them from attending school.

Responsibilities of the Employing Entity (usually the Contractor)

- Labour force supplier petty contractors must be made aware of these rules. The Contractor is responsible for ensuring no Sub-contractor brings any person under the age of 18 years on to any construction site.
- The Contractor and Subcontractor must have proof of age of all workers and must be able to produce documentary evidence at any time of monitoring by the Engineer or MCA-Nepal.
- If the worker appears young or if the identity document appears suspicious, it must be checked with the local concerned offices or community leaders for verification. The Contractor may communicate with MCA-Nepal for further support on this matter.
- Adult workers must be informed that bringing children into the work site is illegal except as allowed here.

Therefore no children may work in or enter any type of construction site, except perhaps in the separate or off-site office, canteen or associated housing.

Any Contractor found employing children outwith these rules will be reported by MCA-Nepal to the police for civil action.

D.12 Countering Trafficking in Persons Risks

Introduction

The MCC and MCA-Nepal maintain a zero tolerance policy against Trafficking in Persons (TIP) and applies to all MCC consultants, contractors, subcontractors or other agents. This procedure should have summarized information on preventing and addressing TIP risks in Compact projects. This is aligned with MCC Counter-Trafficking in Persons Policy 2021, MCA-Nepal's Trafficking in Persons Risk Management Plan 2021 (final draft) and also synergies with International Finance Cooperation's Performance Standard 2 on Labor and Working Conditions especially in terms of labour exploitation. MCC's Gender Policy 2012[6] is also relevant to countering TIP as it requires that activities funded by MCC addresses social and gender inequalities.

There are various National laws that will be triggered in case of TIP incidents namely Human Trafficking and Transportation Control Act 2007, Labor Act 2017, The Human Trafficking and Transportation Control Act 2007 are the directly related acts to control human trafficking and transportation and to protect and rehabilitate the victims of such acts. The US Department of State[7] ranked Nepal as a Tier 2 country meaning the Government of Nepal does not fully meet the minimum standards for the elimination of trafficking but is making significant efforts to do so.

Thus, MCA-Nepal will apply MCC's C-TIP Policy and Guidance for Implementation of the C-TIP Policy (soon to be public) standards which complies the US Department of State Victim of Trafficking and Violence Protection Act 2000.

Policy

The MCC is committed to working with partner countries to ensure appropriate steps are taken to prevent, mitigate and monitor trafficking in persons (TIP) risks in the projects it funds as per its C-TIP Policy which complies with the Victim of Trafficking and Violence Protection Act 2000. This policy applies to all MCC-funded projects.

The Policy defines "severe forms of trafficking in persons" as:

- Sex trafficking: A commercial sex act is induced by force, fraud, or coercion, or in which the person

[6] https://www.mcc.gov/resources/doc/gender-policy
[7] https://www.state.gov/reports/2021-trafficking-in-persons-report/nepal/

induced to perform such act has not attained 18 years of age; or
- Labour Conditions: The recruitment, harbouring, transportation, provision, or obtaining of a person for labour or services, through the use of force, fraud, or coercion for the purpose of subjection to involuntary servitude, peonage, debt bondage, or slavery.

Both forms of trafficking occur in Nepal and there are risks that projects will enable trafficking to occur. MCC considers the taking of measures to address TIP concerns is important in project design and implementation.

Sex Trafficking. A clear potential TIP risk is associated with the actions of contractors and workers through increased demand for sex services/sex workers, particularly where the project involves an influx of predominantly male workers. Depending on context, this increased demand for sex services is commonly met by a combination of harmful sexual activity with women in surrounding communities, and commercial sex with those in prostitution, each of which carries its own set of risks. In this context, it is considered TIP when adults engage in sexual activities through force, fraud or coercion. It is also considered sex trafficking when the person induced to perform such act has not attained 18 years of age with or without consent of the person.

Risk is also present in the practice of project workers offering transport to community members as this opens the possibility that project vehicles could be used in the transporting of trafficking victims (as well as the possibility of direct exploitation of passengers by drivers). MCC's policy in this regard is to prohibit the practice on all projects unless there are compelling reasons to not do so. It may also be possible that workers themselves may contribute to TIP by, for example, bringing in child domestic workers, or luring unsuspecting community members into a trafficking situation through techniques ranging from false promises of a better job or life elsewhere.

Labour Conditions. The most direct way in which TIP can impact infrastructure projects funded by MCC is through exploitative recruitment practices and/or labour conditions for workers, particularly construction workers. The importation of labour in gangs by gang masters to projects from other areas of Nepal or from India offers the risk of abusive employment practices. Exploitative practices include but are not limited to:
- Abuses in the migrant labour recruitment chain, such as charging workers large recruitment fees that place them in debt and effectively bind them to the workplace;
- Denying workers access to their travel documents;
- Penalizing workers for leaving the workplace;
- Violence or threats of violence against workers;
- Restriction of movement of workers;
- Non-payment or delayed payment of wages of workers;
- Mandatory overtime for workers; and
- Use of child labour.

TIP risk assessment will be conducted in all MCC-funded projects. To the extent possible, TIP risks should be assessed as part of existing processes, notably due diligence by MCC's Social and Gender Counter-Trafficking in Persons Policy 8 Assessment unit ("SGA") and Environmental and Social Performance unit ("ESP").

A project will be categorized as high-risk when it is determined that the project could contribute to an increase in TIP either during project development and/or implementation phases. In addition, a high-risk project may also contribute to an increase in TIP once the project implementation phase is completed and/or may present high-risk if the project is implemented in an area with a strong TIP problem.

When a project is categorized as high-risk for TIP, in addition to the Counter-TIP Minimum Compliance Requirements, MCA or contractor/consultants must develop a specific TIP Risk Management Plan to be approved by MCC prior to issuing the solicitation for procurement, and implemented by the contractor (under direct supervision from MCA).

All projects that use contract mechanisms for works (both large and small works), non-consulting, and consulting services are required to incorporate Counter-TIP Minimum Compliance Requirements in their solicitations and contracts. In addition, for works and consulting services contracts for projects that are categorized as high-risk, MCAs are also required to develop and require the contractor/consultants to implement a TIP Risk Management Plan.

Approach

Counter-TIP Minimum Compliance Requirements and adherence with and implementation of the TIP Risk Management Plan will be included in the technical specifications as a task in the Statement of Work and Terms of Reference for contractor/consultants, and in the bill of quantities/specifications works, and non-consulting solicitation documents. These requirements will be discussed during negotiations with the selected contractor/consultants, and be included as deliverables in the contracts that will be monitored by MCAs and MCC.

The Contractor/Consultants of the ETP should fulfil the following requirements:

- Orient all the working team on Counter –TIP policy and response plan.
- Written notification to all the workers regarding actions against violation of Counter-TIP policy.
- Must provide name and contact information of the person appointed to oversee TIP in Contractor's team to all the workers and made visible in/around working sites.
- Have an anonymous complaint mechanism and share it widely, have a Suggestion/Complaint box locked and are in visible and accessible places and the key is with Engineer or MCA-Nepal.
- Any events or concerns of TIP must be registered and reported immediately to the Engineer's GSI Specialist and MCA, reach MCC within 24 hours and respond to these complaints within 24 hours after the report time.
- Conduct the investigation from a survivor-centric approach.
- Take appropriate action against personnel that violates the prohibition set out in the MCC Counter- TIP Policy.
- Refer/Report to the Nepal Police for further investigation and prosecution if the offence exceeds MCA-Nepal's scope.
- Regular recording and reporting on incidents and Counter-TIP compliance efforts.

Understanding Trafficking in Persons (TIP)

MCC's Counter-TIP Policy 2021 defines severe forms of TIP as:

A. Sex trafficking in which a commercial sex act is induced by force, fraud, or coercion, or in which the person induced to perform such act has not attained 18 years of age; or

B. The recruitment, harbouring, transportation, provision, or obtaining of a person for labour or services, through the use of force, fraud, or coercion for the purpose of subjection to involuntary servitude, peonage, debt bondage, or slavery."

Other supporting terminologies from US Department of State include "bonded labour or debt bondage", "child sex trafficking", "domestic servitude", "forced child labour", "forced labour".

Countering-TIP in the Project

All potential bidders, Contractor or Sub-contractor, must fully comply with the requirements of MCC's C-TIP Policy. As a part of the bid, the bidders, Contractors or Subcontractors must certify that they are not engaged in, facilitating or allowing any activities constituting TIP or related activities as defined in MCC C-TIP Policy; provide assurance that activities constituting TIP or related activities will not be tolerated; acknowledge that engaging in or permitting such activities is cause for suspension or termination of employment or of the contract.

During ETP EIA, MCA-Nepal has conducted a TIP Risk Assessment on the Electricity Transmission Project (ETP) and the project was categorised as high risk for TIP. In compliance with the policy requirements, MCA-Nepal developed a TIP Risk Management Plan for the ETP as a part of ESIA. After the contract award, all the Contractors must develop and implement their own TIP Risk Management Plan. The Contractor can refer to MCA-Nepal's TIP Risk Management Plan which will be provided on demand. The contractor's TIP Risk Management Plan is to be reviewed by the Engineer and approved by MCA-Nepal.

Each Contractor team must have a Gender and Social Inclusion Manager and Officers who are responsible for developing and implementing the Contractor's TIP Risk Management Plan. The Contractor must provide following information to their employees and made visible in the working sites:

- Name and Contact information of the person appointed to oversee TIP in the Contractor's team,

- Name and Contact information of the person from MCA-Nepal,
- Suggestion and complaint dropbox (locked) are in place and the key is with MCA-Nepal and/or Engineer,
- Telephone number, email address, TIP hotline for reporting cases which must include anonymous complaint system (these provisions are under review and may be altered),
- Internal Grievance Procedure to investigate allegations of events leading to TIP.

The Contractor follows MCA-Nepal's Grievance Redress Mechanism for all forms of grievances from the community and also from the labourers. In the event of an incident related to TIP being reported, the Contractor's Gender and Social Inclusion Manager and Engineer's GSI Specialist must acknowledge the complaint immediately and respond within 24 hours upon the knowledge of the complaint registered. The reporting of the TIP allegation must reach the MCC within 24 hours of initial registration of the complaint. The Contractor will ensure . the investigations of allegations of TIP, is conducted from Survivor Centred Approach which means safeguarding the victim, provide paralegal and counselling services during the course of investigation.

The Contractor must enforce any breach regarding TIP through removal of personnel from the contract (regardless of the status or technical importance of the perpetrator), reduction in benefits, termination of contract and/or report to local law enforcement body (Nepal Police). The Human Trafficking and Transportation (Control) Act, 2007 is the legal measure that will be attracted in any case of TIP incidents in Nepal.

A. Summary of Actions and Responsibilities to Counter TIP in ETP (for major Contractors)

SN	Action	Responsibility
1	Ensure the requirements for a Counter Trafficking in Persons Plan is included in the bid documents.	MCA-Nepal GSI Specialist
2	Inform potential bidders about the requirements and expected responses - Pre-bid meeting, Bid Outreach Events	MCA-Nepal Management, Project Delivery
3	Timely on boarding of Gender and Safeguards Managers of Contractors' team	D&B Contractor Management
4	Commit to and publicise zero tolerance for proven offences concerning TIP issues. Zero tolerance meaning that every TIP allegation will be investigated and remedial action may take up to and including termination.	D&B Contractor Management
5	Orientation about the requirements, and expected actions by the contractors and team to counter TIP	MCA-Nepal GSI Specialist
6	Develop and implement TIP Risk Management Plan*	D&B Contractor GSI Manager
7	Trainings to the contractors team on understanding and management of TIP and also periodic sessions every year.	D&B Contractor GSI Manager
8	A written Code of Conduct to be understood and signed by all staff during employment contract and distribution or display in site for workers in site.	D&B Contractor Management
9	The Code of Conduct shall include following points among others: 1. Staff shall not transport any non-employees in the project vehicle; 2. Staff shall not take part in trafficking women and children from the project area, this includes facilitation through providing transport; 3. Staff and workers shall not introduce or encourage for sex service into work camps or in the community; 4. Staff shall not engage in sex with a child at any point or time; 5. Staff and workers shall not permit or engage in the employment of children under 18 years of age with or without consent, other than as provided for in ESHSMP section D.11 (Procedure for Controlling the Employment of Children);	D&B Contractor Management

SN	Action	Responsibility
10	The Code of Conduct must specify the penalties for proven TIP incidents which could be dismissal of the involved employee/consultant/contractor and referral to the police in the event that a criminal act may have been undertaken.	D&B Contractor Management
11	The Workforce Management Plan specifies terms of employment – eligible age for employment, rates of pay, overtime arrangements, leave or days off, entitlement to religious festivals, arrangements for food and accommodation on site, transport to and from site	D&B Contractor Management
12	Include a summary on the aftermath of TIP cases in the toolbox talk on a regular basis.	D&B Contractor GSI Manager
13	The contractor must have a written Human Resources plan which defines internal Grievance Mechanism with a formal process to investigate complaints of the above behaviours in 6, from Staff, Workers, and community members and record outcomes.	D&B Contractor HR
14	Develop an anonymous complaint registration mechanism, Complaint box, and make it visible and widely available across project stakeholders, including public members. Initially using the dropbox facility will be acceptable until the TIP response protocol is on place.	D&B Contractor HR, GSI Manager
15	Prepare the clear flow chart of Complaint Mechanism System (MCA-Nepal's GRM), Name and Contact information of the person appointed to oversee TIP in Contractor's, Engineers, MCA-Nepal's team and widely publicise the information.	D&B Contractor HR, GSI Manager, Engineer's GSI Specialist
16	Targeted education sessions to labourers and at-risk women and vulnerable groups, students in the periphery of the construction sites about TIP risks and prevention.	D&B Contractor GSI Manager
17	Ensure that communities know about and how/where to access the Grievance Redress Mechanism to report any incidents or suspicious events.	Engineers GSI Specialist
18	A functional recording and monitoring plan through the GSI team and coordinated through the Engineer.	Engineer GSI Specialist
19	The Engineers must have a supervision and monitoring plan to cover all contractors and subcontractors agreed with MCA to counter TIP.	Engineer GSI Specialist
20	The Engineers must review all the documents, trainings of the contractors, outcomes of complaints under these guidelines and devise appropriate responses to mitigate the frequency of such behaviours.	Engineer GSI Specialist

*TIP Risk Management Plan should explain in detail regarding the procedures of countering TIP in the ETP which includes all the actions mentioned in this table and beyond this table.

C. Summary of Actions as Minimum Standard to Counter TIP in ETP (for minor Contractors)

On the Management Side

1. The Contractor must have a GSI Specialist with gender, sexual harassment and TIP compliance monitoring and risks management experience as part of their management team.

2. The Contractor shall have an internal Grievance Handling Mechanism under their HR Manager. In the event of an allegation being received, the Contractor's HR Manager together with Gender and Social Inclusion Manager and Engineers GSI Specialist must react within 12 hours upon the knowledge of the complaint and respond within 24 hours. The reporting of the allegation must reach the MCC, MCA-Nepal GSI within 24 hours of initial registration of the complaint.

3. The Contractor must enforce any serious proven breach regarding CTIP through removal of personnel from the contract (regardless of the status or technical importance of the perpetrator), reduction in benefits, termination of contract and/or report to local law enforcement body (Nepal Police). Serious breaches of actions that attracts Nepalese law, C-TIP Policy are:
   a. Rape
   b. Repeated acts of sexual harassment or one act of sexual harassment with violence
   c. Facilitating transportation of adults or children for sex

d. Operating or facilitating a brothel
e. Forced Labor

4. The Contractor and Engineer will maintain a functional recording and monitoring plan through the GSI team. This requires a weekly checklist recording incidences, investigations and outcomes.

C. Minimum Standard Actions to Counter-TIP in ETP (for minor Contracts / Consultants)

Step	Action Required	Compliance	Plan Elements and Implementation
1	Each Contractor team must have a designated person who is responsible for reviewing the MCC C-TIP Policy and implement the minimum standard requirements.	1 Designate a Manager in the contractor's management team to be responsible for leading and operating the CTIP. 2 Ensure that the designated manager is in contact with MCA-Nepal GSI team.	Publicise Information Form A Contact information of Contractor's contact person designated for handling grievances; Name: Contact details: Email: Cell No.: Office Location: ……..
2	The Contractor must publicise and enable the use of C-TIP Policy provisions to their employees and make it visible in the working sites. The forms provided here are intended to be used to comply with the C-TIP Risk Management Plan requirements	1 Name and Contact information of the person appointed to oversee TIP in the Contractor's team 2 Name and Contact information of the person from MCA-Nepal 3 Suggestion Boxes (locked) are in place and the key is with MCA-Nepal. 4 Telephone number, (Hotline) email address, TIP hotline when established for reporting cases which must include an anonymous complaint system. 5 Internal Grievance Handling Procedure to investigate allegations leading to TIP within the contractors' working team. 6 The external Grievance Redress procedures will also receive TIP complaints from the community and will be investigated and responded as the protocol explained in Stakeholder Engagement Plan (SEP). 7 TIP grievances will be reported alongside other grievances as a separate category and regularly reviewed to identify improvements to training, management and process that are shown to be needed	Include the contact information, grievance process etc. in: 1 Publish a statement of commitment to the CTIP at each site - Form B 2 Terms of employment for each employee including all mobilised wage labour - Form C 3 Ensure CTIP training prior to starting employment and in toolbox briefings - Form D 4 Internal grievance system requirements - Form E

Step	Action Required	Compliance	Plan Elements and Implementation
3	The contractor must have a written Human Resources Plan which includes a written Contract of Employment for all employees and subcontracted labour as covered in the Workforce Management Plan for the project.	The Workforce Management Plan specifies: 1 Terms of employment 2 Eligible age for employment, 3 Rates of pay, 4 Overtime arrangements, 5 Leave or days off, 6 Entitlement to religious festivals, 7 Arrangements for food and accommodation on site, 8 Transport to and from site Expected worker behaviour i.e. the Code of Conduct with respect to prohibition of involvement in gambling, drinking, illegal drug taking and prostitution and TIP.	Expand and Maintain Human Resource Records Each employee/ worker's record must contain a signed copy of the Contract of Employment and Code of Conduct together with a note stating when the contract and code were read/ discussed with the employee.
4	Orientation/Awarenes s training on C-TIP policy	The Contractor must include C-TIP issues in on-boarding of employees and in toolbox talks regularly throughout the contract period.	Provide Training on; 1 Employee induction programmes Tool box talks
5	Internal grievance handling process	The contractor must have a written plan which defines a formal process to investigate complaints of the above behaviours in Step 5 above, from Staff, Workers, and community members and record outcomes The contractor may obtain advice on approaches to handling internal complaints from a suitably qualified specialized NGO or District Officers from concerned line Ministries.	Have an Internal Grievances Handling Mechanism Form F 1 Allegations of TIP (also violence and sexual harassment) shall be conducted from Survivor cantered Approach which means safeguarding the victim, provide paralegal and counselling services during the course of investigation. 2 In the event of an allegation being received, the Contractor's HR Manager together with Gender and Social Inclusion Manager and Engineer's GSI Specialist must meet, report immediately to MCA-Nepal upon the knowledge of the complaint and respond within 24 hours to the complainant. 3 The reporting of the allegation must reach the MCC within 24 hours of initial registration of the complaint. The complaint must be registered with the MCA-Nepal community GRM process.

Step	Action Required	Compliance	Plan Elements and Implementation
6	External Grievance Redress Process	The contractor must use the MCA-Nepal, ETP Grievance Redress Mechanism and record and report all complaints and grievances through the ETP process via the MCA-Nepal designated Grievance Officer.	Use the ETP External Grievances Redress Mechanism (GRM) See ESHSMP The Contractor must appoint an officer to manage and respond to external grievances on TIP who will liaise with the MCA-Nepal GRM Officer and the Gender and Social Inclusion Specialist.
7	Reporting	The Contractor will maintain a weekly checklist of TIP and TIP/ gender related incidences, describing each case and outcome.	Incidences must be recorded, monitored and shared with Engineers/MCA-Nepal GSI and MCC.
8	Community education on C-TIP	The contractor can use targeted education sessions for labourers and women at-risk and vulnerable groups, students in the periphery of the construction sites to raise awareness of TIP risks and prevention.	Include Community Awareness The Contractor's Social Compliance/ GSI Manager can extend the usefulness of community consultations and interactions by adding C-TIP issues to community meeting agendas.

FORM A

CONTACT DETAILS TO BE PUBLISHED IN ALL OFFICES, ON SITE AND IN COMMUNITIES IN ENGLISH, NEPALI AND LOCAL LANGUAGES

FORM B

STATEMENT OF COMMITMENT TO CTIP AND GBV IN NEPALI, LOCAL LANGUAGES, ENGLISH – TO BE POSTED ON SITE AND IN COMMUNITIES

FORM C

CONTRACT OF EMPLOYMENT CHECKLIST– NEPALI (AND LOCAL LANGUAGE WHERE NEEDED)

FORM D

TRAINING PLAN IN SOCIAL ISSUES FOR EMPLOYEES/ WORKERS

1. EMPLOYEE ONBOARDING PLAN FOR INDIVIDUALS OR IN GROUPS

Briefing

1. Details of Employment
2. Job Description
3. Roles and Responsibilities
4. Worker Code of Conduct
5. Internal Grievance system
6. Trafficking in Persons (TIP) Policy, Risk Management
7. Guideline on Preventing Gender Based Violence
8. Guideline on Prevention of Sexual Harassment
9. Guideline on Controlling the Employment of Children

2. ONGOING EMPLOYEE AWARENESS RAISING AS PART OF TECHNICAL BRIEFINGS ON SITE

Toolbox Talks on Site in Workplace

1. Provisions on Countering-TIP, trafficking in persons for sex and/or abduction
2. Employee rights
3. How to make a complaint re employment issues
4. Gender based discrimination in employment issues
5. Gender based violence issues
6. How to make a complaint against sexual harassment or violence in the workplace
7. Conflict Resolution

3. AWARENESS RAISING OPPORTUNITIES ASSOCIATED WITH COMMUNITY MEETINGS

Topics to add to consultation programmes to assist communities to manage the workforce in their community

1. Grievance Redress Mechanism
2. Women's rights to employment
3. Safe and non-discriminatory working environment under which all the issues with GBV, sexual harassment, wage rate gap, code of conduct
4. Trafficking in Persons for Sex and Labour
5. Resisting anti-social behaviour
6. Non-discriminatory access practice (to recruitments, benefits, outreach and consultations)

FORM E

INTERNAL GRIEVANCE SYSTEM REQUIREMENTS

Step	Action	Responsibility
1	The contractor/consultant must have a written plan inbuilt in HR Manual which defines a formal complaint registration and resolution process, process to investigate complaints of labour/employment related, anti-social behaviours, GBV, Sexual harassment, incidents referring to TIP.	Contractor/Consultant Leadership
2	The contractor/consultant has an anonymous system, must place a complaint/suggestion box (locked) in an accessible and visible location in/around the office, working site and inform all the workers. The key of the box is in the jurisdiction of MCA-Nepal.	Contractor/Consultant HR Manager
3	The contractor may obtain advice on approaches to handling internal complaints related to from a suitably qualified specialised NGO or District Officers from concerned line Ministries – this may be coordinated by MCA-Nepal.	Contractor/Consultant HR Manager
4	Behaviours to be covered by the institution's Code of Conduct: 3.1 Unfair changes to terms of employment 3.2 Soliciting or enabling prostitution 3.3 Sexual abuse of an adult or children 3.4 Sexual harassment of an employee or community member 3.5 Transporting or facilitating the transport of another person for purposes of sex or abduction 3.6 Physical abuse/ violence towards an employee or community member 3.7 Discrimination against women or other vulnerable groups for employment 3.8 Permitting or engaging in drinking, gambling and illegal drug taking on site or in the community 3.9 Prohibiting non-employees travel in company vehicles	Contractor/Consultant HR Manager
5	Adopt a Zero Tolerance policy, meaning every complaint will be investigated and the employee could be dismissed without pay or benefits for a proven case as described above and referred to the police in the event of criminal act.	Contractor/Consultant Leadership
6	The Human Resources Manager to be responsible for receiving and investigating complaints between employees and between employees and community members	Contractor/Consultant HR Manager
7	Ensure a fully working investigation reporting system is in place in the company.	Contractor/Consultant HR Manager
8	Allegations of TIP, GBV and sexual harassment shall be conducted from Survivor centred Approach which means safeguarding the victim, provide paralegal and counselling services during the course of investigation. MCA-Nepal GSI will develop the understanding of this process with the designated Company Manager.	Contractor/Consultant HR Manager/GSI Manager
9	In the event of an allegation being received, the Contractor's HR Manager together with Gender and Social Inclusion Manager must report to the MCA-Nepal immediately and also register in the MCA-Nepal's GRM. Cases related to TIP must be responded within 24 hours to the complainant and also report to MCC within 24 hours from being aware of the case.	Contractor/Consultant HR Manager/GSI Manager
10	Cases related to GBV, sexual harassment, an investigation must be held on receipt of the complaint with due support for the accuser.	Contractor/Consultant HR Manager/GSI Manager
11	If the complaint is upheld, the perpetrator is liable to face dismissal regardless of seniority.	Contractor/Consultant Leadership
12	If it is determined that a criminal offence is likely to have been committed like TIP, rape, murder, the HR Manager must escalate the case to the Police according to national legal process.	Contractor/Consultant HR Manager/GSI Manager

D.13 Procedures for Management of Workforce Behaviour On and Off Site

Introduction

The Millennium Challenge Corporation (MCC) and Millennium Challenge Account Nepal (MCA-Nepal) adhere to *Zero Tolerance* policy against anti-social behaviours by all staff, whether on site or off site, when working in communities. For this purpose, anti-social behaviours are described as introducing or expanding commercial sexual services, drinking bars and clubs, introducing gambling activities and illegal drugs taking.

This procedure is to provide guidance on preventing the introduction or spread by project implementers of socially detrimental activities in the workplace and in local communities. The aim is for workforces and local communities to be able to coexist without negative impacts on community lives so that they can live and work together with respect, accountability and trust. The guidance applies to all consultants and contractors engaged by MCA-Nepal.

This guidance is aligned with International Finance Cooperation's Performance Standard 2 on Labor and Working Conditions which MCC and MCA-Nepal has adopted as part of its Environmental Guidelines and MCA-Nepal has also incorporated these principles into the Human Resource Manual, 2021.

Understanding Anti-Social Behaviour

Many communities, particularly in rural areas, have a social structure unfamiliar with the potential impacts of the introduction or major amplification of widespread recreational behaviours such as prostitution, gambling, drinking and illegal drugs taking. The rapid increase in provision and undertaking these activities in non-urban communities undermines local cultural expectations and interactions.

Serious harm can be caused by allowing workforce personnel to set up or promote brothels, bars, gambling dens, illegal drugs taking and selling points in local communities near to labour camps. For this reason, labour camps should be sited away from major settlements as much as possible Examples of anti-social behaviour are as below, but are not limited to these:

i. Encouraging, promoting or procuring prostitution services,
   - Soliciting local women, girls and children for sex
   - Setting up a camp brothel,
   - Allowing workforce members or others to bring in women and children for sex in the camp or local community

ii. Encouraging, procuring or participation in gambling whether formally or informally
   - Setting up gambling dens,
   - Bringing in betting and gaming tables to communities

iii. Encouraging the sale or facilitating the consumption of alcohol, particularly in local communities
   - Setting up bars in local communities
   - Investing in the expansion of existing facilities
   - Offering alcohol for subsistence food

iv. Encouraging, facilitating or use of non-prescription drugs
   - Allowing drug taking on site or in labour camps
   - Setting up drug dealing points
   - Selling illegal drugs to workers or community members

Addressing Anti-Social Behaviour in the Workplace and Local Communities

Consultants and contractors are contractually required to have a Workforce Management Plan in their Human Relations Department approved by MCA-N before works start. Part of the obligations of the Workforce Management Plan is the prevention of workers from causing social nuisance in their workplace, in labour camps and local communities.

The Workforce Management Plan requires all contractors to actively prevent and discourage anti-social behaviour by declaring and enforcing the prohibition of anti-social behaviour as defined above in its policies and employment relations. Contractors are required to explain their anti-social behaviour policy to all employees and subcontracted labour when each employee or worker is on boarded and recorded as a Code of Conduct signed by each employee or labourer. Contractors are required to ensure that all subcontracted labour has the same on-boarding induction programme and individual contracts of employment containing the expected Code of Conduct. Reinforcement training must be conducted as part of ongoing worker training and awareness programmes and toolbox talks.

Contractors' Human Resources Departments must have an investigative process to examine and review worker behaviour, and a process to discipline workers who are proven to have carried out anti-social behaviour in the working area. The Table gives the required actions, roles and responsibilities to control anti-social behaviours

Process to formulate and implement the management of workforce behaviour, applicable to all Consultants and Contractors engaged by MCA-Nepal

No	Action	Responsibility	Approval / Monitoring
1	Contractor designs a Workforce Management Plan (WMP) and Worker Code of Conduct to apply to all employees/ workers	Contractor	Approved by Engineer
2	Contractor advises all subcontractors, Managers and Supervisors of the terms of the WMP	Contractor	Approved by Engineer
3	Contractor's HR Department must implement the WMP, and the Workers Code of Conduct to be read to and explained verbally to each worker on commencing employment.	Contractor	Approved by Engineer
4	Each worker has to sign or make a mark on their contract of employment stating willingness to comply with the Code of Conduct.	Workers	Monitored by Engineer,
5	The Contractor must ensure all subcontractors have also implemented the Workers Code of Conduct process as part of their onboarding process. 1. needs to cover all expectations of employee behaviour on site and off site after work 2. must specify the consequences of a breach of the code of Conduct 3. must contain clauses to escalate breaches of the Code to the police for investigation where laws have been broken 4. must be explained, understood and signed by all staffs during their employment contract Form F	Contractor/ Subcontractors	Approved and Monitored by Engineer
6	Contractor's HR department must investigate allegations of breaches of the Code of Conduct and report weekly and monthly to MCA-Nepal as part of the regular reporting process	Contractor/ Subcontractors	Monitored by Engineer
7	Contractors must keep records of training inductions and toolbox talk topics and records of those attending.	Contractor/ Subcontractors	Monitored by Engineer

Other Clauses

The Standard Bidding Documents under MCC for potential contractors includes a clause "Prohibition of Anti-Social Behaviour" in the "Template for Procurement of Large Works/Small Works" and "Template for Procurement of Consulting Services".

MCA-Nepal will monitor contractors about the anti-social behaviour policy and procedures to be followed and a requirement to establish grievance redress mechanisms to address and respond to incidents of anti-social behaviour.

FORM F

CODE OF CONDUCT FOR ALL EMPLOYEES IN EMPLOYMENT CONTRACT

The contractor must have a Code of Conduct which states the expected standards of behaviour of Staff and Workers of the company as part of their Workforce Management Plan. The Code of Conduct forms the method by which understanding and acceptance of expectations of worker behaviour can be tracked and recorded. The code of conduct must be presented in local languages and be read to or read by each employee. The employee must sign acceptance of these conditions with a copy kept with HR records and a copy kept by the worker. The Code of Conduct that must be oriented and to be signed must include the following points among others:

1. Conduct assigned duty with honesty and integrity.
2. Respect diversity and treat all team members with respect and dignity.
3. Agreement with the working hours, location and organisation designated for the work.
4. Not transporting non-company personnel in company's vehicles.
5. Prohibition of jokes, terminology or phrases that disrespect or devalue any person or community.
6. Not enabling, soliciting or using prostitution.
7. Prohibition of sexually abusing an adult or a children.
8. Prohibition of sexually harassing a fellow worker or a community member.
9. Prohibition of physically or mentally abusing a fellow worker or community member.
10. Not allowing discrimination against women or other vulnerable groups for employment or during the work.
11. Not permitting or engaging in drinking, gambling and illegal drug taking on site or in the community.
12. Not permitting hunting, fishing or collection of forest plants or animals (or their parts).
13. Not employing or permitting to be employed any children under the age of 18 years other than in line with the provisions of ESHSMP section D.11 (Procedure for Controlling the Employment of Children)

The zero tolerance policy means failure to comply with any of these behaviours will lead to investigation and disciplinary actions which could include dismissal without pay or benefits for a proven case.

[Note: this Code of Conduct may be revised to keep it aligned with directives from the Ministry of Women, Children and Senior Citizens.]

D.14 Workplace Management Plan

Background

Most projects in the construction sectors are labour-intensive and require a large number of labourers sourced both locally and/ or from neighbouring countries such as India, Bangladesh, and China. Due to the nature of these construction projects, a large number of migrant labourers move into and settle in or around the project sites temporarily, resulting in an influx of migrants in local communities.

Experience in Nepal indicates that this impact has been largely negative on local communities. Although locals gain better access to roads, communication, and improved economic opportunities, the influx of migrant labourers tends to negatively affect the cultural environment, put pressure on infrastructural services and resources, including health and housing and affect the community environment.

Labour influx also results in increased environmental risks such as expanded use of natural resources due to population pressure, inadequate waste disposal and drinking water, and camp-related issues such as environmental pollution, poor sanitation, changes in land use, increased dust, noise and light.

Communities are also affected by the increased demand for worker's recreation leading to increased drinking, harassment and prostitution, gambling and illegal drug taking in communities unexposed to these social ills before.

Influx of such groups of workers and the management of local workforces need to be managed effectively, according to legal requirements and ensure workers behave. Ensuring compliance with labour laws is important to prevent the Project colluding with trafficking in persons.

Trafficking in Persons is a serious problem in Nepal – The term covers both trafficking of persons to the sex industry and wider issues of trafficking in persons for labour. The MCC Counter Trafficking in Persons Policy addresses both sets of risks but Employment based risks are addressed in this guideline.

Widespread employment issues arise. Common workforce employment concerns include (not exhaustive):

- Deployment of work gangs across international borders
- Lack of worker detail registration
- Withholding of identity documentation
- Lack of documentation or a formal contract
- Illegal changes to contracts once the workforce is on site - increased hours, lower pay, pay withheld
- Poor working and residential conditions
- Lack of training for workers in health and safety,
- Lack of consideration of local communities
- Poor control of vehicles and their use leading to non-prevention of trafficking in persons for sex, locally or internationally
- Lack of provision of health care
- Lack of opportunities for women
- Lack of protection of minors
- Lack of internal grievance system to raise issues
- Poor response of HR systems to allegations of violence (especially gender based violence, GBV), sexual harassment, rape and abuse.

Compliance is mandated in all contracts – the inclusion of a Workforce Management Plan in the ESHSMP is the means for improving employment management on the project as well as improving worker behaviour. Lack of management of worker behaviour is a serious issue in impacted communities. Work camps of imported – usually male labourers – located near established communities, frequently introduce prostitution, drinking, gambling, illegal drug promotion in areas where this has not been a feature of community life.

Legislative Background

A raft of legislation exists in Nepal to promote fair employment conditions.

- Labour Act 2017: According to the Labour Act 2017 of Nepal, an employment contract between the employer and employee is required before starting work, and workers must be provided with information about remuneration, working hours, and other provisions. The Labour Act 2017 does not specify the minimum wage for construction workers, but mandates that wages be fixed through a discussion between representatives of trade unions and the Federation of Contractors' Association of Nepal (FCAN). In practice, this is achieved if the labourers are paid as per the minimum district rate.
- The Act requires employers to provide temporary shelter, clean drinking water, and food to construction workers if the work site is beyond the settlement area. The Act also requires employers to ensure workers' Occupational Health including medical treatment and insurance for injury and death. Accordingly, each labourer must be insured for a sum of up to Nepalese rupee (NPR) 100,000 for medical expenses and NPR 700,000 for accidental death.
- The Labour Act 2017 also considers sexual harassment a punishable act and requires implementation of the Sexual Harassment (Prevention) Act 2014 in the workplace. The government maintained anti-trafficking law enforcement efforts. The 2007 Human Trafficking and Transportation (Control) Act (HTTCA) criminalised some forms of labour trafficking.
- The Labour and Employment Policy 2005 ensures equal access to work for women, Dalits, Janajatis, and people displaced by infrastructure projects.
- The Bonded Labour (Prohibition) Act 2002 prohibits any form of bonded labour, which is defined as work performed to pay back a debt taken by an individual or his or her family.

- The Child Labour (Prohibition and Regulation) Act 2000 and various international conventions signed by Nepal prohibit the employment of children below 16 years of age in construction. The recently introduced National Master Plan on Prevention of Child Labour (2018–2028) envisions the elimination of all forms of child labour (that is, children aged 5–17) from various kinds of work in both formal and informal sectors (MoLESS 2018).

Workforce Management Plan Components

The objective of the Workforce Management Plan is to address labour-based trafficking and other employment issues by compelling Contractors and Subcontractors to:

1. Compliance with MCC Policies and Guideline, IFC PS 2
2. Recognition of Nepali Labour Law on all aspects of hiring, managing and dismissal of labour.
3. Requirement for an Provision of internal grievance system to manage allegations of misconduct,
4. Publicly available documentation of Employer responsibilities to manage employee behaviour whilst deployed on site, in workcamps and in communities,
5. Documented Employee training responsibilities
6. Worker Code of Conduct – production, use and records of each employee having signed an agreement to adhere to it.
7. Workers should be exempted from any kind of recruitment fee in order to work in the MCA-Nepal's project.

The chances of exploitation and prevalence of bonded and forced labour conditions are high in construction projects, as many workers are employed on verbal instead of written contracts, despite written contracts being required by law. The WMP aims to ensure that labourers hired by contractors are not subject to forced labour, bonded labour, debt, or other exploitative practices in the processes of labour recruitment, deployment and management process in the ETP project that may lead to various forms of labour trafficking.

ETP preference is for unskilled labour employment to be recruited from Project Affected Households first and then from the local Wards or Municipality with a minimum of 33% labourers to be women. The domestic employment programme side of the Right to Employment Act, 2018, set up established Employment Service Centres (ESC) in each Municipality, which are in place to assist Employers to hire labourers.

Employers working in each Municipality shall register their employment activities and employment with the Employment Service Centre (ESC) in the relevant areas. If the ESC is not yet functioning in the locality, then the Contractor must ask the Engineer to seek an alternative arrangement from the Employer's Social Safeguards Manager. The ESC will assist all employers to specify skills required and estimate numbers of workers needed. Additionally, the ESC will support worker location/identification, assist in locating, screening, documenting and in onboarding.

Technically, there is no licence process to import international unskilled labourers into Nepal, albeit that this is known to occur. This takes advantage of the porous borders with Pakistan and India. Contractors often use Subcontractors and labour gangs to supply undocumented labourers so that they are not responsible for Labour Law compliance. This is unacceptable within MCC Guidelines (IFC-PS2) and poor performance and refusal to accept responsibility is considered a refusal to operate the ESHSMP. Contractually stated penalties exist and non-compliance constitutes refusal of the ESHSMP and is against contractual requirements. Cooperation with the ESCs is expected to largely mitigate the likelihood of non-compliance.

Records

The Contractor or Subcontractor must, at a (minimum), keep records of all employee/ workers details – this includes Subcontractor hires

i. Name, gender, age, address, cell details, residence including country of origin, paper or digital copies of ID documentation/ passport, means of contact of next of kin, bank details, social security references (Provident Fund number for workers of more than one month), languages spoken, literacy level, work gang information, gang leader etc, day/ wage rate, rest days, overtime frequency of payment

ii. Health survey and medical history during employment

A formal written contract must be signed with each worker, stating pay, hours, conditions of employment, benefits etc. is required. A verbal agreement is unlawful.

i. Written contract details and record copy with the worker's signature/ mark

ii. Signed statement that the contract has been read to the worker prior to signing.

iii. Ensure no minors are employed or have site access.

Site facilities

The Contractor must have a record of all sites of work camps for all workers. A minimum standard to comply with labour law is expected. This will cover locations – must be >2km from local villages and towns with exceptions for Terai and MCA PP activities.

The Contractor must specify the standards of provision of quality and type of accommodation, provision of water, sanitation, fuel, lighting, food arrangements to meet Labour laws

Internal GRM

The Contractor must have an internal grievance mechanism whereby workers are able to make complaints about work related matters and have them investigated and resolved. To this end the WMP must state which member of staff or office is responsible for receiving, investigating and resolving employment based complaints, for recording and for informing the Supervising Engineer and the MCA GRM/ GSI specialists. All internal grievances must be reported to the above specialist. An anonymous complaint mechanism must be in place using the dropbox facility required in all offices and camps.

Safeguards

Harassment/ Sexual Abuse and Violence: MCC/ MCA pursue a zero tolerance policy towards such actions by any worker within project work sites, work camps or within nearby communities. The Contractor is required to support the use of the Nepal National Helpline "1145" for reporting sexual harassment and gender based violence. If the company receives notification that a worker has been reported and is to be investigated, it is mandatory that the Contractor must report this to MCA-Nepal and the SE GSI, and then suspend the worker and remove them from site until investigation is complete. Cooperation with the Police and the Courts on this issue is required. Dismissal of the perpetrator without benefits is required after sentencing for a criminal offence.

Counter Trafficking in Persons (CTIP) - Similarly, MCC/ MCA pursue a zero-tolerance policy towards worker involvement in trafficking persons for sex, both into and out of the Project area. Contractors and Subcontractors must have policies in place prohibiting transport of non-employees/ community members in company vehicles and rules preventing the establishment of or encouragement of prostitution on site or in local communities. The Contractor is required to support the use of the Nepal Police National Helpline "1177" for reporting trafficking of persons for sex, suspend any worker accused of trafficking activities, cooperate with the Police enquiry and instantly dismiss without benefits, any worker convicted of criminal activity under this heading.

Training

The Contractor must provide periodic and ongoing training

i. Briefings on onboarding

ii. Skills training

iii. Toolbox talks to include workers rights, employer responsibilities, working with communities, prevention of HIV-AIDS, COVID 19, GBV, sexual exploitation and abuse, CTIP.

Worker Code of Conduct

The Contractor is responsible for behaviour of their workers on site and in communities. The ESHSMP has sections covering protocols for communication and behaviour which employers need to enforce. The Employer must translate the ESHSMP requirements into a written Code of Conduct which is signed by each worker and a copy issued along with the written contract.

The Contractor must have a procedure for discussing the Code of Conduct individually and collectively with staff. The Code of Conduct forms part of the written employment contract, it must be read to the employee/ worker if the person cannot read. Local language translators must be used if appropriate, and the use of pictures for the less literate. Comprehension of the code and its requirements must be checked and included in onboarding arrangements.

Each worker must sign their own copy and a record copy. The contractor must conduct reinforcement toolbox talks monthly on the Code of Conduct. Severe breaches of the Code of Conduct must lead to dismissal.

The Code of Conduct specifies the standard of behaviour required of each worker on site and in work accommodation and in all dealings with community members. The code of conduct requires the following as a minimum:

1. Workers must treat each other with respect, they may not prevent or hinder women and minorities from taking employment, doing work etc.
2. Workers are specifically forbidden to verbally or physically abuse or sexually exploit or harass any other person whether worker or not.
3. All workers must be aware of the internal grievance process and the anonymous complaint system and freephone numbers to report allegations.
4. Workers are required to interact with communities using the protocol in the ESHSMP and report interactions to their supervisor.
5. All workers shall be aware of and know how to use the ETP grievance mechanism if approached by a community member with a complaint.
6. No worker shall allow a non-project person/ employee to travel in company vehicles.
7. No worker may drink alcohol, take illegal drugs, gambling or solicit another person for sex in communities, in the workplace or in accommodation.
8. Work accommodation may not admit non workers for any purpose. Workers may not bring minors – under 18 years – to the site except under the provisions of D.11 - Procedure for Controlling the Employment of Children.
9. Workers may not go to local communities for any form of entertainment or sponsor the introduction of bars, clubs etc in villages.
10. All workers must respect and prevent damage to graves, temples, Chautara, stupas, local shrines etc.
11. All workers must use project provided sanitation – no open defecation at any point. Workers may not cut firewood or dispose of rubbish in the local environment.
12. Severe transgressions of expected conduct will result in an investigation, removal from site and, potentially, dismissal.

The Contractor must provide each worker with a written copy of the Code of Conduct, ensure that it is read to the worker if that is necessary in their local language and each worker must sign acceptance. The regular toolbox talks must be used to update and refresh worker's understanding of the code of conduct.

D.15 Code of Practice for Staff, Worker and Visitor Behaviour

All contractors' managers must ensure that their staff uphold this Code of Practice at all times.

Project contractors are guests of the communities in which they are living and working. They must fit with local customs and laws. Many staff could be from other parts of Nepal and from other countries, and some will be in the project area for only short periods. Cultural differences and poor behaviour of workers can lead to tension between local communities and workers housed in camps. This Code of Practice demands moderate and tolerant behaviour of all people associated with the project.

All project staff, the employees of contractors and visitors to camps and work sites, must abide by the following rules to ensure harmonious co-existence.

- Adhere to Nepal laws and regulations.
- Respect local communities, religions and customs.
- Respect all groups within the towns and camps.
- Behave in a moderate, modest and tolerant manner.
- Avoid causing disturbance or undertaking any unruly or anti-social behaviour (Alcohol, Gambling, Prostitution etc.) at any time.
- Do not hunt, fish, keep animals or gather forest products, except in line with the law and the rules of local communities.
- Bring no firearms, ammunition, dangerous weapons or fireworks in the towns, camps or work sites.
- Use vehicles safely at all times.
- Do not carry community people (non-worker) in project vehicles without following the appropriate procedures.
- Use security passes as required for different areas.

All employers shall maintain a zero tolerance policy towards the following.

- Infringement of any Nepalese law.
- Bribery, fraud or attempts at these.
- Racist or anti-religious behaviour.
- Participating or procuring prostitution on project sites or in project vehicles or in the community.
- Participating or procuring any kind of gambling, betting.
- Any form of sexual harassment, exploitation or abuse.
- Any involvement in the trafficking of persons.
- Any theft or dealings of any sort in stolen property.
- Involvement in violence of any sort.
- Repeated excessive consumption of alcohol.
- Intoxication on any work site.
- The use of any non-prescribed or illegal narcotic substance.

The MCA-Nepal and the Engineer have the right to require intoxication or controlled substance testing at any time.

D.16 Guideline on Prevention of Sexual Harassment

MCA-Nepal requires its contractors to follow the MCC Guidance Note on Sexual Harassment which is aligned with IFC PS 2 on Labor and Working Condition which MCC and MCA-Nepal has adopted as part of its Environmental Guidelines and MCA-Nepal has also incorporated these principles into the Human Resource Manual 2021. MCA-Nepal adheres to zero tolerance policy against sexual harassment and oblige all the agencies to comply same who are working for MCA-Nepal. The Sexual Harassment at the Workplace Prevention Act 2015 legally binds every institutions to protect their employees against sexual harassment while working in Nepal.

Sexual harassment is defined as "unwelcome sexually determined behaviour as physical contact and advances, sexually coloured remarks, showing pornography and making sexual demands, whether by words or actions" – Convention on the Elimination of Discrimination against Women, Article 11. In workplace, sexual harassment also includes discrimination based on an individual's perceived deviation from presumed appropriate gender roles, identity and behaviours. The other terminologies sexual exploitation and abuse also carries the equal magnitude as sexual harassment and the difference lies in the category of victim. The victim of sexual

harassment could be the employee/workers whereas members of communities are the victim in sexual exploitation and abuse. Sexual harassment, exploitation and abuse all are form of sexual misconduct and are completely unacceptable.

Sexual harassment is a serious problem in workplace which is humiliating and discouraging and may cause loose of confidence, health or safety problems for victims and witnesses. It also creates a hostile working environment for all staff and a sexual harassment complaint can lead to retribution.

Sexual harassment is determined by behaviour—though sexual harassment predominantly is directed from a man in a position of authority toward a woman, both the victim and the harasser can be either a woman or a man, and the victim and harasser can be of the same sex. Men or women who do not match standard gender norms can be victims of sexual harassment. The harasser can be the victim's supervisor, a supervisor in another area, a co-worker or someone who is not an employee of the employer, contractor or sub-contractor. Contractor, sub-contractors and their staffs are also prohibited from engaging in any form of sexual harassment towards the community members.

The MCC's Guidance Note provides key principles for preventing and addressing sexual harassment in the workplace. It also gives reference on clauses that are incorporated in the contracts for small works, large works and consultants. Following this guidance requires contractors, sub-contractors, consultants and others working on behalf of MCA-Nepal, must develop their Anti-Sexual Harassment Policy and Procedure with the following key principles and Nepalese law and implement:

i. Prevention Principles

- Cultivate a workplace culture of respect, responsive, accountability, and trust.
- Review, develop and institutionalize a specific policy on sexual harassment that is based on international best practices and local law.
- Provide expert-developed early training, orientation during on-boarding and on periodic basis to ensure detail understanding of sexual harassment and its consequences.

ii. Implementation Principles

- Regular orientation and refreshers of Anti Sexual Harassment Policy need to administer and monitor periodically.
- Encourage victim on reporting the incidents of sexual harassment by providing a safe and confidential environment.
- Establish a safe, confidential complaint resolution mechanism in workplace.
- Maintain confidentiality of the participants during investigation and resolution.
- Do not punish the alleged victim for reporting sexual harassment.
- Ensure timely, detail, and impartial investigation of sexual harassment allegations.
- Take appropriate actions including reporting to appropriate authorities when the alleged case could be a criminal act.

iii. Accountability Principles

- Hold senior leadership and management accountable for workplace culture.
- Encourage everyone to speak up about sexual harassment and report harassing conduct if witnessed.
- Get help from experts in addressing harassment and in ensuring the appropriate measures are in place.

MCA-Nepal shall informs the Contractors about the anti-sexual harassment policy and procedures to be followed and a requirement to establish grievance redress mechanisms to address and respond incidents of sexual harassment.

ANNEX E: ENVIRONMENTAL SAFEGUARD PROCEDURES AND GUIDELINES

E.01 Managing Environmental and Social Aspects of Tower Construction Sites

The Contractor shall follow this procedure to ensure the compliance management of all environmental and social aspects of tower construction sites.

Demarcation and Public Notice

1. Before entering each tower site or initiating any ground disturbing activities, the Contractor shall obtain all required permits and approvals required for tower construction in accordance with relevant Nepal laws and regulations, applicable standards and environmental and social requirements.
2. The agreed and pegged tower construction site plus working area shall be demarcated using barrier tape.
3. An information board shall be prominently displayed at the edge of the site, where it is accessible to the public. The board shall describe the MCA-Nepal Grievance Redress Mechanism and provide contact information for both the Contractor and MCA-Nepal, where grievances can be filed. The information board shall also display the Worker Code of Conduct so that the community is fully aware of worker behaviour standards.

Tower Access

4. The Contractor shall prepare a Tower Construction Access Plan for each tower, for review and approval by MCA-Nepal. Tower access may involve one or more of the following methods: road access, trail access, helicopter access. The construction of any new access road or vehicular track is prohibited, unless approved by MCA-Nepal and the MOFE.
5. If access requires use of, or crossing of, private property, the Contractor shall execute a Temporary Access Agreement with willing landowners.
6. Tower access shall not involve the clearing of any forest not otherwise required to be cleared for tower construction or conductor stringing. All clearing of forest must be included in the ETP Forest Clearance Permit and any trees cleared shall be previously approved for clearing and marked by the Division of Forests.
7. Trail access shall not require any tree clearing. Trails are expected to be no more than 1.5 metres in width and suitable for use by porters, pack animals, and in some cases small motorised vehicles like motorcycles or ATVs. Gravel or crushed stone shall be used as needed to prevent rutting or erosion of the path.

Tower Work Camps, Storage Areas, and Work Areas

8. The Contractor shall designate an area near each tower to serve as a temporary work camp, storage area, and work area. This area shall be located within the project's ROW. If land within the ROW is not suitable (e.g. because it is too steep), then land outside the ROW can be used with the written permission of MCA-Nepal. In either case, the Contractor shall execute a Temporary Access Agreement with willing landowners.
9. Tower work camps, storage areas, and work areas shall not require the clearing of any forest not included in the ETP Forest Clearance Permit and any trees previously approved for clearing and marked by the Division of Forests.
10. Effective sediment and erosion control measures shall be implemented during all site works, including the operation of camps and working areas, in accordance with the sediment and erosion control measures in Annex D.064a to D.064f.
11. All disturbed ground at tower construction sites, including camps and working areas, shall be cleared, restored and revegetated in accordance with the measures in Annex D.064a to D.064f.

Worker Accommodation

12. Tower construction workers are expected to camp at the work camps unless they are within walking distance of their own homes. .No homestays are permitted.
13. Workers accommodation must be located at least 2 km. from the nearest town or village except in the Terai where it is acknowledged that this is not possible
14. The Contractor shall provide suitable tents and camping facilities for the tower workers.
15. Tower work camps shall have pit toilets with separate latrines for men and women. Urination or defecation in open areas or near water bodies by the workers is prohibited.
16. Potable water will be carried into the tower work camp. If local sources of water are proposed, the Contractors shall provide appropriate treatment and conduct monitoring to demonstrate that the water is

suitable for potable use. Where there is any doubt about the quality of the water, the Contractor shall ensure that all water is boiled or chemically treated to make it potable in line with the Nepal national standards for human consumption.

17. The Contractor shall supply water to the worker accommodation without affecting the water supply of neighbouring towns and villages.
18. Power will be provided by a portable generator.
19. Gas fired stoves (e.g. propane) will be used for cooking and heating. No open fires are permitted.
20. Tower work camps shall have first aid supplies to treat non-emergency situations, as well as a snake bite kit.

Wastewater Treatment

21. The Contractors shall provide pit soakaways for domestic wastewater. These and the pit toilets shall be located at least 50 metres from any perennial streams or other waterbodies, and 100 metres from any wells or other potable water sources, to avoid contaminating them.
22. Untreated wastewater shall not be disposed of into any water bodies.

Air Quality Management

23. Fugitive dust and particulate material emissions shall be minimised at all times to avoid impacts on surrounding communities, and especially to vulnerable people (e.g. children, elderly).
24. Surface clearing activities shall be restricted to the approved project footprint.
25. Diesel generators for power supply shall be optimally operated and regularly maintained to ensure emissions from fuel combustion remain at design levels.
26. Machinery shall be turned off when not in use.
27. Trucks transporting powder materials, such as cement and sand, shall have appropriate covers (e.g. tarpaulin sheets) to prevent the loads from spilling or blowing from the vehicle during transportation.
28. All stockpiles shall be covered.
29. Construction machinery and vehicles shall be properly maintained to minimise the emission of air pollutants.
30. Mandatory monthly maintenance activities shall be conducted for all vehicles, in accordance with manufacturer specifications.

Noise Abatement

31. Noise generating construction activities shall only be conducted between 6 am and 6 pm.
32. Night time construction activities are generally prohibited. However, there may be some limited circumstances when night time construction will be necessary for long-period tasks and the Engineer gives special approval for this to happen. In these cases, the Contractor shall comply with the following requirements, which must be included in an approved workplan:
    - The Contractor shall inform MCA-Nepal and obtain written permission for the night time construction task.
    - The Contractor shall notify local residents within potentially impacted areas in advance of proposed night time construction and explain the reasons and duration. The Contractor shall also explain the proposed mitigation measures.
    - Where there is a dwelling within 500 metres, temporary noise barriers shall be placed to reduce noise impacts at night.
    - The Contractor shall offer to arrange temporary accommodation away from the impacted area for vulnerable people, such as persons with illness and the elderly.
33. The Contractor shall perform regular (monthly) maintenance of construction equipment.
34. Properly designed silencers, mufflers, acoustically dampened panels and acoustic sheds or shields shall be used on all equipment. Mufflers and other noise control devices shall be repaired or replaced if defective.
35. Temporary noise barriers shall be used to reduce noise caused by construction equipment where necessary to bring it down to standard limits at receptor sites. Equipment known to emit a strong noise in one direction, shall when possible, be oriented to direct noise away from noise-sensitive receivers.
36. Deliveries and unloading of equipment and supplies by truck or helicopter shall occur only during daylight hours.
37. Machines and equipment in intermittent use shall be shut down between work periods or throttled down to a minimum.

Hazardous Materials and Waste Management

38. “Hazardous materials” covers all chemicals, including but not limited to diesel, gasoline, gases, lubricants, paints and cement.
39. The Contractor shall inform all employees of the emergency measures to be taken in case of spills or accidents due to the improper use of these substances in accordance with the provisions in the ESHSMP for spill prevention and response.
40. All hazardous materials shall be stored in manufacturer-prescribed containers.
41. Areas for the storage of fuel or lubricants shall have an impervious liner and bunding to prevent the escape of spills.
42. Leaking equipment shall be repaired immediately or shall be removed from the site for repair.
43. Liquid waste generated on site, such as lubricants, paints, cleaning chemicals and other aqueous oil-based materials, shall be collected separately, stored in a covered area in a suitable storage tank (i.e. on a impervious liner with appropriate secondary containment), and disposed of at a government-approved facility.
44. Cement shall be covered with tarpaulin sheets during non-working periods.
45. Concrete mixing shall not take place directly on the ground.
46. In case of spillage of mixed concrete, the area shall be cleaned immediately. The waste shall be collected and disposed of at sites approved by MCA-Nepal.
47. Unused cement bags shall be stored in a weather-proof area where they will not be affected by rain. Used (empty) cement bags shall be collected and stored in weatherproof containers to prevent windblown cement dust and water contamination. The bags shall not be used for any other purpose.
48. All excess concrete shall be removed from site on completion of concrete works. Washing of any excess concrete into the ground is not allowed.

Solid Waste Management

49. The Contractor shall establish a solid waste management system to ensure proper collection, segregation, and disposal of solid waste so that there is no contamination of soil or nearby water bodies, or creation of public health issues.
50. The Contractor shall ensure that all facilities are maintained in a neat and tidy condition and the site shall be kept free of litter. Random disposal of solid waste from within or outside the project area shall be strictly prohibited.
51. At all places of work, the Contractor shall provide litter bins, containers, and refuse collection facilities for later disposal. Employees shall be educated on the segregation of waste with demarcated bins for recyclables, organic wastes and other materials placed in common areas.
52. Recyclable materials (e.g. wooden plates for trench works, steel, scaffolding material, site holding, packaging material, paper, empty cement bags, other containers, glass and wood), shall be collected and separated on site from other waste. Collected recyclable material shall be re-used or sold to a government-approved waste collector for recycling.
53. Waste storage containers shall be covered, tip-proof, weatherproof, and scavenger proof.
54. The disposal of construction debris shall be carried out only at sites previously identified and approved by MCA-Nepal.
55. Burning solid waste in open air conditions shall be strictly prohibited.
56. Trash and debris shall not be buried within fill or backfill areas.
57. Once construction is completed, all waste and debris shall be removed from the site.

E.02 Managing Environmental and Social Aspects of Substation Construction Sites

The Contractor shall follow this procedure to ensure the compliance management of all environmental and social aspects of substation construction sites.

Demarcation and Public Notice

1. Before entering a substation site or initiating any ground disturbing activities, the Contractor shall obtain all required permits and approvals required for construction in accordance with relevant Nepal laws and regulations, applicable standards and environmental and social requirements.
2. The agreed and pegged tower construction site plus working area shall be demarcated using barrier tape.
3. An information board shall be prominently displayed at the edge of the site, where it is accessible to the public. The board shall describe the MCA-Nepal Grievance Redress Mechanism and provide contact information for both the Contractor and MCA-Nepal, where grievances can be filed. The information

board shall also display the Worker Code of Conduct so that the community is fully aware of worker behaviour standards.

4. The Contractor shall prepare a Site Access Plan for review and approval by MCA-Nepal. Access shall be by one or two formally designated access roads. The construction of a new access road shall be as instructed by MCA-Nepal.

Work Camps, Storage Areas, and Work Areas

5. The Contractor shall designate an area of the site to serve as a temporary work camp, storage area, and work area. These areas shall be located entirely within the project's acquired land holding.
6. The Contractor shall submit to MCA-Nepal for approval the location and design for all substation worker accommodation, including dormitories, sanitary and toilet facilities, kitchens, canteens, laundry places, medical clinics, and leisure, telecommunications and security facilities. The detailed submission shall be at least two months before the planned start of the construction of these facilities. The worker accommodation and support facilities design shall be in general conformance with the IFC Guidance Note on Worker Accommodation: Processes and Standards (IFC and EBRD, 2009).
7. No part of a substation construction site shall require the clearing of any forest not included in the ETP Forest Clearance Permit and any trees previously approved for clearing and marked by the Division of Forests.
8. Effective sediment and erosion control measures shall be implemented during all site works, including the operation of camps and working areas, in accordance with the sediment and erosion control measures in Annex D.064a to D.064f.
9. All disturbed ground at tower construction sites, including camps and working areas, shall be cleared, restored and revegetated in accordance with the measures in Annex D.064a to D.064f.

Worker Accommodation

10. Substation construction workers are expected to be accommodated at the work camps unless they are within walking distance of their own homes. For local women workers, transportation facility to be provided between work and home The Contractor shall provide suitable semi-permanent residential facilities for the substation workers.
11. Home stays for non-local staff are not allowed.
12. The Contractor shall provide suitable semi-permanent residential facilities for the substation workers located at least 2 km from a village centre (except on the Terai, where this is not feasible).
13. Potable water will be piped or carried into the work camp. If local sources of water are proposed, the Contractors shall provide appropriate treatment and conduct monitoring to demonstrate that the water is suitable for potable use. Where there is any doubt about the quality of the water, the Contractor shall ensure that all water is boiled or chemically treated to make it potable in line with the Nepal national standards for human consumption.
14. The Contractor shall supply water to the worker accommodation without affecting the water supply of neighbouring towns and villages.
15. Power will be provided from the grid or from a portable generator.
16. Gas fired stoves (e.g. propane) will be used for cooking and heating. No open fires are permitted.
17. Work camps shall have first aid supplies to treat non-emergency situations.

Wastewater Treatment

18. The Contractor shall provide adequate wastewater treatment and disposal for all wastewater generated at the substation. This shall include either a large septic system and drain field if soils prove to be suitable, or a package wastewater treatment plant. Untreated wastewater shall not be disposed of into any water bodies.
19. If septic systems are used for any residential labour camps, the septic tank and drain field shall be located at least 50 metres from any perennial streams or other waterbodies, and at least 100 metres from any wells or other sources of potable water, to avoid contaminating them.
20. If a package wastewater treatment plant is proposed, the effluent must meet the World Bank EHS Wastewater Guidelines (World Bank, April 30, 2007) and applicable Nepal regulations, whichever is more stringent.
21. Untreated wastewater shall not be disposed of into any water bodies.
22. Urination or defecation in open areas or near water bodies by the workers is prohibited.

Air Quality Management

23. Fugitive dust and particulate material emissions shall be minimised at all times to avoid impacts on surrounding communities, and especially to vulnerable people (e.g. children, elderly).

24. Surface clearing activities shall be restricted to the approved project footprint.
25. Vehicle speed shall be restricted to 15 km/hr on site, to minimise the potential for dust generation in the surroundings.
26. Dust screens shall be placed as needed around construction areas within 200 metres of residential and other off site buildings.
27. Spraying of water shall be carried out as needed on unpaved roads, and over cut areas, stored soil and fill material.
28. Diesel generators for power supply shall be optimally operated and regularly maintained to ensure emissions from fuel combustion remain at design levels.
29. Machinery shall be turned off when not in use.
30. Trucks transporting powder materials, such as cement and sand, shall have appropriate covers (e.g. tarpaulin sheets) to prevent the loads from spilling or blowing from the vehicle during transportation.
31. All stockpiles shall be covered.
32. Construction machinery and vehicles shall be properly maintained to minimise the emission of air pollutants.
33. Mandatory monthly maintenance activities shall be conducted for all vehicles, in accordance with manufacturer specifications.

Noise Abatement

34. Noise generating construction activities shall only be conducted between 6 am and 6 pm.
35. Night time construction activities are generally prohibited. However, there may be some limited circumstances when night time construction will be necessary for long-period tasks and the Engineer gives special approval for this to happen. In these cases, the Contractor shall comply with the following requirements, which must be included in an approved workplan :
    - The Contractor shall inform MCA-Nepal and obtain written permission for the night time construction task.
    - The Contractor shall notify local residents within potentially impacted areas in advance of proposed night time construction and explain the reasons and duration. The Contractor shall also explain the proposed mitigation measures.
    - Where there is a dwelling within 500 metres, temporary noise barriers shall be placed to reduce noise impacts at night.
    - The Contractor shall arrange temporary accommodation away from the impacted area for vulnerable people, such as persons with illness and the elderly.
36. All construction-related traffic and site vehicles shall be restricted to a maximum speed of 15 km/hr on site and on roads within 200 metres of substations.
37. Noise barriers shall be installed at site boundaries to ensure that noise is maintained within the limits of the Nepal national standards at receptor locations.
38. Noise levels associated with all machinery and equipment shall be maintained at or below 90 dB(A) at locations where workers are present. If this cannot be achieved, then workers shall be issued with ear protection.
39. All diesel generators shall be installed in conformance with the statutory requirement of acoustic enclosures, to achieve the required norm of 75 dB(A) when measured at workstations.
40. Rubber paddings/ noise isolators at equipment/machinery shall be used for construction to minimize noise and vibration.
41. Properly designed silencers, mufflers, acoustically dampened panels and acoustic sheds or shields shall be used on all equipment. Mufflers and other noise control devices shall be repaired or replaced if defective.
42. Deliveries and unloading of equipment and supplies by truck or helicopter shall occur only during daylight hours.
43. Machines and equipment in intermittent use shall be shut down between work periods or throttled down to a minimum.
44. The Contractor shall perform regular (monthly) maintenance of construction equipment.

Hazardous Materials and Waste Management

45. “Hazardous materials” covers all chemicals, including but not limited to diesel, gasoline, gases, lubricants, paints and cement.
46. The Contractor shall inform all employees of the emergency measures to be taken in case of spills or accidents due to the improper use of these substances in accordance with the provisions in the ESHSMP for spill prevention and response.
47. All hazardous materials shall be stored in manufacturer-prescribed containers.

48. Areas for the storage of fuel or lubricants and any maintenance workshops shall be fenced and have an impervious floor to prevent the escape of spills.
49. Hazard signs indicating the nature of the stored materials (Material Safety Data Sheets - MSDS) shall be displayed on the storage facility or containment structure.
50. Hazardous materials storage areas and vehicle refuelling areas shall be at least 100 metres away from any water course.
51. Storm water runoff from areas of storage and use of hazardous materials and waste shall be discharged through oil separators and settling ponds.
52. Only appropriately trained personnel shall be authorised to handle hazardous materials.
53. Unloading from cement delivery trucks shall be done on pallets, which shall be covered with tarpaulin sheets during non-working periods.
54. During servicing or repairs of equipment or vehicles, an effective drip tray shall be used to prevent spills of oil and grease on to the soil. This is also obligatory for emergency repairs.
55. Leaking equipment shall be repaired immediately or shall be removed from the site for repair.
56. Liquid waste generated on site, such as lubricants, paints, cleaning chemicals and other aqueous oil-based materials, shall be collected separately, stored in a covered area in a suitable storage tank (i.e. on a impervious liner with appropriate secondary containment), and disposed of at a government-approved facility.
57. Cement shall be covered with tarpaulin sheets during non-working periods.
58. Concrete mixing shall not take place directly on the ground.
59. In case of spillage of mixed concrete, the area shall be cleaned immediately. The waste shall be collected and disposed of at sites approved by MCA-Nepal.
60. Unused cement bags shall be stored in a weather-proof area where they will not be affected by rain. Used (empty) cement bags shall be collected and stored in weatherproof containers to prevent windblown cement dust and water contamination. The bags shall not be used for any other purpose.
61. All excess concrete shall be removed from site on completion of concrete works. Washing of any excess concrete into the ground is not allowed.

Solid Waste Management

62. The Contractor shall establish a solid waste management system to ensure proper collection, segregation, and disposal of solid waste so that there is no contamination of soil or nearby water bodies, or creation of public health issues.
63. The Contractor shall ensure that all facilities are maintained in a neat and tidy condition and the site shall be kept free of litter. Random disposal of solid waste from within or outside the project area shall be strictly prohibited.
64. At all places of work, the Contractor shall provide litter bins, containers, and refuse collection facilities for later disposal. Employees shall be educated on the segregation of waste with demarcated bins for recyclables, organic wastes and other materials placed in common areas.
65. Recyclable materials (e.g. wooden plates for trench works, steel, scaffolding material, site holding, packaging material, paper, empty cement bags, other containers, glass and wood), shall be collected and separated on site from other waste. Collected recyclable material shall be re-used or sold to a government-approved waste collector for recycling.
66. Debris generated from the dismantling of existing structures shall be suitably reused, to the extent feasible, in the proposed construction program (e.g. as fill materials for embankments).
67. *Designated waste storage areas shall be covered to avoid direct contact with surface runoff and shall be fenced off to prevent wind-blown litter.* Waste storage containers shall be covered, tip-proof, weatherproof, and scavenger proof.
68. The disposal of construction debris shall be carried out only at sites previously identified and approved by MCA-Nepal.
69. Burning solid waste in open air conditions shall be strictly prohibited.
70. Trash and debris shall not be buried within fill or backfill areas.
71. Once construction is completed, all waste and construction-generated debris shall be removed from the site.

E.03 Constructing and Maintaining Earth Access Foot Trails

Earth trails shall be aligned to follow the best possible route. Wherever feasible, they shall avoid steep slopes and streams. The amount of cut and fill shall be minimised.

Soil conservation measures shall be provided as necessary, including grassed and vegetated cut and fill slopes, grassed longitudinal drains, and check dams in drains for steep gradients.

Silt traps shall be used where required on drainage outfalls.

When carrying out maintenance, it must be ensured that vegetated slopes and drains are left intact, and silt is removed from the drains by hand.

Waste material must not be pushed down slopes or onto surrounding land. This material shall be recycled on to the trail or disposed of at a suitable waste dump.

Appropriate bio-engineering techniques shall be implemented to prevent soil erosion and landslides in areas where substantial access trails will be developed.

Routine environmental monitoring shall be undertaken of the water quality downstream of heavily used earth trails.

E.04 Protocol for Construction of Access Tracks to Tower Sites in the Terai

Background

Where tower construction sites are more than 25 metres from an existing road, contractors may be authorised by the Engineer to construct, use and subsequently remove an access track to bring workers, machines and materials to the construction site.

Definition of temporary access tracks

An access track is a temporary earth road for use only by specified vehicles and machines to gain access to tower construction sites. Drainage, other structures and surfacing gravel are only to be used to avoid damage to the ground and water courses. The tracks are to be used for vehicles and machines only in the dry season.

The detailed specifications will be provided by the Engineer, but in general access tracks are expected to have a vehicle running width of no more than 3.5 metres, with geometry that is minimal for the vehicles, machines and loads to be carried.

Additional to temporary access tracks are small areas of land for:

- a vehicle turning area at the tower site;
- a temporary laydown area for construction materials at the tower site; and
- a topsoil storage area near the starting point of the access track.

These must all be kept to the minimum, and must be rented, prepared and rehabilitated in the same way as the access track itself, according to this protocol.

Land access

There will not be permanent land acquisition for tower site access tracks. The Contractor is responsible for negotiating a rental agreement for land for temporary access tracks with the landowner for the period of construction and rehabilitation of the track. The construction and rehabilitation period is likely to be up to three years, so this must be done in compliance with D.07 - Temporary Land Access Procedure in this ESHSMP.

The access permit for temporary land must follow C.5.3 - Protocol for Access to Land Permit in this ESHSMP.

Requirements for compensation for possible losses of livelihoods of landowners are described below.

Mandatory rules

The Contractor must prepare a method statement for discussion with the Engineer's ESP team and subsequent approval if the Engineer considers that adequate care and mitigation will be achieved, including post-construction rehabilitation of the site. The method statement is to be specific to each site and must include a detailed site plan that shows how the required mitigation will be integrated with the engineering works. Use of the track, and tower site excavations and other construction-related work, cannot be started until environmental mitigation measures are in place and verified by the Engineer. The Employer's or Engineer's ESP teams may require subsequent changes to the method statement if the agreed mitigation is found not to be effective.

The following rules apply in all sites.

1. Land rental negotiations must be monitored by the Engineer's ESP team or the RAP Implementation Consultant to ensure that the minimum conditions are met, that a signed contract is in place and the annual fee has been paid and receipted before the Engineer can issue a Temporary Access Permit for Access Tracks under Protocol D.08.
2. Protection of the environment must take precedence over schedules and budgets. This means that work may have to be delayed or become more expensive in order to protect the environment. This is part of the trade-off to allow the use of temporary access tracks. Evaluation, determination, approval, installation, and verification of mitigation measures are all necessary steps prior to starting tower construction, with no exceptions being possible.
3. All access tracks must be removed and the land rehabilitated as soon as the stringing works have been completed. Requests by owners of the land to make a track permanent cannot normally be considered because this would trigger an expensive permitting process that takes at least one year to complete, and would also require permanent land acquisition and upgrading of the track to national standards for village roads. Under special circumstances, at the discretion of the Employer's Environmental Manager and subject to full permitting and mitigation being completed, access tracks may be negotiated to remain in plots immediately bordering a public road.
4. The alignment of the track must be marked out, with the outer edges pegged. This shall be checked and, if acceptable, approved by the Engineer. Tracks must be aligned to avoid the felling of any trees.
5. Tracks must avoid riverine areas unless they are to access tower sites located in riverine areas. In that case, E.07 - Protocol for Tower Construction in Riverine Zones in this ESHSMP must be followed. That protocol also defines what is a riverine zone.
6. Once the alignment and edges of the track are agreed, topsoil shall be removed using an excavator, usually to a depth of 150 to 200 mm. It must then be taken to an approved location for storage. This must be done in accordance with Guideline E.15 - Topsoil Stripping and Stockpiling in this ESHSMP.
7. The track can be smoothed using an excavator, using the tracks to roll the subsoil to form the running surface.
8. If the track crosses a footpath, then the crossing shall be marked using fluorescent flags to warn users of both the track and the path.
9. If the track crosses a drainage line or irrigation channel, then a temporary small pipe culvert must be placed to keep the track dry above the water level. If this needs to be bedded into gravel, then a permeable geotextile membrane (such as Terram) must be used to separate the gravel from the soil. This will both increase stability and ease subsequent restoration.
10. If the track crosses a soft area where vehicles sink into the soil, then a temporary gravel surface must be placed to keep the track usable. This must be placed on top of a permeable geotextile membrane (such as Terram) to separate the gravel from the soil. This will both increase stability and ease subsequent restoration.
11. The Contractor shall propose, and the Engineer approve, the traffic rules to be followed on the track. Only directly project-related vehicles and machines may use the track. The rules must be communicated to all possible drivers.

12. The track shall not be used during the monsoon or following exceptional rainfall (see above).
13. Once the works for which the track was required are complete, it shall be completely restored to the pre-existing condition. This will normally require decompaction of the surface, either by use of a disk harrow or plough behind an agricultural tractor, or by raking with the teeth of an excavator bucket. The stored topsoil is then replaced and very lightly rolled. If it is not bunded khet (rice paddy), then it must be revegetated.
14. If the track has crossed any slopes or water courses, then appropriate bio-engineering must be used in compliance with Guidelines E.18 to E.21 in this ESHSMP.
15. The track must be rehabilitated to the satisfaction of the landowner and the Engineer's ESP team. Works shall not be deemed to be complete until this has been stated in writing by both landowner and Engineer.

Loss of livelihoods

Land that is required for more than six months but is not intended to become a permanent acquisition has an impact on the landowner's ability to continue maintaining their livelihood through inability to use the land for its normal productive use for an extended period of time. The impact applies through both the construction period and the length of time taken to rehabilitate the land to its former productivity. Rehabilitation requires that compaction of soil be addressed and topsoil returned to the site must be of similar quality and productivity to regain the previous level of production. It also includes restoration of existing paths, irrigation works and bunds etc. as were previously in place. Poor quality rehabilitation will require greater time to restore and therefore the contractor will have to extend rental payments until the land is rehabilitated effectively. The Engineer or the Employer may commission independent soil testing or other analyses to verify the success of rehabilitation.

To ensure adequate replacement livelihoods, the Contractor is required to negotiate a rental agreement on the basis of, at the minimum, the crop or tree compensation value rate for all the crops and trees usually produced on the land over the annual cycle, the rate being as determined by the Compensation Fixation Committee for this project. The Contractor must add at a minimum, an additional 10 percent of the crop and tree value to compensate for the nuisance involved in allowing access. The landowner is free to negotiate a higher percentage of the crop and tree rate. The rental agreement will be signed and paid annually, and includes a commitment to rehabilitation in the next non-monsoon period to the previous layout and quality. The rate for crop compensation will be assessed annually and will increase by at least the increase in District rates or the cost price index for that year. The Contractor is required to pay rental for the rehabilitation period according to the above directions and as stated in the Resettlement Policy Framework (as updated).

In the event that the temporary land access by the Contractor prevents the landowner from maintaining their livelihood despite the rental, the situation will be examined on a case by case basis with the household likely to be entered into the project's Livelihood Restoration Programme.

The negotiations will be monitored by the Engineer's ESP team or the RAP Implementation Consultant to ensure that the minimum conditions are met, that a signed contract is in place, and the annual fee paid and receipted before the Engineer will issue a Land Access Permit for Access Roads under Protocol C.52 and 5.3

Damage to vegetation

Plants may only be removed in the exact footprint of the construction works. In areas where earthworks are not required, plants that need to be removed should be cut and the stumps and roots left in the ground: not only does this reduce soil disturbance, but it also helps to restore the site later.

Procedure E.10 – Vegetation Clearance Procedure – must be followed.

Vegetation shall be cleared only by cutting. The use of fire, herbicides or other poisons is not permitted. Vegetation may be cut using either hand or machine tools. The vegetative debris shall be laid down to rot, thereby acting as mulch and helping to mitigate damage to the soil. The debris may be removed to a suitable dump site approved by the Engineer's ESP team.

As soon as a bare area is created by vegetation clearance, appropriate erosion control measures shall be implemented (see below).

Soil erosion prevention and water quality protection

The need to minimise the footprint of construction sites means that the working areas will be constrained. The site layout must be designed carefully as part of the Contractor's method statement to ensure that all protection measures and sediment traps can be accommodated.

Topsoil must be transported away from the work site to storage sites nearby. These must be given adequate protection against erosion and managed in accordance with Guideline E.15 - Topsoil Stripping and Stockpiling in this ESHSMP.

Surface run-off from earthworks and other disturbed ground shall be properly controlled, collected and treated before it is discharged into a water course. Silt traps and check dams of appropriate sizes shall be constructed at all strategic points to control surface run-off. All run-off water shall be diverted through a series of sedimentation basins to remove suspended particles. Entrained sediment shall be collected in these sediment basins. In particular, coarse sediment (sand- and coarse silt-sized particles) must be removed from runoff at the point where it leaves the source of supply. Sedimentation ponds and check dams shall be de-silted at regular intervals, as required to maintain effectiveness.

The following Guidelines in this ESHSMP must be adhered to.

- E.15 - Topsoil Stripping and Stockpiling.
- E.08 - Control of Water Pollution.

Post-construction restoration

Following the completion of construction, the soil and vegetation along every access track must be fully rehabilitated. This means that:

- drainage pipes and gravelled areas must be removed,
- subsoil must be decompacted using a disk harrow or plough behind an agricultural tractor, or by raking with the teeth of an excavator bucket,
- topsoil must be replaced over the surface,
- either the land restored to khet or a complete cover of appropriate vegetation established that matches the surroundings, and
- site inspected and approved in writing by both the landowner and the Engineer's environmental manager.

Because vegetation takes some years to gain its full protective strength, additional small physical protection measures may also be required. These are most likely to include typical works associated with standard bio-engineering measures.

The following Guidelines in this ESHSMP must be adhered to.

- E5.14a - Surface Restoration.
- E5.14b - Topsoil Restoration.
- E5.14c - Selection of Revegetation Techniques for Erosion Prevention, followed by Guidelines E.14d to E.14f as needed.

E.05 Protocol for Construction of Access Tracks to Tower Sites in the Mountains

Background

Where tower construction sites are more than 25 metres from an existing road, contractors may be authorised by the Engineer to construct, use and subsequently remove an access track to bring workers, machines and materials to the construction site.

Definition of temporary access tracks

An access track is a temporary earth road for use only by specified vehicles and machines to gain access to tower construction sites. Drainage, other structures and surfacing gravel are only to be used to avoid damage to the ground and water courses. The tracks are to be used for vehicles and machines only in the dry season.

The detailed specifications will be provided by the Engineer, but in general access tracks are expected to have a vehicle running width of no more than 3.5 metres, with geometry that is minimal for the vehicles, machines and loads to be carried.

Additional to temporary access tracks are small areas of land for:

- a vehicle turning area at the tower site;
- a temporary laydown area for construction materials at the tower site; and
- a topsoil storage area near the starting point of the access track.

These must all be kept to the minimum, and must be rented, prepared and rehabilitated in the same way as the access track itself, according to this protocol.

Land access

There will not be permanent land acquisition for tower site access tracks. The Contractor is responsible for negotiating a rental agreement for land for temporary access tracks with the landowner for the period of construction and rehabilitation of the track. The construction and rehabilitation period is likely to be up to three years, so this must be done in compliance with D.06 - Land Access Procedure in this ESHSMP.

The access permit for temporary land must follow D.07 - Protocol for Access to Temporary Land Permit in this ESHSMP.

Requirements for compensation for possible losses of livelihoods of landowners are described below.

Mandatory rules

The Contractor must prepare a method statement for discussion with the Engineer's ESP team and subsequent approval if the Engineer considers that adequate care and mitigation will be achieved, including post-construction rehabilitation of the site. The method statement is to be specific to each site and must include a detailed site plan that shows how the required mitigation will be integrated with the engineering works. Use of the track, and tower site excavations and other construction-related work, cannot be started until environmental mitigation measures are in place and verified by the Engineer. The Employer's or Engineer's ESP teams may require subsequent changes to the method statement if the agreed mitigation is found not to be effective.

The following rules apply in all sites.

1. Land rental negotiations must be monitored by the Engineer's ESP team or the RAP Implementation Consultant to ensure that the minimum conditions are met, that a signed contract is in place and the annual fee has been paid and receipted before the Engineer can issue a Temporary Access Permit for Access Tracks under Protocol C.5.1c - Protocol for Access to Temporary Land Permit.
2. Protection of the environment must take precedence over schedules and budgets. This means that work may have to be delayed or become more expensive in order to protect the environment. This is part of the trade-off to allow the use of temporary access tracks. Evaluation, determination, approval, installation, and verification of mitigation measures are all necessary steps prior to starting tower construction, with no exceptions being possible.

3. All access tracks must be removed and the land rehabilitated as soon as the stringing works have been completed. Requests by owners of the land to make a track permanent cannot be considered because this would trigger an expensive permitting process that takes at least one year to complete, and would also require permanent land acquisition and upgrading of the track to national standards for village roads.
4. The alignment of the track must be marked out, with the outer edges pegged. This shall be checked and, if acceptable, approved by the Engineer. Tracks must be aligned to avoid the felling of any trees.
5. Tracks must avoid riverine areas unless they are to access tower sites located in riverine areas. In that case, E.07 - Protocol for Tower Construction in Riverine Zones in this ESHSMP must be followed. That protocol also defines what is a riverine zone.
6. Once the alignment and edges of the track are agreed, topsoil shall be removed using an excavator, usually to a depth of 150 to 200 mm. It must then be taken to an approved location for storage. This must be done in accordance with Guideline E.15 - Topsoil Stripping and Stockpiling in this ESHSMP.
7. The track can be smoothed using an excavator, using the tracks to roll the subsoil to form the running surface.
8. If the track crosses a footpath, then the crossing shall be marked using fluorescent flags to warn users of both the track and the path.
9. If the track crosses a drainage line or irrigation channel, then a temporary small pipe culvert must be placed to keep the track dry above the water level. If this needs to be bedded into gravel, then a permeable geotextile membrane (such as Terram) must be used to separate the gravel from the soil. This will both increase stability and ease subsequent restoration.
10. If the track crosses a soft area where vehicles sink into the soil, then a temporary gravel surface and if necessary, underlay formed with boulders or other suitable material, must be placed to keep the track usable. This must be placed on top of a permeable geotextile membrane (such as Terram) to separate the gravel from the soil. This will both increase stability and ease subsequent restoration.
11. The Contractor shall propose, and the Engineer approve, the traffic rules to be followed on the track. Only directly project-related vehicles and machines may use the track. The rules must be communicated to all possible drivers, including placement of hoardings at the start of the track
12. The track shall not be used during the monsoon or following exceptional rainfall (see above).
13. Once the works for which the track was required are complete, it shall be completely restored to the pre-existing condition. This will normally require decompaction of the surface, either by use of a disk harrow or plough behind an agricultural tractor, or by raking with the teeth of an excavator bucket. The stored topsoil is then replaced and very lightly rolled. If it is not bunded khet (rice paddy), then it must be revegetated.
14. If the track has crossed any slopes or water courses, then appropriate bio-engineering must be used in compliance with Guidelines E.18 to E.21 in this ESHSMP.
15. The track must be rehabilitated to the satisfaction of the landowner and the Engineer's ESP team. Works shall not be deemed to be complete until this has been stated in writing by both landowner and Engineer.

Safety considerations

Any track that is to be used to carry people in vehicles must comply with the following specifications.

If four-wheel-drive road vehicles and ordinary motorbikes are to be used, then:

- the running course width must be at least 3.5 metres;
- nowhere may the gradient be more than 25% (1:4);
- if the gradient is greater than 12% (1:8), then all vehicles must be fitted with roll cages;
- the outer edges of bends must be marked with reflective tape;
- there must be no passenger vehicle movements between dusk and dawn;

- drivers must have undergone advanced off-road driver training;
- vehicle access, traffic management and passing protocols must be in place for each section of access track;
- no traffic at all is permitted during the monsoon (i.e. 1 June to 30 September).

If specialist all-terrain tracked or multi-wheel personnel carriers are to be used, then the track specifications may be reviewed accordingly.

Loss of livelihoods

Land that is required for more than six months but is not intended to become a permanent acquisition has an impact on the landowner's ability to continue maintaining their livelihood through inability to use the land for its normal productive use for an extended period of time. The impact applies through both the construction period and the length of time taken to rehabilitate the land to its former productivity. Rehabilitation requires that compaction of soil be addressed and topsoil returned to the site must be of similar quality and productivity to regain the previous level of production. It also includes restoration of existing paths, irrigation works and bunds etc. as were previously in place. Poor quality rehabilitation will require greater time to restore and therefore the contractor will have to extend rental payments until the land is rehabilitated effectively. The Engineer or the Employer may commission independent soil testing or other analyses to verify the success of rehabilitation.

To ensure adequate replacement livelihoods, the Contractor is required to negotiate a rental agreement on the basis of, at the minimum, the crop or tree compensation value rate for all the crops and trees usually produced on the land over the annual cycle, the rate being as determined by the Compensation Fixation Committee for this project. The Contractor must add at a minimum, an additional 10 percent of the crop and tree value to compensate for the nuisance involved in allowing access. The landowner is free to negotiate a higher percentage of the crop and tree rate. The rental agreement will be signed and paid annually, and includes a commitment to rehabilitation in the next non-monsoon period to the previous layout and quality. The rate for crop compensation will be assessed annually and will increase by at least the increase in District rates or the cost price index for that year. The Contractor is required to pay rental for the rehabilitation period according to the above directions and as stated in the Resettlement Policy Framework (as updated) and Resettlement Action Plan.

In the event that the temporary land access by the Contractor prevents the landowner from maintaining their livelihood despite the rental, the situation will be examined on a case by case basis with the household likely to be entered into the project's Livelihood Restoration Programme.

The negotiations will be monitored by the Engineer's ESP team or the RAP Implementation Consultant to ensure that the minimum conditions are met, that a signed contract is in place, and the annual fee paid and receipted before the Engineer will issue a Temporary Access Permit for Access Roads under Protocol C.5.1c.

Damage to vegetation

Plants may only be removed in the exact footprint of the construction works. In areas where earthworks are not required, plants that need to be removed should be cut and the stumps and roots left in the ground: not only does this reduce soil disturbance, but it also helps to restore the site later. If any mature trees or poles need to be removed, the local forest users (whether or not a formal community forestry user group exists in the area) must be consulted regarding distribution of timber and poles and other products, again in accordance with the Resettlement Policy Framework.

Procedure E.10 – Vegetation Clearance Procedure – must be followed.

Vegetation shall be cleared only by cutting. The use of fire, herbicides or other poisons is not permitted. Vegetation may be cut using either hand or machine tools. The vegetative debris shall be laid down to rot, thereby acting as mulch and helping to mitigate damage to the soil. The debris may be removed to a suitable dump site approved by the Engineer's ESP team.

As soon as a bare area is created by vegetation clearance, appropriate erosion control measures shall be implemented (see below).

Soil erosion prevention and water quality protection

The need to minimise the footprint of construction sites means that the working areas will be constrained. The site layout must be designed carefully as part of the Contractor's method statement to ensure that all protection measures and sediment traps can be accommodated.

Topsoil must be transported away from the work site to storage sites nearby. These must be given adequate protection against erosion and managed in accordance with Guideline E.15 - Topsoil Stripping and Stockpiling in this ESHSMP.

Surface run-off from earthworks and other disturbed ground shall be properly controlled, collected and treated before it is discharged into a water course. Silt traps and check dams of appropriate sizes shall be constructed at all strategic points to control surface run-off. All run-off water shall be diverted through a series of sedimentation basins to remove suspended particles. Entrained sediment shall be collected in these sediment basins. In particular, coarse sediment (sand- and coarse silt-sized particles) must be removed from runoff at the point where it leaves the source of supply. Sedimentation ponds and check dams shall be de-silted at regular intervals, as required to maintain effectiveness.

The following Guidelines in this ESHSMP must be adhered to.

- E.15 - Topsoil Stripping and Stockpiling.
- E.08 - Control of Water Pollution.

Post-construction restoration

Track rehabilitation will take at least two years. It will be the contractor's responsibility and must be completed before the end of the DNP. Nurseries must be arranged in advance to provide the materials needed for revegetation.

Any structures are dismantled. An excavator is used to pull the fill material back into its original position from where it was cut, to compact it in place using the bucket, and smooth the surface ready for vegetation works. Full bio-engineering planting is then required, including the planting of trees, of species agreed with the relevant land managers (i.e. land owner, FUG or DFO). Only after all of this has been successfully completed may the track be signed off by the Engineer.

Following the completion of construction, the soil and vegetation along every access track must be fully rehabilitated. This means that:

- drainage pipes and gravelled areas must be removed,
- subsoil must be de-compacted using a disk harrow or plough behind an agricultural tractor, or by raking with the teeth of an excavator bucket,
- topsoil must be replaced over the surface,
- either the land restored to khet or a complete cover of appropriate vegetation established that matches the surroundings, and
- the site inspected and approved in writing by both the landowner and the Engineer's environmental manager.

Because vegetation takes some years to gain its full protective strength, additional small physical protection measures may also be required. These are most likely to include typical works associated with standard bio-engineering measures.

The following Guidelines in this ESHSMP must be adhered to.

- E.16 - Surface Restoration.
- E.17 - Topsoil Restoration.
- E.18 - Selection of Revegetation Techniques for Erosion Prevention, followed by Guidelines E.19 to E.21 as needed.

Examples of temporary access track rehabilitation on steep slopes

These temporary tracks have been closed by pulling the previously excavated soil back in using an excavator, and carefully grading the surface with a layer of topsoil. In the example above, grass slips have just been planted as a standard bio-engineering technique. In the steeper example below, jute netting is being placed on the surface to prevent erosion, and grass slips will be planted through the netting.

Track and works sequencing

It is anticipated that tracks will be created using a small excavator or by labour gangs, in the early part of the dry season in which they will be used. Tower foundations, erection and stringing must be sequenced rapidly, with the intent of allowing the start of rehabilitation before the next monsoon.

Work year	Month	Scheduled works
1	October	Track construction
	November	Track construction
	December	Tower foundation excavations
	January	Tower foundation construction
	February	Tower erection
	March	Complete erection and start cable stringing
	April	Cable stringing
	May	Track rehabilitation – earthworks
	June	Track rehabilitation – earthworks
	July	Track rehabilitation – initial bio-engineering
	August	Track rehabilitation – initial bio-engineering
	September	Track rehabilitation – initial bio-engineering
2	Next Oct to May	Repair any monsoon damage to surfaces and structures
	Next June to Sep	Complete bio-engineering and tree planting
	Next October	Sign-off by Engineer if works are satisfactory

Since the two-year schedule is very tight and does not allow access for the commissioning phase, it is likely that many tracks will need to be managed to allow access over two dry seasons. In this case, the schedule might be as shown below.

Work year	Month	Scheduled works
1	October	Track construction
	November	Track construction
	December	Track construction
	January	Tower foundation excavations
	February	Tower foundation excavation and construction
	March	Tower foundation construction completed
	April	Tower erection
	May	Tower erection
	June	Complete erection; maintain and close access track
	July	Access track closed except for essential maintenance
	August	Access track closed except for essential maintenance
	September	Access track closed except for essential maintenance
2	October	Reinstate access track
	November	Cable stringing
	December	Cable stringing
	January	Cable stringing
	February	Commissioning, energising and testing
	March	Commissioning, energising and testing
	April	Commissioning, energising and testing
	May	Track rehabilitation – earthworks
	June	Track rehabilitation – earthworks
	July	Track rehabilitation – initial bio-engineering
	August	Track rehabilitation – initial bio-engineering
	September	Track rehabilitation – initial bio-engineering
3	Next Oct to May	Repair any monsoon damage to surfaces and structures
	Next June to Sep	Complete bio-engineering and tree planting
	Next October	Sign-off by Engineer if works are satisfactory

E.06 Sourcing of Construction Aggregate

Introduction

Sand, gravel and other construction materials are to be obtained only from sources that have been formally approved in advance by the Engineer and to the extent possible will be existing, licensed quarries operating in accordance with appropriate local government and national regulations.

The Contractor must provide a draft aggregate sourcing plan at least three months in advance of starting extraction. The environmental permits for each proposed source must accompany this draft plan. The Engineer's materials engineer will then check the quality of each location and the Engineer's geomorphologist will review the source locations. The geomorphologist will undertake a full appraisal of the physical environmental consequences of the use of each proposed site and will provide a decision on its suitability: (a) acceptable; (b) acceptable with conditions that must be incorporated in the Contractor's aggregate sourcing plan before it can be approved; or (c) reject it, with reasons. The appraisal by the Engineer's geomorphologist will examine:

- the existing situation in and around the proposed aggregate source;
- the likely consequences of the extraction of the volumes proposed;
- the rehabilitation measures to restore the extraction sites to an acceptable condition, mitigating the environmental damage caused; and
- the distance and quality of road access to the sources.

All aspects of the plan must comply with the conditions of this ESHSMP, particularly E.08 (control of water pollution, E.10 (vegetation clearance procedure), E.15 (topsoil stripping etc) and E.16 to E.21 (site restoration).

In creating its aggregate sourcing plan, a Contractor must address all of the following rules.

1. Aggregate shall be sourced as far as possible from quarries that are already approved and with valid environmental permits. Otherwise local aggregate sources will need to be identified, which should be within 2 km of tower sites that are themselves at least 2 km from an existing motorable road. Such sites may supply up to 500 cubic metres for a single tower.
2. The exact nature and volume of the aggregates to be obtained must be given, in relation to the quarry's annual output.
3. There shall be no clearing of trees.
4. There shall be no clearing of riparian vegetation.
5. Extraction from streams and rivers will normally cause environmental damage at other locations (such as polluted water or channel shifting) and so these sources will normally be rejected as an option by the Engineer's geomorphologist unless significant prevention and rehabilitation measures are proposed.
6. There shall be no opening of new motorised vehicle access.
7. No motorised vehicles are permitted within stream channels.
8. A letter of acceptance must be provided by the chief officer of the municipality.

The sourcing of aggregate from streams and rivers is prohibited within the Chure Conservation Area.

E.07 Protocol for Tower Construction in Riverine Zones

Background

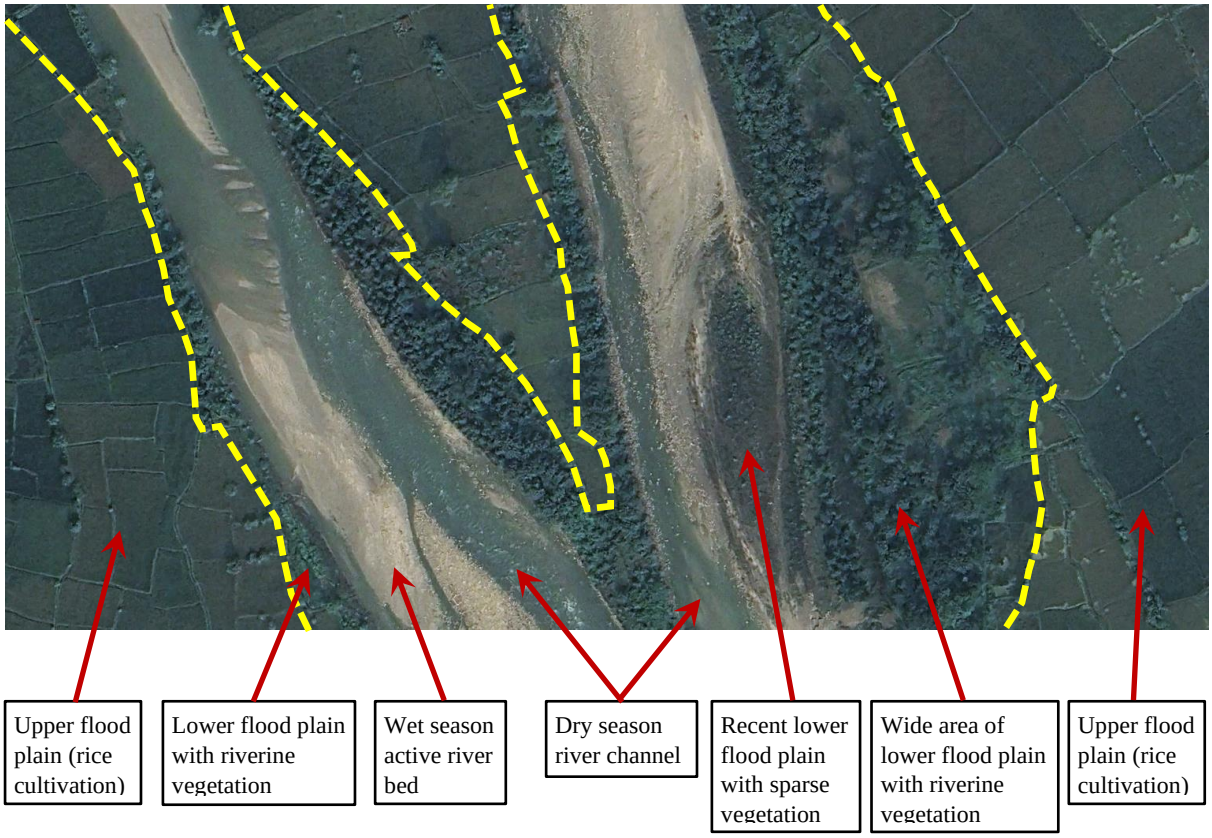
Riverine areas are always sensitive environmental locations. Rivers contain their own biodiversity, and the vegetation on the banks has a wider mix of plant species, giving improved habitats for insects, birds and other animals. Dry river channels and dense riverbank vegetation are often used as cover by larger animals in landscapes with extensive agriculture and habitation. Rivers are also sources of water for communities living downstream, for washing and irrigation.

In general, no project works are permitted in riverine zones. This is a key principle of the Environmental Impact Assessment and a condition of the Environmental Permit for the project.

Notwithstanding this general prohibition on works in riverine areas, however, in some exceptional areas other environmental and social constraints have led to the need for some transmission towers to be located within riverine zones. These have been individually identified and justified. Their construction is dependent on the Contractor fully abiding by the provisions of this procedure.

Definition of riverine zones

A riverine zone consists of the river channels for both the dry season and the wet season, recently altered or flooded areas, and the vegetation along the banks. The parts along the sides of the river channel are also called the riparian zone, being the interface between land and water. In the illustration below, the riverine zones are all of the areas between the dashed lines.



Mandatory rules

Riverine areas may only be used for construction of transmission towers where this has been explicitly agreed by the Engineer and the Employer. No other activities are permitted in riverine areas, other than a temporary access track to an agreed tower site.

The Contractor must prepare a method statement for discussion with the Engineer's ESP team and subsequent approval if the Engineer considers that adequate care and mitigation will be achieved, including post-construction rehabilitation of the site. The method statement is to be specific to each site and must include a detailed site plan that shows how the required mitigation will be integrated with the engineering works. Excavations and other construction-related work cannot be started until environmental mitigation measures are in place. For scheduling purposes, no construction-related works can start until any agreed upon pre-construction mitigation works are installed and verified by the Engineer. The Employer's or Engineer's ESP teams may require subsequent changes to the method statement if the agreed mitigation is found not to be effective.

The following rules apply in all sites.

1. Protection of the riverine environment must take precedence over schedules and budgets. This means that work may have to be delayed or become more expensive in order to protect the riverine environment. This is part of the trade-off to allow construction in these areas. Evaluation, determination, approval, installation, and verification of mitigation measures are all necessary steps prior to construction, with no exceptions being possible.
2. The Engineer's environmental manager shall determine where the Contractor must mark the boundaries of riverine zones on all access tracks to riverine tower construction sites. These marks must be accompanied by clear explanatory signage for the workforce, and will be the basis for determining the locations of different activities.
3. Works in riverine sites may happen only in the dry season (October to May). If work is not complete, it must be stopped and approved protection measures installed to avoid damage through the monsoon, and then the work completed in the next dry season.
4. Works must be halted at any time of year if there is exceptional rainfall for that season. Exceptional rainfall would be of long duration or high intensity, causing erosion, landslides, debris flows or floods in the vicinity of the site.
5. Works must be halted and damage remedied or additional mitigation applied if the Employer's or Engineer's ESP teams identify an instance, or previously unidentified risk, of pollution occurring. The Engineer's environmental manager must sign off the mitigation work before construction can resume.
6. An officer of the Contractor's environmental team must be present and responsible for oversight of activities at all riverine construction sites whenever works are underway to ensure compliance with the approved method statement.
7. A manager of the Engineer's environmental team must monitor every riverine construction site whenever works are underway, at least once per week. This individual shall be empowered to stop the work if there is any failure to abide by the requirement to protect the riverine environment completely.
8. Site camps, storage areas, soil stockpiles and vehicle parking areas shall be on level land outside riverine zones.
9. Toilets and ablution facilities shall be at least 50 metres beyond the edge of any defined riverine areas, but as accessible as possible to the work site. The Contractor shall maintain a zero tolerance policy against urination and defecation by the workforce in Engineer-defined riverine zones.
10. No hazardous materials shall be stored closer than 50 metres from the edge of a riverine zone. This includes all fuels, lubricants, paints, cement, etc. Guideline F.01 must be adhered to.
11. Machines shall only be refuelled at locations more than 50 metres from the edge of an Engineer-defined riverine zone. Guideline F.05 must be adhered to.
12. All machines shall be checked daily for leakages of fuel and oil by the Contractor's environmental officer before they are permitted to enter the riverine zone. All machines must be returned to the parking area outside the riverine zone when work ceases at the end of the day.
13. All earthworks shall be fully protected at all times to ensure that there is no detachment and transport of soil particles by water or wind. For this purpose, the Contractor is expected to make heavy use of geotextiles and other physical barriers and coverings.

14. Every riverine tower site shall be fully rehabilitated following the completion of construction in accordance with the approved method statement. This must be done using a robust combination of physical and bio-engineering measures to ensure full protection before the onset of the next monsoon rains.
15. An officer of the Engineer's environmental team must monitor every riverine construction site at least once per week after rehabilitation work has been completed. The Contractor shall respond to rectify within 48 hours any defects found in the course of this monitoring.

Damage to vegetation

Since riparian vegetation is usually particularly biodiverse, special care must be taken to minimise the damage to it. Plants may only be removed in the exact footprint of the construction works. In areas where excavation is not required, plants that need to be removed should be cut and the stumps and roots left in the ground: not only does this reduce soil disturbance, but it also helps to restore the site later.

Procedure E.10 – Vegetation Clearance Procedure – must be followed.

Vegetation shall be cleared only by cutting. The use of fire, herbicides or other poisons is not permitted. Vegetation may be cut using either hand or machine tools. The vegetative debris shall be laid down to rot, thereby acting as mulch and helping to mitigate damage to the soil. Where clearance is for construction, then the debris may be removed to a suitable dump site approved by the Engineer's ESP team.

As soon as a bare area is created by vegetation clearance, appropriate erosion control measures shall be implemented (see below).

Soil erosion prevention and water quality protection

The need to minimise the footprint of construction sites in riverine zones means that the working areas will be constrained. The site layout must be designed carefully as part of the Contractor's method statement to ensure that all protection measures and sediment traps can be accommodated.

Soil must be transported away from the riverine zone to stockpiles nearby. The stockpiles will be given adequate protection against erosion.

Surface run-off from earthworks and other disturbed ground shall be properly controlled, collected and treated before it is discharged into the water course. Silt traps and check dams of appropriate sizes shall be constructed at all strategic points to control surface run-off. All run-off water shall be diverted through a series of sedimentation basins to remove suspended particles and chemicals as necessary.

Entrained sediment shall be collected in these sediment basins. In particular, coarse sediment (sand- and coarse silt-sized particles) must be removed from runoff at the point where it leaves the source of supply. Coarse sediment can destroy riverine biotic systems that can otherwise thrive close to earthworks sites. Sedimentation ponds and check dams shall be de-silted at regular intervals, as required to maintain effectiveness.

The following Guidelines in this ESHSMP must be adhered to.

- E.15 – Topsoil Stripping and Stockpiling.
- E.08 – Control of Water Pollution.
- E.03 – Constructing and Maintaining Earth Access Trails.

Post-construction restoration

Following the completion of construction, the soil and vegetation at every riverine tower site must be fully rehabilitated. This means that excavations must be filled in, topsoil replaced over the surface and a complete cover of appropriate riparian vegetation established that matches the surroundings. Because vegetation takes some years to gain its full protective strength, additional physical protection measures will also be required in

case of floods. These will include protective walls, barriers and coverings designed to be complementary with the bio-engineering works used to re-establish the vegetation cover.

The following Guidelines in this ESHSMP must be adhered to.

- E5.14a Surface Restoration
- E5.14b Topsoil Restoration
- E5.14c Selection of Revegetation Techniques for Erosion Prevention

E.08 Control of Water Pollution

No person shall discharge or apply any poisonous, toxic, noxious or obstructing matter, radioactive waste or other pollutants unless the discharge of such material is treated to permissible standards as defined in the project's environmental permit.

No person shall:

- Generate and discharge any form of effluent on to land or into any water resource without compliance with an approved Environmental Management Plan and a valid Environmental Certificate;
- Discharge wastewater or effluent off an operational site, which does not meet the water quality requirements stipulated in the appropriate licence for effluent discharge; or
- Discharge into any water resource effluent from a sewage treatment plant, trade or industrial facility without both treatment and a valid effluent discharge license.

It is a safe rule that, in rural Nepal, all surface water courses are used for drinking water supplies at some point during the year.

Prevention of water pollution

Surface run-off from earthworks, waste dumps and other areas shall be properly controlled, collected and treated before discharging into natural water courses. Silt traps and check dams of appropriate sizes shall be constructed at all strategic points to control surface run-off. All run-off water shall be diverted through a series of sedimentation basins to remove suspended particles and chemicals as necessary.

Entrained sediment shall be collected as close to the source as possible. In particular, coarse sediment (sand- and coarse silt-sized particles) should be removed from water courses at the point where they leave the source of supply. Coarse sediment can destroy riverine biotic systems that can otherwise thrive close to earthworks sites.

Sedimentation ponds and check dams shall be de-silted at regular intervals, as required to maintain effectiveness.

Re-vegetation of exposed surfaces shall be done as far as possible in the earthworks and other operational sites, and around all ancillary infrastructure and access tracks. A separate series of guidelines covers these works.

All efforts shall be made to re-use and re-cycle treated effluents to the maximum possible extent in order to achieve zero effluent discharge.

Domestic effluents shall be treated in properly designed oxidation ponds or by any other suitable sewage treatment method. Outfalls should be allowed to discharge into the environment only where the quality standards are met. The Engineer shall be responsible for monitoring this, but may require a contractor to undertake monitoring on its behalf. Where camps are operated by contractors, then the operator is responsible for monitoring outfalls.

Workshops, fuelling stations and other areas handling fuels, lubricants and other hazardous substances shall be subject to special provisions. These are covered in detail by separate guidelines.

Protection and conservation of riparian areas

Riparian land is the area along the banks of rivers and creeks, and edges of swamps, where there is a dynamic complex of plant, animal and micro-organism communities and their non-living environment adjacent to and associated with a watercourse. Although this zone varies, a practical guideline is to take it as occupying 50 metres on each side of a watercourse. In specific conditions, where there is a strong case for a narrower width, this may be reduced to a minimum of 15 metres.

The following activities shall not be permitted on riparian land except as provided in the following two paragraphs:

- Tillage or cultivation;
- Clearing of trees or other vegetation;
- Building of permanent or temporary structures;
- Disposal of any form of waste;
- Excavation of soil or development of borrow pits or quarries; or
- Any other activity that may degrade the water resource.

Where it is essential that tracks or roads must cross the riparian zone, they shall be aligned to cross at right angles, thereby minimising disruption to this valuable habitat. The area cleared for them shall be kept as narrow as possible and special provision shall be made for soil erosion control measures. Culverts shall be installed so that vehicles do not drive through the water.

If any of the above activities must take place within the 50-metre riparian zone, a full environmental management plan must be prepared that demonstrates how any impacts will be mitigated, with control measures put in place before any other site works start.

Riparian zones should be considered as key areas in all work site environmental monitoring. Water quality assessment or the health and diversity of indicator insect species such as dragonflies shall be used to judge the effectiveness of mitigation measures.

Spillage

No person shall wilfully and deliberately allow any substance to spill out into any water resource or on to land where such spillage may contaminate either soil or a body of surface or groundwater.

In the event of accidental spillage where such spillage may contaminate either soil or a body of surface or groundwater, the following actions shall be taken.

- The person responsible for or causing or finding the spilt substance shall immediately inform the Engineer of the accident.
- The Engineer shall take immediate and adequate measures to prevent spread of the spillage and its likely adverse effects to soil and water resources.
- The Engineer shall take measures to notify the public of the spillage and also to cause action to be taken to deal with the spillage.

In this context the Engineer is represented by the Manager responsible for that overall site.

E.09 Procedure for Chance Finds for Cultural Heritage and Archaeological Resources

Introduction

The purpose of the Chance Finds Procedure is to provide clear and comprehensive project-specific response guidelines in the event that previously unconsidered cultural heritage or archaeological resources are encountered during the pre-construction and construction phases of the Nepal Electricity Transmission Project.

This procedure has been drafted taking into consideration applicable Nepalese Legislation and International Best Practice based on International Finance Corporation (IFC) Performance Standards 1, 5, 7 and 8; the 1972 UNESCO Convention on the Protection of World Cultural and Natural Heritage to which Nepal is a signatory; and ICOMOS Guidance on Heritage Impact Assessment.

The IFC Performance Standard 8 on Cultural Heritage (para 8) requires the development of a Chance Finds Procedure as part of this Environmental, Social, Health and Safety Management Plan if the project is in an area where cultural heritage may be expected to be found.

Scope and Objectives of the Procedure

Cultural Heritage and Archaeological Resources include all tangible heritage as listed in Nepal's Ancient Monument Preservation Act, 2013 (1956 AD) and as defined under the IFC Performance Standard 8. These include:

- Monuments;
- Structures having archaeological, paleontological, historical, architectural, or religious significance;
- Works of art;
- Natural sites or natural features (including trees and plants) with cultural values;
- Graves and burial grounds; and
- Archaeological and paleontological finds (scattered or in their original context).

Accordingly, shrines, stupas, temples, other places of worship, trees, *Chautaras*, stones and natural features associated with indigenous community spiritual beliefs are all included.

The Chance Finds Procedure (CFP) has been developed to include measures for impact avoidance and, where prevention is not practicable, mitigation of adverse impacts to be applied to all active sites during the construction and operation phases. The objectives of the CFP is to ensure that any work undertaken in relation to cultural heritage and archaeological resources identified during the construction and operation phases are undertaken in compliance with project policy, national legislation, international best practice and in consideration of the local cultural context and community and stakeholder preferences.

Applicability

The Chance Finds Procedure is to be implemented in the event that previously unknown cultural heritage or archaeological resources are exposed or identified during construction of the transmission line, pylons and substations, or if new land-take results in additional cultural heritage resources becoming adversely impacted by the project.

Chance finds will include all tangible cultural heritage assets which have not previously been identified, claimed by the local communities/authorities or documented and treated during resettlement planning and RAP Implementation. Chance finds may be identified by any member of the project, affected communities or other stakeholders.

The Chance Finds Procedure does not apply to sites or resources which were identified, documented or claimed by PAPs or affected communities during resettlement planning – all such resources should be adequately and conclusively treated prior to commencement of the construction phase in order to minimise undue disturbance of the sites, minimise grievances raised as a result of inadequate treatment, and avoid delays to the construction schedule.

Management Options

All project personnel in managerial or supervisory roles should undergo Chance Find Procedure Training and discussion of the procedure should be included in toolbox talks. All Contractor and Subcontractor personnel involved in excavation works should understand the Chance Finds Procedure and be made aware of their responsibilities in the event that they identify chance finds during their work. All project personnel should be aware of national legislation regarding the removal of archaeological and paleontological artefacts from the project area, and should be familiar with reporting responsibilities and lines of communication in the event that the Chance Finds Procedure is triggered during the construction phase. Dedicated training should be provided to key personnel and HSE tool box meetings should be used for dissemination of information to Contractor and Subcontractor personnel.

Cultural heritage is best protected *in situ*, as this will result in the least damage to the site and minimise disturbance to local community usage of the site. However, it is acknowledged that there may be no technically practicable or financially feasible alternatives to removal of the affected site, especially if the project benefits outweigh anticipated cultural heritage losses.

Outline of Chance Finds Procedure

The Chance Finds Procedure actions are as follows:

1. Stop construction activities immediately after chance finds are believed to have been exposed.
2. Demarcate and secure the site to prevent further damage or loss of finds.
3. Notify the Site Foreman / Supervising Engineer, ESHS personnel and MCA-Nepal. Written notification should be within 24 hours of the find.
4. Undertake consultations with the local communities.
5. Undertake rapid assessment and salvage isolated finds as per the detailed procedure.
6. Notify the relevant authorities, including but not limited to: the Department of Archaeology, the local Police Office and the Ministry of Health and Population (in the case of human remains).
7. Undertake investigative documentation of the site.
8. Assess the significance and importance of the findings.
9. Decide how to handle the finds and mitigate adverse project impacts, in consultation with relevant authorities and the affected community.
10. Undertake mitigation activities.
11. Communicate all decision making and outcomes to relevant stakeholders.
12. Resume construction work once authorisation is provided by the Department of Archaeology and MCA-Nepal.

Roles and Responsibilities

Organisation	Roles and Responsibilities
Department of Archaeology (Ministry of Culture, Tourism and Civil Aviation)	● Provide guidance with regard to Nepalese legislation; ● Provision of experts in case of major or significant finds; ● Participation in decision making processes; ● Monitor and supervise Project activities; ● Onward handling of chance finds of archaeological or paleontological nature.
Palaeontologist	● Provision of expertise in case of finds which are of paleontological nature.
Police Department	● Provision of security in case of significant finds; ● Provision of services if human remains are potentially the result of a crime.
Ministry of Health	● Provide guidance with regard to Nepalese legislation; ● Supervise exhumation, reinterment and transportation of human remains; ● Provide guidance on permitting requirements for relocation of burials; ● Provide guidance on protocols when handling or transporting human remains.
Engineer	● Inform the local community about project activities; ● Establish communication lines with relevant authorities. ● Ensure that management procedures for Chance Finds align with local cultural practices and are agreed with the local communities and PAPs; ● Provide communities and stakeholders the opportunity to participate in decision making processes and are fully informed about management procedures; ● Ensure that all activities are undertaken with Free, Prior and Informed Consent (FPIC) as per Annex C.4.1 to 4; ● Ensure that baseline cultural heritage data is provided to the construction contractor; ● Ensure the construction Contractor's compliance; ● Ensure that all personnel working on site are trained in Chance Finds Procedures; ● Conduct routine inspections of site activities; ● Ensure compliance to the Chance Finds Procedure by all project personnel; ● Address grievances and community concerns as per the approved GRM; ● Update and improve the Chance Finds Procedures according to evaluation results and in response to new information. ● Reporting on monthly, quarterly and annual basis.
Archaeologist (sub-contracted by the Contractor as required)	● Be familiar with all baseline cultural heritage and archaeological data; ● Update the cultural heritage and archaeology inventory throughout the construction phase; ● Be on standby for mobilisation in the event of the Chance Finds Procedure being triggered; ● Undertake watching briefs for all areas of the project which have been identified

Organisation	Roles and Responsibilities
	as having a high likeliness of Chance Finds; ● Undertake watching briefs for all locations where claims of burials have not yet been resolved; ● Undertake archaeological investigations where cluster finds or significant finds have been exposed; ● Liaise with the contractor, client, Department of Archaeology and other relevant parties to determine the best treatment of Chance Finds; ● Oversee rescue and emergency excavations; ● Compile all requisite documentation and ensure transparency in the process of find bagging, labelling, storage and onward possessing. ● Communicate with the client regarding chance finds encountered; ● Compliance monitoring of the Construction Contractor and subcontractors; ● Undertaking monitoring and evaluation, communicating findings to the client and Contractor, flagging shortcomings in the existing Chance Finds Procedure and addressing gaps. ● Reporting on monthly, quarterly and annual basis.
MCA-Nepal ESP on-site Community Assistants	● Communicate with PAP and local communities when chance finds are encountered; ● Consult with PAP to identify the nature of chance finds and to document pre-existing knowledge (if any); ● Identify PAP with claims to chance finds, particularly PAP or communities willing to assume responsibility for burials; ● Facilitate and participate in verification and due diligence procedures; ● Facilitate consultations with PAP regarding relocation procedures;
Contractors and Subcontractors	● Adhere to the Chance Finds Procedure; ● Designate authorised personnel to deal with Chance Finds Procedures; ● Monitor ground disturbances at all times as part of routine supervisory and compliance monitoring activities; ● Stop work upon identification of chance finds; ● Notify the relevant personnel upon identification of chance finds; ● Ensure demarcation and safeguarding of the site where required; ● Complete the Chance Finds Report and gather requisite documentation according to the Chance Finds Procedures. ● Ensure adequate labelling, handling and storage of chance finds; ● Ensure compliance and address non-conformities. ● Register and report grievances and community concerns as per approved GRM. ● Reporting on monthly, quarterly and annual basis.
Project Security Personnel	● Ensure safeguarding of chance finds and implement limited access procedures to demarcated sites; ● Ensure that artefacts are not removed from the site by unauthorised personnel; ● Report all cases of non-compliance or unauthorised activities; ● Ensure protection of Project personnel in the event of community discontent.

Detailed Procedures by Type of Chance Find

The type of chance find encountered dictates the actions required to mitigate project impact. The categories of chance finds are outlined in the table below, followed by the specific detailed procedures for each typology:

Graves and Burial Grounds	Claimed Graves
	Previously unidentified Graves
	Potentially Speculative Graves
Archaeological or Palaeontological Finds	Isolated Finds
	Cluster Finds
Privately or Community-owned/ used heritage resources	Structures (temples, shrines, stupas), Natural sites or features, Trees and plants with cultural value.

Graves and Burial Grounds:

Graves coming under the jurisdiction of Chance Finds fall into three categories:

A. Claimed graves not treated under RAP Implementation which require verification and relocation,
B. Previously unidentified and unclaimed graves which require relocation, and
C. Potentially speculative graves which will require relocation if found to be genuine.

Claimed Graves

These are graves that are visibly marked or are unmarked on the ground surface and which are claimed by Project Affected Persons (PAPs) or other community members. These are most likely to be encountered due to changes in land-take.

Actions to be taken

1. The Cultural Heritage asset inventory should be updated prior to commencement of construction activities.
2. Where claimed graves are identified, the same treatment as used during RAP Implementation should be adhered to. This should entail, at minimum:
    a. Documentation of the site,
    b. Consultations with the PAP and community on relocation preferences (nature of ceremony, expenses anticipated and proposed relocation site etc.),
    c. Verification,
    d. Due diligence (if required),
    e. Compensation and/or financial assistance packages for the grave structure and relocation procedures (if eligible),
    f. Relocation (exhumation and reinterment),
    g. Monitoring and documentation of the individual site relocation and outcomes,
    h. Monitoring and Evaluation of the processes.

Previously Unidentified Graves

These are graves which are unmarked on the ground surface and which have not been previously claimed by PAPs or other community members and, therefore, have not been documented or treated during Resettlement Planning and RAP Implementation. These graves are most likely to be identified during ground breaking and excavation activities, when the first evidence of their existence will be the unanticipated exposure of human remains or burial artefacts.

Actions to be taken

1. Work in the immediate vicinity should be stopped;
2. Site Foreman, Project Manager, HSE Officers & Supervisors should be informed;
3. The burial site should be demarcated and secured;
4. Initial documentation of the site should be provided to the Project Manager and Client, and forwarded to the designated Project archaeologist and Community Liaison Officers (CLOs), including:
    a. Photographic documentation of the excavation,
    b. Photographic documentation of the exposed remains,
    c. Brief description of the burial,
    d. Depth of the burial,
    e. Observed damage as a result of excavation activities.
5. The Project archaeologist should determine the nature of the burial and the likeliness of it being of archaeological significance[8]. If it is of archaeological significance, the burial site should be treated as a cluster find.
6. The CLOs should liaise with PAPs and local communities to obtain more information about the burial (if any is available), and to ascertain whether relatives of the deceased or an interested community can be identified.

[8] The project should undertake consultations with the Department of Archaeology to determine the threshold age for a burial to be considered archaeologically significant. This may vary from 60 to 100 years depending on the cultural context, the nature of the burial and existence of artefacts with the remains, and whether there are relatives of the deceased with verified claims for the burial.

a. If relatives of the deceased who wish to take responsibility for the grave are identified, it should be treated as a claimed grave and relocated accordingly.
b. If relatives of the deceased cannot be identified but the Project-affected community wishes to assume responsibility, the Project should facilitate exhumation and reinterment according to local custom and in accordance with community wishes.
c. If no claimants are found, the Project should assume responsibility, and the grave relocated to a public burial ground or to land provided by the Project for reburial purposes.

In order to mitigate construction delays, work may be continued at a distance of at least 25 metres once the burial site has been demarcated and safeguarded. Further training of project personnel working in the vicinity may be required.

Potentially Speculative Graves

These are graves which were claimed during resettlement planning, but which were subsequently deemed as speculative due to lack of corroborating evidence gathered during Verification and Due Diligence procedures. In scenarios where PAP claims are persisting into the Construction Phase or where grievances against the Project have been lodged concerning inadequate treatment of claimed burials, the claimed sites should be treated as Watching Briefs during ground breaking and excavation activities.

Actions to be taken

1. A complete list of relevant sites should be compiled prior to commencement of the construction phase, and shared with the construction Contractor, MCA-Nepal, ESP-CA and any archaeologist engaged for work on the project.
2. Excavation activities in the vicinity of such sites should be undertaken under watching brief conditions. PAP with claims of graves in that area should be invited to witness the process, along with relevant community leaders.
3. Lack of physical evidence should be documented and PAP satisfaction with the processes undertaken should be verified.
4. Physical evidence, if found, should be subsequently treated as a 'claimed grave' and relocated accordingly.

Archaeological and Palaeontological Finds – Isolated Finds

Fewer than 5 items found in close proximity should be considered an 'isolated find'. Isolated artefacts such as bone fragments, archaeological items or fossils may be exposed during the process of excavation – identified either *in situ* at the sides or base of the excavation, or appearing in spoil heaps.

Actions to be taken:

1. Work in the immediate vicinity should be paused;
2. Site Foreman, ESHS staff and Supervisors should be informed;
3. The item(s) should be carefully retrieved by the Site Foreman or other personnel who have received requisite training;
4. Contextual information should be documented, including:
    a. Position,
    b. Depth of find,
    c. Photographic documentation of the excavation hole and vertical sections,
    d. Photographic documentation of item,
    e. Observed damage as a result of excavation activities
5. The item(s) should be bagged and safely stored;
6. Work on site can commence under watching brief conditions to ascertain whether more artefacts are uncovered.
7. The MCA-Nepal should be informed, and all documentary information provided and forwarded to the designated Project archaeologist for further processing.

Archaeological and Palaeontological Finds – Cluster Finds

Five items or more found in close proximity should be considered a 'cluster find'. They are most likely to be identified *in situ* at the sides or base of the excavation, but first indications may be as isolated finds appearing in spoil heaps.

Actions to be taken:

1. Work in the immediate vicinity should be stopped;
2. Site Foreman, Project Manager, HSE Officers & Supervisors should be informed;
3. The site of the finds should be demarcated, secured and safeguarded against further disturbances and opportunistic thefts (significant chance finds may require an immediate additional security presence);
4. Initial documentation of the site should be provided to the Project Manager and Client, and forwarded to the designated Project archaeologist, including:
    a. Photographic documentation of the excavation hole,
    b. Photographic documentation of the finds,
    c. Brief description of the finds,
    d. Depth of the finds.
    e. Observed damage as a result of excavation activities
5. The Project archaeologist should undertake controlled test pit investigations to assess the extent and nature of the cluster, and liaise with the Project Manager, Client and Department of Archaeology to develop an appropriate response, which may include:
    a. Rescue excavations if removal from site will not compromise contextual data;
    b. Referral to appropriate authorities if identified as a recent human burial;
    c. Referral to a palaeontologist if finds are identified as fossils, especially if they are fossils in a wider undisturbed palaeontological context;

In order to mitigate construction delays, work may be continued at a distance of at least 25 metres once the finds area has been demarcated and safeguarded. Further training of project personnel working in the vicinity may be required.

Privately or Community-owned or Used Heritage Resources

Including structures (temples, shrines and stupas), natural sites or features, and trees and plants with cultural value, these are most likely to be identified prior to commencement of the Construction Phase if changes in land-take result in additional cultural resources being impacted by the Project. It is recommended that the same procedures used during Resettlement Planning and Implementation should be adhered to.

Actions to be taken:

1. Inventory of affected cultural heritage resources should be compiled;
2. Documentation of each resource should be undertaken, including but not limited to:
    a. Photographic documentation
    b. Field sketches
    c. GPS coordinates and GIS mapping
    d. Detailed documentation of site conditions and site usage
    e. Degree of Impact (whether fully or partially affected by the project).
3. Comprehensive consultations with PAP and local community regarding site history, significance, uniqueness and usage;
4. Assessment of anticipated heritage losses as a result of the project;
5. Assessment of management controls – whether project impact can be avoided, and if not, mitigation measures;
6. Consultation with authorities and communities on preferred mitigation options, and identification of relocation sites;
7. Assessment of relocation needs:
8. Compensation and/or financial assistance packages for relocation procedures, and
9. Compensation for loss of business (if eligible),
10. Obtaining of permits and community consent to relocate;
11. Relocation and replication of site;
12. Monitoring and documentation of the individual site relocation and outcomes,
13. Monitoring and Evaluation of the Chance Find Procedure.

Reporting

Reporting mechanisms should be as follows:

- Individual Chance Find Report;
- Chance Find Log Book;

- Investigation and management reports;
- Progress Reports (monthly, quarterly, annually);
- Grievance logs; and
- Site Letters and Non-Compliance Reports.

Monitoring Procedures

Monitoring procedures should include the following:

- Satisfactory implementation of the Chance Finds Procedure;
- Log of Chance Finds;
- Satisfactory mitigation of project impact;
- Log of grievances;
- Log of non-compliances; and
- Satisfactory resolution of grievances and non-compliances.

E.10 Vegetation Clearance Procedure

General

The clearance of vegetation is permitted in certain areas in preparation of earthworks or for access to facilities, only as stated in the EIA and approved by MOFE. The swathe that may be cut is limited to the minimum required for the purpose in hand. In the case of the transmission line right of way (ROW), the swathe is to cover only the width of the legally defined ROW.

No vegetation may be cleared unless it is explicitly covered in the conditions of the relevant Environmental Permit. This may be allowed for in the EIA or the ESHSMP.

Vegetation shall be cleared only by cutting. The use of fire, herbicides or other poisons is not permitted. The use of earth-moving equipment is permitted only at tower sites if the works require the grubbing out of plant roots. Otherwise all roots and stumps shall be left in the ground.

Vegetation may be cut using either hand or machine tools. In all cases, appropriate personal protective equipment shall be used by the workers involved.

The vegetative debris shall be laid down to rot, thereby acting as mulch and helping to mitigate damage to the soil. Where clearance is for construction, then the debris may be removed to a suitable approved dump site. If a bare sloping area is created by vegetation clearance, then appropriate erosion control measures shall be implemented. Separate guidelines are provided to cover this.

Procedure

S. No.	Required mitigation	Person responsible	Action to be implemented	Timing
Pre-construction phase				
1.	Pre-construction surveys shall be carried out prior to clearance to identify breeding, nesting and roosting sites with large congregations of birds or bats. The survey must also assess the potential human wildlife conflict in project site.	Engineer's Environmental Specialist	Pre-construction survey report	3 months prior to construction, at any given time of year.

S. No.	Required mitigation	Person responsible	Action to be implemented	Timing
2.	Vegetation shall be cut and removed by hand. Prohibit using heavy machinery. Roots and stumps must not be disturbed. Leave the smaller trees, shrubs and herbaceous layer intact to maintain the ground cover vegetation. No chemical herbicides are to be used. Fire is prohibited. No access track construction is permitted. These measures are to prevent allowing both invasive species and soil erosion.	Contractors' Site and Environmental Managers	Site clearance plan delineating area prone to invasive species and steep slopes with landslide-prone areas and incorporating any zoning restrictions from district authorities.	3 months prior to site clearance, at any given time of year.
3	Contractor shall provide training to staff and workers on all rules, regulations and information concerning restrictions related to unauthorized clearing of vegetation, catching wildlife and the punishment that can be expected if any staff or worker or other person associated with the project violates rules and regulations.	Contractors' Environmental Managers	Biodiversity induction and training.	Before starting vegetation clearance.
4	Instruct workforce how to minimize human wildlife conflict in the project site and not to take alcohol while working inside the jungle. Provide instruments to divert wild animals from working sites and basic knowledge on potential wildlife risks, appropriate preventive measures and responses in the event of a wildlife encounter, and the treatment of injuries from wildlife attacks, rescuing injured persons and reporting of incidents.	Contractors' Environmental Managers	Biodiversity induction and training.	Before clearance may begin.
Construction phase				
4	No clearing or damage of forests is to occur outside of the designated tree felling area. Clearing vegetation outside of designated areas will be punishable under the relevant laws for clearing or damaging vegetation.	Contractors' Site Managers	Detailed site clearance plan incorporating maps of clearance areas to reduce the accidental clearing. Beside this, provide the list of trees issued by DFO for clearance.	During construction.
5	The planned vegetation clearance area for the construction works shall be clearly identified and marked to avoid accidental clearing.	Contractors' Site, Environmental and Social Safeguards Managers	Detailed site clearance plan – incorporating maps of clearance areas and list of trees issued in tree cutting permit. Trees to be felled clearly marked	Before clearance may begin.

S. No.	Required mitigation	Person responsible	Action to be implemented	Timing
6	Make sure that there is no active nest in every tree before felling. Search the hollows in felled trees for any injured or trapped fauna/birds that may have gone undetected. If there are any, rescue them.	Contractors' Environmental Managers	Management plan on biodiversity habituating in the forest	During Construction
7	Search for indications of wildlife species residing in the clearance site, and relocate individuals prior to clearing.	Contractors' Environmental Managers	Management plan on biodiversity habituating in the forest.	During construction
8	Only cut those trees which are marked, within the time limit issued in permit, Take care while felling the tree so that it would not damage or hang up on another tree. Take precautions and safety measures before felling the tree. · Prohibit unapproved tree clearing. Cutting of trees without a mark is an offence and can be prosecuted by law. If something went wrong, do not hide, but report it to the line manager immediately.	Contractors' Site Managers	Site clearance plan with do's and don'ts. Trees to be felled clearly marked.	During construction.
9	Monitor areas where natural forest has been cleared. Treat the exposed area as soon as possible by planting grasses, shrub and native tree species to stop invasive species growing and gully erosion.	Contractors' Environmental Managers	Invasive species management plan	After clearance.
10	The vegetative debris left after logging shall be laid down to rot or removed to a suitable approved dump site to reduce the fire hazard. Vegetative debris shall not be burnt. Avoid all use of fire and strictly enforce the "no open fire policy" throughout the ROW, with any violation of the policy subjected to penalty.	Contractors' Site Managers	Fire control plan	During clearance.
11.	When clearing within 30 metres of streams and intermittent stream courses, no ground disturbance is permitted.	Contractors' Site and Environmental Managers	Site clearance plan – details of methods.	During clearance.
12.	In community forests, trees shall be cut in the presence of CFUG representatives and logs deposited in accordance with the agreement with the affected CFUG.	Contractors' Site, Environmental and Social Safeguards Managers	As per government regulations and agreements with CFUG.	During clearance.

E.11 Biodiversity Community Engagement Procedure

The Engineer's Environmental Specialist, assisted by the Contractors' Environmental Managers, are to implement the Biodiversity Community Engagement Procedure with all local communities. Its purpose is to discuss issues such as wildlife protection from illegal hunting, uncontrolled forest production collection and illegal logging. This is to occur every six months.

The following measures shall be committed to, as a minimum:

- Continue raising awareness of the conservation value of habitats and species within the project area and surrounds, including any biodiversity offset areas identified at a later stage;
- Encourage local people not to conduct illegal activities and discuss alternatives through proactive community engagement;
- Provide a forum for all communities, including those most vulnerable, to ask questions, express concerns and provide comment;
- Ensure that grievances are appropriately monitored; and
- Update the community on their legal obligations under Nepal Law.

Further details on the procedure to be applied are given in the table below.

Objective	Community access and engagement process
Government empowerment	● If they are identified as local issues of concern, MCA-Nepal is to engage with the local government regarding logging and clearing activities within the project area and surrounds. An MOU is to be prepared with the local government regarding the responsibilities for reporting and enforcing action against illegal activities identified by project staff.
Intelligence gathering	● Engagement with the government and the community as well as outsiders (e.g. poachers, where possible), timber traders, law enforcement officers, forestry officials, truckers and other service providers), to gather information on any illegal activities in the area. ● Visit the local markets where forest products and wild animals are traded. Understand how the illegal wildlife trade and logging value chain work, and who the key players are, to engage or target. The surveys are to be conducted discretely by local people so as to avoid suspicion. Based on the intelligence gathered, targeted campaigns shall be undertaken in conjunction with the government to reduce illegal logging and poaching. ● Map out the information identified above to establish who the key stakeholders are, how they access and use the areas, and how they interact with one another.
Raising community awareness of biodiversity values and managing illegal activities	● Raise awareness of the conservation value of the forests and the surrounding areas through campaigns and workshops, highlighting threatened flora and fauna species. Workshops are to occur on a regular basis (at least every six months). ● All workshops are to be conducted with representatives of all community members (elders, women, men, youth, hunters, fishers etc.). ● All villages within the project area are to be subject to community workshops at least once every year. ● Educate local people not to conduct illegal logging and poaching activities, and discuss the regulatory requirements under Nepalese Law. ● Conduct education sessions in schools at least once per year on biodiversity.
Community empowerment	● Identify people from each community to become volunteers (i.e. people who genuinely want to protect biodiversity), who will pass the conservation messages around the communities.
Fostering community inclusiveness	● Provide a forum for communities to ask questions, express their concerns and provide comments. ● Update local communities on developments within the project that might be relevant to them: e.g. Contractors are to provide felled trees from the project ROW to CFUG/LFUG.

E.12 Wildlife Shepherding Procedure

This procedure is to be used in the event that an area of forest to be cleared is found to have a significant number of wild animals that need to be moved into neighbouring areas of forest. The minimum requirements for Wildlife Shepherding Protocol are detailed in the table below.

All personnel involved must be briefed on the details of this plan and their respective roles before any field activities begin. Personnel will also be equipped with mobile communication devices in the field to ensure that lines of communication are maintained during field activities and that the appropriate persons (e.g. veterinarians, wildlife handlers, etc.) are able to respond to exigencies in a timely manner.

Step	Activity description
General approach to wildlife shepherding (scheduled during daylight hours only - i.e. 8 am to 6 pm)	
1	Installation of barriers (if required), which will function as a drift fence to guide target terrestrial fauna in the intended direction of movement and as a barrier to prevent wildlife displacement onto adjacent roads.
2	Develop a systematic pattern of walking through the site, starting from the furthest point and then gradually moving towards the identified refuge area, in order to shepherd wildlife in an intended direction of movement towards adjacent refuge habitats.
3	In conjunction with (2), the site will be carefully surveyed to check for the presence of target fauna species and any active dens.
4	Site inspection by an ecologist to ensure that no target fauna and active dens remain.
5	Closing of gaps in the barriers (if required) as soon as practicable to prevent target terrestrial fauna from returning to the site.
Note	Steps (2) and (3) to be carried out repeatedly over a course of up to three weeks for a site no larger than twenty hectares.
General approach for target fauna encounters.	
Highly mobile fauna for which a passive shepherding approach is expected to be effective:	
6a	Personnel to remain in place to allow fauna to move on their own accord. Generation of mild human noise disturbance (e.g. talking loudly) may be used to encourage fauna movement. However, no attempt shall be made to capture or handle these species, unless the animal is visibly injured in which case experienced wildlife handlers will carefully capture the animal for immediate veterinary attention. If any individual fauna does not move on its own after sufficient time (i.e. up to one hour) has passed, the area where the individual is located shall be GPS-marked and left overnight to provide additional opportunity for the individual to move on its own accord. Personnel shall return to the GPS-marked location on the following day to inspect the area. This process will be repeated until the individual has moved.
Fauna for which a passive shepherding approach is expected to be unsafe and/or ineffective in guiding the individual fauna to move in an intended direction:	
6b	A capture-and-release approach will be needed to ensure safe relocation of these fauna from the site prior to construction. Experienced wildlife handlers will carefully capture the animal for subsequent assessment and microchipping (where safe and possible) by a veterinarian. Where sensitive fauna and venomous snakes are concerned, their capture shall only be carried out by designated wildlife handlers who have been trained in the appropriate handling techniques.
Arboreal and aerial species.	
Able to continue utilising remnant habitats on the site during construction, and will not be excluded by the installed hoarding:	
7	An ecologist shall inspect the tree for the presence of fauna, inhabited tree hollows, and nests.
8	If the presence of arboreal mammals and herpetofauna, birds and/or bats are detected on the tree, tree felling or transplanting must be postponed until the animal has left the tree on its own accord.
9	In the event that an inhabited tree hollow is identified, tree felling or transplanting must be postponed until the animal has left the hollow on its own accord and the entrance to the hollow has been sealed to prevent re-entry.
10	Tree felling or transplanting shall not occur during the prime breeding season for local avifauna. In any case, if active nests are detected on the tree, nests shall be left undisturbed until nesting activities have been completed (i.e. the young have left the nest). In addition, inactive nests shall be removed to minimize the possibility of a new nesting attempt. Tree felling or transplanting shall occur only when no active nests are present on the tree.
11	Notwithstanding the aforementioned steps, after tree felling has occurred, an ecologist shall thoroughly search the fallen tree for any injured or trapped fauna that may have gone undetected. In the event that injured or trapped fauna are found, immediate veterinary attention shall be administered.

E.13 Injured Wildlife Procedure

The injured wildlife management protocol is to apply in cases where injured wildlife is found within the project area. The necessary actions are listed in the table below.

Event	Action
Upon discovery of an injured animal	● Record the date, time, location, condition of the animal and circumstances concerning the incident, including photographic evidence wherever possible. ● If personnel are not in immediate danger, wait for the animal to move off before continuing work. ● If the animal is in immediate danger or clear distress, assess feasibility of capture depending on the species, size, location and safety of capture to both animal and personnel. ● Alert DFO staff on the incident and arrange a same-day appointment for the transfer of the animal to them.
Preparation for containment	● All staff involved in the containment exercise shall be equipped with a pair of gloves and towel or gunny sack that is appropriately sized to cover the animal. ● A vehicle shall be immediately ready to transport the animal back to the site without delay.
Management of small to medium sized injured animals	● An adequately sized covered box or cage shall be prepared to contain the animal immediately. The bottom of the box or cage shall have towels or rags placed at the bottom to protect the feet of the animals. Use separate boxes for individuals, never place two animals in the same container. ● Approach the animal from behind, slowly and carefully, pausing when needed to let the animal calm down and habituate to human presence. ● When picking the animal up, use a towel to gently wrap around its back (and wings, if a bird or bat) and cover the head. Maintain a low level of noise to avoid further stress to the animal.
Treatment of small to medium sized injured animals	● Pass the animal to the DFO staff. ● If the animal must be kept overnight, place it in a ventilated box with a secure lid. Keep it in a quiet, dark area and do not attempt to feed, handle or release it. Transfer the animal to the forest department staff the following day. ● Discard all boxes used for transporting injured wildlife to avoid the transfer of disease. For cages, clean out thoroughly before re-use. ● All staff involved in the capture of the animal must wash and sterilise their hands immediately upon return from site. ● All clothes worn during the capture shall be washed the same day.
Post-incident	● Follow up with the DFO or veterinarian on condition of animal and date of release. ● Contractor's Environmental Manager to investigate further circumstances of the incident. ● Interview workers on site that day and record their observations. ● Identify potential activities that could have led to animal injury. ● If injury is attributed to project activities, identify corrective actions to avoid future incidents with Process Senior Executive. ● Record actions in a short factual report, for submission to the MCA-Nepal Environmental Specialist. ● Contractor's Site Manager to disseminate actions via email to all staff and share during daily toolbox meetings.

E.14 Guideline for Spoil disposal

However much care is taken to minimise quantities of spoil, it cannot be eliminated altogether. Controlling the disposal of spoil is very important, because it can give rise to a variety of problems, including:

- erosion of the spoil tip itself;
- the smothering or removal of natural vegetation – once stripped of plant and soil cover, slopes usually take three to five years to revegetate, and as many as 10 years on steeper and more sterile slopes;
- instability within the spoil material itself, especially when infiltrated by water;
- overloading and resultant failure of the slope;
- disruption of existing runoff patterns and siltation of water courses and drainage channels;
- disruption to agricultural practices.

Spoil problems can be minimised by taking two steps. The first is to identify those operations that will generate spoil, the places where it will be generated and the quantities involved, no matter how small. The second is to plan for its disposal by designating safe tipping sites.

The Contractor is responsible for designating suitable sites and obtaining the Engineer's approval for them. The criteria for their selection should aim to avoid the problems listed above. The Contractor must ensure that the construction workforce is aware of the restrictions on the disposal of spoil, the location of approved spoil disposal sites and specific requirements for the management of these sites. The Engineer must strictly enforce contract specifications regarding spoil disposal.

Spoil can be either discarded or turned into landfill. The following guidelines must be observed:

- when creating a landfill site for spoil, maximum use must be made of terraces, level ground and spurs;
- if spoil tipping has to be done on steep slopes, areas formed in resistant bedrock must be selected; tipping should result in no more than the removal of vegetation and shallow soil, with negligible slope incision thereafter;
- build many small spoil benches rather than a few large ones, to avoid slope overloading;
- provide a drainage blanket beneath a spoil bench where there is any indication of a spring seepage at or near the spoil site;
- compact spoil benches during construction: while benches cannot be compacted in the formal sense, they can be constructed in definite lifts normally not more than 0.5 m thick, with the top surface of each lift approximately horizontal, as this will allow machines involved in spreading the spoil to track the surface and provide some degree of compaction;
- where spoil benches are constructed on agricultural land, form the tip into a benched profile so that it can eventually be returned to agricultural production; in the meantime, the risers between levels must be protected against erosion by applying vegetation or constructing dry stone walls;
- where the top surface of the bench is large, reduce runoff by providing regular shallow interceptor drains: the slope of these drains should be constant as far as is practicable and should not be so steep as to induce erosion;
- on completion, leave spoil benches in their required shape and plant them with grasses, shrubs and trees to encourage maximum stability and resistance to erosion.

The following is not permitted:

- tipping of spoil into stream and river channels, as the increased sediment load will lead to scour and siltation downstream;
- tipping of spoil on to slopes where road alignments, housing areas or farmland downslope might be affected;
- use of areas of past or active instability and erosion as tip sites;
- the discharge of runoff over the loose front edge of a tip bench during or after construction;
- tipping of spoil in front of engineering structures, where impeded drainage could soften the foundation.

E.15 Topsoil Stripping and Stockpiling

Overview

This guideline provides guidance on the management of topsoil and subsoil in engineering operations. Topsoil is an important resource, both ecologically and economically, since it is the source of all terrestrial life. Topsoil is therefore classed as an asset and must be treated as a living entity. Under no circumstances is topsoil a waste material. Subsoil is an essential foundation to topsoil and where possible should also be saved to aid later rehabilitation.

The recommended sequence for stripping, stockpiling and restoring topsoil from a borrow area or other site, is as follows. The paragraphs below give details on how each step should be undertaken.

1. Delineate excavation area.
2. Delineate topsoil storage area.
3. Complete land access procedure.
4. Construct access tracks.
5. Clear vegetation and dispose.
6. Install drainage and silt traps.
7. Grub roots and stumps.
8. Strip topsoil from the borrow area.
9. Place topsoil on designated storage.
10. Stockpile unusable subsoil if present.
11. Remove approved earth fill to construction site.
12. Replace subsoil if available.
13. Replace topsoil and rehabilitate.
14. Undertake revegetation works to restore habitat.

Field Identification of Topsoil

Topsoil is the darker coloured surface layer that varies in depth depending on location, but in general is 100 to 150 mm in depth. It is the soil layer with the greatest proportion of organic matter (in the form of fine roots, decomposing plant material and microbial animals). In the Nepal forests, the organic carbon component in the surface horizon ranges from 4 to 10 percent, usually with higher levels under better-developed forest. Where there is any leaf litter on the soil surface, this should be considered part of the topsoil. Topsoil depth and quality generally increases from a hilltop to the toe of a slope.

With depth in the soil profile, the material becomes increasingly less weathered and thus of decreasing value as plant-growing material. This is the subsoil. The downward change is often gradual and thus it is a matter of judgement as to where to make the cut-off. However, the subsoil horizon from 150 to 500 or 600 mm contains soil that is of value in restoration, as it contains some organic material and raised nutrient levels, and is weathered to a consistency that will help facilitate later regrowth when it is re-laid as a foundation below the topsoil. Note, however, that lack of cleared land for storage space means that the contractor will not normally need to take subsoil for storage unless it is found between the topsoil and the approved borrow material.

Storage of Topsoil

The location for a soil stockpile shall be in a place where it will not erode, block drainage, or interfere with work on the site. The stockpile location must be selected to avoid steep slopes (gentler than 1:4 to avoid slippage), flood plains and natural channels. It shall be at least 30 metres from a water course, pond or swamp to prevent sedimentation and damage to riparian habitat.

Topsoil should not be stored on another topsoil or subsoil of highly contrasting texture. Sandy topsoil over clay subsoil is a particularly poor combination, especially on slopes: water may creep along the junction between the soil layers and cause the topsoil layer to slip or slough.

Subsoil should not be stored on top of topsoil. If necessary, the topsoil at a stockpile location must be stripped off and the subsoil laid down, before the topsoil is replaced on top of it.

Before any topsoil is stored in a designated area, vegetation must be cut and a full drainage and sediment control system installed.

As far as the terrain allows, storage areas should be gently convex in design so that run-off is managed and does not lead to erosion and instability. The slopes used should be at a maximum angle of 18 to 20º to enable working, and subject to final assessment and sign-off by the authorised engineer to ensure that the slopes are stable in the short and long term.

Where stockpiles are on slopes, the downward slope shall be adapted to retard run-off water and prevent erosion. Erosion control berms and appropriate drainage channels may be used to achieve this. An alternative is to create "moonscape" indentations to retard run-off, placed in a staggered manner to ensure they do not form continuous lines

Management of Topsoil (and Subsoil) Stores

The management of topsoil storage areas shall be determined on an area-by-area basis and an appropriate plan agreed. All storage areas will be in approved locations, with sites prepared as described above. The main management options are as follows.

- Temporary storage of topsoil, with it replaced to site within the same dry season.
- Longer term storage requires management interventions, including revegetation, periodic aeration, erosion controls and other work.
- Initial stabilisation followed by handover for approved use by the landowner under an agreement in line with the Resettlement Action Plan.

Identification of topsoil and subsoil

Topsoil is the darker surface layer of soil. It is usually from the surface to a depth of 150 mm (6 in) or slightly more. It may include decaying plant material on the surface (dead leaves and sticks).

Subsoil is the weathered layer below the topsoil. This almost always extends to 500 mm (20 in) below the surface and sometimes much more. In most of the borrow areas, subsoil will be classed as approved engineering earth fill material and removed to the construction sites.

The illustrations below show typical soil profiles. In all of them, the topsoil layer is visible.

Distinct topsoil 200 mm thick
Subsoil to 600 mm depth
Seasonally waterlogged swamp soil

Distinct topsoil 230 mm thick
Subsoil to 800 mm depth
Well-developed forest soil

Indistinct topsoil 120 mm deep
Subsoil to 1000 mm depth
Iron-rich steep mountain soil

Topsoil stockpile height shall not exceed 1 metre. If space permits, where topsoil is being stockpiled on areas where agriculture will remain active as part of the management plan, then it should be limited in height to 0.5 m to retain topsoil characteristics (significant biological activity really continues only to a depth of 300 mm). Gentle compaction is necessary, but should be as light as possible, such as one pass by a tracked excavator or small bulldozer; but never by a roller or vibrating compactor.

Soil stockpiles shall be protected against erosion and soil loss by temporarily planting or seeding with a locally collected species of grass. This must be done as soon as possible, but only when there is enough moisture in the

soil for germination and growth. In the wet season, no stockpile shall be unprotected for more than 30 days after its formation. While vegetation is becoming established, the stockpile may need additional protection by a silt fence or other sediment barrier on the down-gradient sides.

If stockpiles will not be removed within the same dry season as they were created, they should be stabilised with permanent vegetation to control erosion and weed growth. This will involve the planting of fast-growing pioneer shrubs or trees.

No seeds or plants from sources outside Nepal may be used on any revegetation sites. Invasive plants also must not be used. This is on account of the need to protect the local biodiversity to the greatest extent possible.

Fine-textured topsoil may need aeration periodically if there is a risk of waterlogging and the generation of anaerobic conditions. This can be achieved by turning down the stockpiles once a year. Revegetation may be required after the aeration operations.

E.16 Guideline on Surface Restoration

Before a surface can be stabilised and protective treatments applied, the site must be properly prepared. The surface should be clean and firm, with no loose debris. It must be trimmed to a smooth profile, with no vertical or overhanging areas. The object of trimming is to create a semi-stable slope with an even surface, as a suitable foundation for subsequent works.

Trim slopes to a straight profile, with a slope angle of less than 45°, and as gentle as the terrain allows. Never produce a pronounced convex or concave profile; these are prone to failure starting at a steep point. Trim off steep sections of slope, whether at the top or bottom. In particular, avoid convex profiles with an over-steep lower section, since a small failure at the toe can destabilise the whole slope above. Remove all small protrusions and unstable large rocks. Eradicate indentations that make the surrounding material unstable by trimming back the whole slope around them. If removing indentations would cause an unacceptably large amount of work, excavate them carefully and build a prop wall.

In plan, a trimmed slope does not need to be straight. An irregular plan view is acceptable and, in most cases, reduces costs because protrusions do not need to be removed.

Remove all debris and loose material from the slope surface and toe to an approved tipping site with appropriate bio-engineering to prevent gully erosion. If there is no toe wall, the entire finished slope must consist of undisturbed material.

Where toe walls form the lower extreme of the slopes to be trimmed, you can use the debris for backfilling. Where backfilling is practised, compact the material in layers, 100 to 150 mm thick and sloping back at about 5°, by ramming it thoroughly with tamping irons. This must be done while the material is moist.

Dispose of excess spoils carefully, in an approved tipping site. Just throwing it over the nearest valley side slope is not acceptable. Much slope instability and erosion is caused in this way. Always include adequate provision in your estimates for haulage to an approved safe tipping area.

E.17 Topsoil Restoration

Replacement of Topsoil (and Subsoil)

Before spreading soil back on to a site, erosion and sedimentation control practices such as run-off water diversions, berms, and sediment basins shall be put in place. The slopes and elevations should be graded smooth for the receipt of soil. Slopes steeper than 1v:3h should not normally be considered for re-soiling, but instead should be protected by direct planting with suitable pioneer species.

Topsoil shall be spread evenly over freshly laid subsoil in a layer of 150 to 200 mm depth (or as otherwise approved by the appropriate Engineer representative). When the soil is dry, light compaction shall be provided, such as by one pass by a tracked excavator or small bulldozer. When the soil is moist or wet, then it should be harrowed using standard agricultural implements, or raked by hand, to form a fine tilth. No topsoil operations

shall be undertaken while it is muddy or when the subgrade is saturated. The running of vehicles over newly spread topsoil shall be minimised to avoid excessive compaction.

Where embankments are being constructed (such as part of a permanent drainage system), the slope, ground and climatic conditions may reduce the ability of the topsoil layer to bind well with the subsoil layer. In these situations, offsetting lifts of material to create an uneven surface prior to topsoil placement should be considered.

Where subsoil is available, its use should be considered as part of the rehabilitation process. Where the substrate has the characteristics of subsoil, particularly in terms of allowing root penetration and plant growth (i.e. similar physical and chemical properties to natural subsoil in a similar site), then it may be appropriate only to add topsoil and not to expend energy and resources in re-laying subsoil unnecessarily. Available subsoil may be better retained for the rehabilitation of sites with very poor substrate.

Immediately prior to spreading any available subsoil, the subgrade should be loosened by disking or scarifying to a depth of at least 150 mm to ensure bonding between the layers.

Subsoil shall be distributed uniformly to a minimum compact depth of 500 mm and compaction achieved using a few passes by a tracked machine. No soil shall be spread while it is muddy or when the subgrade is saturated. Any irregularities in the surface shall be corrected that result from stockpiling or other operations, to prevent the formation of depressions or water pockets.

Placement of Topsoil on Engineered Structures

The placement of topsoil on engineered structures shall be at the discretion of the appropriate Engineer representative. In some cases, especially on embankment slopes, it is better to plant vegetation straight on to the earth fill structure rather than to attempt to stabilise a veneer of topsoil. This is because unconsolidated topsoil can become saturated in heavy rain due to the discontinuity below it to a compacted and impermeable substrate; in extreme conditions this can lead to a small mud flow of the topsoil. In some cases topsoil may be specified in porous bags, especially at the toe of a slope, to allow vegetation to grow, while the bags provide temporary stability and protection from scour erosion.

Rehabilitation of Topsoil

Simply replacing topsoil back on top of an altered surface does not constitute rehabilitation. In the best cases, following topsoil placement, the only rehabilitation required is revegetation using planted grasses, as described in the next sub-section, and tending for a period of a few years to allow the processes of nature to aid the rehabilitation process. But in certain cases other work may be needed to ensure that the topsoil returns to a good condition. After stockpiling for periods of more than about six months, the topsoil characteristics will have altered so that only the surface 300 mm or so retains real topsoil characteristics, and the lower 700 mm or so starts to have characteristics more like subsoil.

In many site rehabilitation cases it is difficult to establish the right drainage regime for the soil. Sometimes it may be necessary to alter the compaction or the drainage system to achieve this. Compaction can be reduced by ripping or ploughing the soil, or increased by running machines over it. Frequently the problem lies in the discontinuity between a relatively loose replaced topsoil and the hard substrate below, which does not have the same physical characteristics of naturally occurring subsoil, or the same physical continuity with the topsoil. Therefore, the surface conditions and drainage network in a re-engineered site may need to be quite different from what was there before disturbance.

Compost or manufactured organic soil amendments can be added to topsoil to increase its organic content and assist in rebuilding soil micro-organism populations. Undecomposed organic materials such as wood bark or fibre, grass hay or grain straw should not be mixed into topsoil unless nitrogen fertiliser is included (organic material uses nitrogen to break down and decompose the fibres). Compost derived from livestock or green urban waste (cut brush) is far superior to non-composted manure or wood fibre.

Some borrow areas may be utilised to introduce improved agricultural methods with members of the local communities. If this is done, an agreement may be made to take the area under the control of the livelihoods restoration component of the Resettlement Action Plan before rehabilitation is complete.

Revegetation of Topsoil

All topsoil surfaces must be revegetated as soon as there is enough moisture at the start of the rainy season to allow plant growth. In many cases, the seeds and residual plant parts in the topsoil will grow, giving the initiation of natural revegetation. However, some areas of topsoil require special treatment. These include, but may not be limited to, the following.

- Alongside drains.
- Alongside roads.
- On slopes above water courses.
- On steep slopes.
- Around the crest of cut slopes.

In these locations, intensive revegetation measures are essential. The appropriate Engineer representative will make a specific instruction as to the extent of revegetation on site, but as a general rule, at least four lines of planted grasses are required on all peripheries of topsoil stockpiles and rehabilitated borrow areas.

The use of hydro-seeding or other mechanical applications of seeds or plants is not permitted. This is because abundant native species of grass are available locally, and their planting by hand is an excellent way to increase local employment opportunities. The main revegetation technique is therefore the use of planted grass slips (see appropriate guideline). Other revegetation techniques that may be required are as follows.

- Brush layers, made of hardwood cuttings of certain shrubs or small trees. These can be used to create stronger, more substantial barriers to erosion where run-off tends to be concentrated. This technique is described in a separate guideline below.
- Tree or shrub seedling planting. Plants raised from seed in a nursery are planted on to a site to start the process of restoration of the forest vegetation community. This technique is described in a separate guideline below.

E.18 Selection of Revegetation Techniques for Erosion Prevention

Selection of Technique

Revegetation techniques should normally be used to cover bare soil slopes, to begin the process of restoring the natural habitat, to control soil erosion or to stabilise or prevent shallow landslips (i.e. where the depth to the sliding surface is shallow, up to 0.5 m).

The table below summarises the best available techniques for different situations.

<table>
<tr><th>Location</th><th>Technique</th><th>Advantages</th><th>Disadvantages</th></tr>
<tr><td>Cut slope in soil</td><td rowspan="2">Grass planting in lines, using rooted slips.</td><td rowspan="2">Rapid and complete surface cover.</td><td rowspan="2">Requires a soil slope without too many stones. Slow to establish on hard cut slopes.</td></tr>
<tr><td>Track, terrace or platform edge or shoulder in soil</td></tr>
<tr><td>Fill slopes, embankments and backfill above walls</td><td rowspan="2">Brush layers using hardwood cuttings from trees or shrubs.</td><td rowspan="2">Instant physical barrier that interrupts runoff. Stronger than grass. Often successful on stony debris.</td><td rowspan="2">Can only be installed on slopes of 1V:1.25H or less, on unconsolidated materials.</td></tr>
<tr><td>Small erosion gullies or small seasonal stream channels</td></tr>
<tr><td>Other bare areas</td><td>Tree planting using potted seedlings from a nursery.</td><td>Allows a long term forest mix of trees to be restored.</td><td>Takes a long time to establish a complete cover. Seedlings are vulnerable to grazing for a few years.</td></tr>
</table>

Materials for Revegetation

Grass slips are small sections of a grass plant, made by splitting up a large clump. The stems are cut down to a height of 100 to 200 mm and the roots cut back to 40 to 80 mm. There should be 2 or 3 stems per slip

Hardwood cuttings are taken from the branches of certain types of small trees. They are cut to be between 450 and 600 mm long, and the diameter should be between 20 and 40 mm in diameter. Shoots and leaves are trimmed off.

It is very important that plant materials for revegetation works are kept cool and damp when they are being moved and prepared.

E.19 Revegetation using Planted Grasses

Function. Grass slips (rooted cuttings), rooted stem cuttings or clumps grown from seed are planted in lines on the slope. This form of revegetation uses large clump grasses.

Grasses planted in contour or horizontal lines protect the slope with their roots and, by providing a surface cover, reduce the speed of runoff and catch debris, thereby armouring it.

Grasses planted in diagonal lines protect the slope with their roots and by providing a surface cover, while at the same time helping to drain surface water. They have limited functions of catching debris and draining surface water. The main engineering functions are to armour and reinforce the soil surface, with secondary functions to catch debris and drain moisture. This technique offers the best compromise of the grass line planting systems in many situations.

Sites. Almost any slope less than 50º.

Contour or horizontal lines are used on all slopes less than 35º. Also on steep (35º to 50º) dry sites, where moisture needs to be conserved. They are most widely used on well-drained materials where increased infiltration is unlikely to cause problems. On cultivated slopes, horizontal lines of grass planted at intervals across a field can be used to avoid loss of soil and to help conserve moisture, as a standard soil conservation measure.

Diagonal lines are used on poorly drained materials on steep slopes (35º to 50º) where an increase in infiltration can lead to liquefaction of the soil. It is also useful on damp sites, where moisture needs to be shed.

Timing. Planting work should only be done in the wet season. The slope should be moist when the planting is done. If it does not rain within 24 hours of the work being done, water the plants every day until it does rain. On small sites this may be done by hand but on large sites it will require a water truck and spray cannon.

Spacing of plants. Line spacing depends largely on the steepness of the slope.

- Within rows: plants at 100-mm centres.
- Row spacings: rows at 500-mm centres for diagonal lines;
  for contour lines:
  - slope < 30º: 1000 mm;
  - slope 30-45º: 500 mm;
  - slope > 45º: 300 mm.

Materials. Grass slips are small sections of a grass plant, made by splitting up a large clump. The stems are cut down to a height of 100 to 200 mm and the roots cut back to 40 to 80 mm. There should be 2 or 3 stems per slip. The clumps must be obtained locally (i.e. from similar terrain within 15 km of the planting site) where their loss will not cause soil erosion to start. The source location should have similar environmental characteristics (altitude and soil particularly) to the destination site. The material must be between 6 and 18 months old. Grass clumps must be dug up and brought to site on the same day that the slips are made and planted, and kept cool and moist.

Construction. Prepare the site well in advance of planting. Slopes should be trimmed to an even grade. Trimming should achieve a slope that meets the appropriate design for the material. If there is no design, it should be cut or finished with a straight profile, without undulations that give over-steep portions that are steeper than the grade appropriate for the material.

After slope trimming, remove all debris and either remove or fill in surface irregularities so that there is nowhere for erosion to start. If the site is on backfill material, it should be thoroughly compacted, preferably when moist.

Always start grass planting at the top of the slope and work downwards.

Mark out the lines with string, using a tape measure and spirit level. Make sure the lines run exactly as required by the specification.

Split the grass plants out to give the maximum planting material. Trim off long roots and cut the shoots off at about 100-mm above ground level. Wrap the plants in damp hessian to keep them moist until they are planted.

With a planting bar (typically a 500-mm section of re-bar with a flattened end), make a hole just big enough for the roots. Place the grass into the hole, taking care not to tangle the roots or have them curved back to the surface. Fill the soil in around them, firming it gently with your fingers. Take care to avoid leaving an air pocket by the roots.
If it looks dry and there is no prospect of rain for a day or two, consider watering the plants by hand.

Example illustration. Grass slips are planted in lines across the slope. The best results usually come from lines that are at 45º to the maximum slope. Start from the top and work downwards.

Mark out the lines on the slope and then plant the grass slips to the original depth and gently firm the soil back around them.

Note that this is an old picture, taken before the days of personal protective equipment usage.

E.20 Revegetation using Hardwood Cuttings (Brush Layers)

Function. Woody (or hardwood) cuttings are laid in lines across the slope, usually following the contour. Brush layers protect and reinforce a slope in weak soil. They catch debris and provide a strong and low-cost barrier to erosion, especially on debris slopes, however loose.

Sites. This technique can be used on a wide range of sites up to about 45º. It is particularly effective on debris sites, fill slopes and high embankments.

Timing. Planting work should only be done in the wet season. The slope should be moist when the planting is done. If it does not rain within 24 hours of the work being done, water the plants by hand every day until it does rain.

Spacing. Spacing between brush layers depends on the steepness of the slope. The following spaces should be used.

- Slope less than 30º 2-m interval;
- Slope 30 to 45º 1-m interval.

Within the brush layers, cuttings should be at 50 mm centres, in the double layer described below.

Materials. Cuttings made from woody material of shrubs or trees that coppice well. They must be obtained locally (i.e. within 3 km of the planting site). The material must be between 6 and 18 months old. Cuttings shall be 20 to 40 mm in diameter and 450 to 600 mm long. When taking the cuttings, cut the top at right angles to the stem and the bottom at 45º to make it clear as to which way they should be inserted. Cuttings must be taken the same day that they are to be planted, and kept cool and moist.

Construction. Prepare the site well in advance of planting. Slopes should be trimmed to an even grade. Trimming should achieve a slope that meets the appropriate design for the material. If there is no design, it should be cut or finished with a straight profile, without undulations that give over-steep portions that are steeper than the grade appropriate for the material.

After slope trimming, remove all debris and either remove or fill in surface irregularities so that there is nowhere for erosion to start. If the site is on backfill material, it should be thoroughly compacted, preferably when moist. Using string, mark the lines to be planted, starting 500 mm from the base of the slope.

Always install brush layers from the bottom of the slope, and work upwards. Form a small terrace, with a 20% fall back into the slope. The terrace should be 400 mm wide. If you are brush layering a gravel-filled road embankment you should lay a 50-mm thick layer of soil along this terrace to improve rooting conditions.

Lay the first layer of cuttings along the terrace, with a 50-mm interval between the cuttings. Leave at least one bud and up to 1/3 of the cuttings sticking beyond the terrace edge and the rest inside. The branch growing tips should point towards the outside of the terrace.

Lay a 20 mm-thick layer of soil in between the cuttings to provide a loose cushion.

Lay a second layer of cuttings on top of this, staggered with the first layer. On a gravel-filled embankment slope lay an 80-mm layer of soil over the cuttings before you do any backfilling.

Partly backfill the terrace with the excavated materials. This should not be more than 50 mm thick.

Mark a line 1 metre above the first brush layer and set the string for the next layer.

Repeat the process. As the next terrace is cut, always fill the lower bench with the material excavated from above and compact it reasonably well by gentle foot pressure.

Good site supervision is essential to ensure that lines run along the contours and do not concentrate runoff; also to make sure that cuttings are not allowed to dry in the sun. Well-buried cuttings have a higher survival rate.

Example illustration. Mark out horizontal lines every 2 metres down the slope. Start from the bottom and work upwards. Dig shallow trenches along the lines, 350 to 450 mm wide.

Lay the cuttings across the trenches with the bottom inwards and 80 to 100 mm of the top protruding from the slope. The cuttings should be 50 mm apart. Place a small amount of soil over the cuttings and then lay another line of cuttings. Replace all the soil and firm it down gently.

E.21 Revegetation using Shrub and Tree Seedlings

Function. Shrubs or trees are planted at regular intervals on a bare area of soil. As they grow, they create a dense network of roots in the soil, helping to reinforce it against erosion or mass failure. It helps to re-establish a vegetation cover on disturbed areas.

Sites. This method can be used without adverse effects on almost any slope up to 30º. With care, it can be used on slopes between 30º and 45º. It can be used on any material and site other than bare rock.

Timing. Planting work should only be done in the wet season. The slope should be moist when the planting is done. If it does not rain within 24 hours of the work being done, water the plants by hand every day until it does rain.

Spacing. The spacing of plants is important. The main considerations are cost and the speed with which a full cover is required. In typical forestry sites, a spacing of 2 × 1 metres is normal, requiring 2,500 plants per hectare. However, in revegetation sites a spacing of 1 × 1 metre is usually necessary, requiring 10,000 plants per hectare. Plants should be planted in off-set rows unless a different pattern is needed for specific erosion control or landscaping effects.

Construction. Prepare the site well in advance of planting. Remove all debris and remove or fill surface irregularities. If the site is on backfill material, thoroughly compact it, preferably when moist. Cut all weeds.

If possible, dig pits for the shrubs or trees in advance of the planting programme, but refill them the same day. Pits should be 300-mm deep and 300-mm in diameter if this is possible without causing excessive damage to the slope.

When the ground is wet enough to support reasonable growth, plant out good quality seedlings from a nursery. The bigger the hole made, the better it is for the plant; but there must be a compromise between helping the plant and avoiding excessive disturbance to the slope.

Carefully remove the pot. If it is a polythene bag, do this by slicing it down the side with a razor blade. Take care not to cut the roots.

Plant the seedling in the pit, filling the soil carefully around the cylinder of roots and soil from the pot. Ensure there are no cavities. Firm the soil all around the seedling with gentle foot pressure.

If available, mix a few handfuls of well-rotted compost with the soil around the roots when you are backfilling the hole. Remove any weeds around the plant. Add mulch around the seedling, but with a slight gap so that it does not touch the stem.

Main advantages. Planting shrubs and trees reinforces and restores a slope by establishing a community of larger plants.

Main limitations. Seedlings take about 5 years (or more) to provide a canopy, produce useful materials or contribute significantly to slope strengthening. Care and protection are required in the first three years.

ANNEX F: HAZARDOUS MATERIALS AND WASTE MANAGEMENT GUIDELINES

F.01 Storage, Dispensing and Disposal of Hazardous Materials

The Contractor shall take full responsibility for the use and effects of any hazardous materials that are required for operations that are part of the project. The Contractor is further responsible for complying with the Engineer's policies and procedures as may from time to time be communicated, and will ensure that all aspects of the spill clean-up plan are followed in the event of a spill (see appropriate guideline).

All materials that are potentially hazardous to the environment must be stored or disposed of in accordance with this guideline. Hazardous materials include, but are not limited to, substances such as fuels, lubricants, paints, preservatives, pesticides, explosives, cement, lime, slurry clays, bentonite, catalysts or other chemicals, in solid or liquid form, or sewage and foul waste water.

Approval by the Engineer for the use, storage and disposal of hazardous materials shall not reduce the contractor's responsibility to prevent all leaks and spillages, nor his liability to remedy the damages which may be caused should such incidents occur.

Prevention. Every effort will be made to prevent spills and leaks of any kind. All hazardous materials will be stored in appropriate ways, in line with international safety practices. All operators and supervisors will be trained in appropriate inspection procedures and checks. All problems detected during inspection must be passed on to the relevant superior officer. Appropriate repairs will be made immediately.

Storage. Hazardous materials shall be stored at least 400 metres from the sea, a water course, spring, swamp, drain or well, and at least 400 metres from a dwelling. Storage areas shall have barriers and impervious surfaces preventing leakages of spilt material outside the storage area or into the underlying soils. They shall be protected from rainfall and secure against intrusion by people other than the Contractor's personnel.

Fuelling operations. Fuel tanks will be bunded: i.e. there must be secondary containment for the full capacity of the tank in the event of a leak from the tank. A trained attendant will always be in control of fuelling nozzles during refuelling operations. Designated fuelling areas will be bunded (diked) and lined to capture any unexpected releases of fuel. Oil and lubricant dispensing drums will have spill containment trays and liners, or both, to catch and contain material.

Disposal. All used oils, lubricants, solvents, and filters will be recycled whenever possible. Where excess quantities of a hazardous material need to be disposed of, then the contractor shall prepare a disposal plan and seek the approval of the Engineer before implementing it. In general, hazardous solids that need to be disposed shall be buried in a location proposed by the Contractor and approved by the Engineer. Disposal sites must be situated at least 400 metres from any dwelling and at least 400 metres from a water body or water course. They should not be on cultivated land. Wherever possible, they should be on a permeable but not sandy soil. Holes shall be a minimum of 2 metres deep when first excavated and all materials must be buried under at least 1 metre of soil.

Sewage disposal. Sewage and foul waste water shall be disposed into a covered underground septic tank. If this is a permanent feature, then it shall have an underground soakaway so that water does not seep on to the surface. All parts of the system shall be at least 100 metres from a water body or water course. The contractor shall present his plans for such facilities to the Engineer for approval prior to their implementation.

Fuel contamination of water: Where there is a significant risk of water becoming contaminated with any form of fuel, such as in port areas, then appropriate containment equipment (e.g. floating bunds or barriers, absorbent pads etc.) will be kept in readiness at fuel dispensing areas to assist in cleaning up any spills that may occur.

Cleaning up spills. In the event of a spill or release of any material, the spill will be stopped and the incident reported to the nearest representative of the Engineer. The substance will then be cleaned up immediately, disposed of in an approved manner and the contaminated environment cleaned to the satisfaction of the Engineer. A separate guideline covers this in detail.

F.02 Spill Response and Cleaning-up of Pollution by Hazardous Materials

Planning for controlling hazardous material spills

This guideline covers the action to be taken in the event of the leakage or spillage of any environmentally hazardous material, such as fuel, oil, chemicals of any kind, or drilling slurry, into either a water course or standing water body, or into soil. It contains the minimum details that must be included in spill clean-up plans of all contractors to the Engineer, and any subcontractors that may be engaged by the contractors. Before bringing any hazardous materials to the site, the contractor must prepare a spill clean-up plan in accordance with this guideline and gain the approval of the Engineer.

Every Contractor must create and implement a comprehensive Spill Prevention and Response Plan. This will clearly outline the following control procedures.

- Provision of appropriate containment for any fuel, lubricants, paints or other hazardous materials, including secondary containment (i.e. bunding) around any storage tanks.
- Prohibition of any construction equipment and vehicles from being parked or refuelled, and hazardous material storage, within 50 metres of any streams.
- Provision of manufacturer-recommended maintenance requirements for all equipment and vehicles.
- Detailing of the maintenance and monitoring requirements for storage tanks and vehicles to check for leaks on a regular basis.
- Requirement to minimise the use of hazardous material as far as possible in the construction works, or substitute hazardous materials with non-hazardous or less hazardous options.
- Detailing of good housekeeping procedures to store hazardous materials in accordance with their hazard category and establish an inventory of them, with detailed records of daily or weekly use, sites of use and any hazardous material which remains in storage.
- Outline training requirements for vehicle drivers and equipment operators on effective chemical handling and storage to minimise the risk of spill or leak events.

The purpose of a spill clean-up plan is to provide guidelines to prevent environmental contamination, and the procedures to be followed should hazardous materials enter the environment. It applies to all working areas of the project.

The contractor must prepare on-site spill clean-up plans for all hazardous materials to be used on the site. This is a regulatory requirement of the Government of Nepal, and the minimum details that must be in the plan are as follows: (a) how incidents will be contained and controlled so as to minimise the effects and to limit danger to persons, the environment and property; (b) how the necessary measures will be implemented to protect people and the environment; (c) a description of the actions that will be taken to control the conditions and to limit their consequences, including a description of the safety equipment and resources available; and (d) arrangements for training staff in the duties they will be expected to perform. The emergency plan shall be simple and straightforward.

The following principles must apply in the plan: (a) the source of the leak or spill must be stopped immediately it is discovered; (b) the alarm must be raised throughout the site; (c) work on the site must be stopped and all available resources directed into resolving the problem; (d) emergency measures must be taken to contain all remaining material; (e) where appropriate, measures must be taken to neutralise hazardous substances; (e) the Engineer representative shall be informed immediately; and (f) site-specific and material-specific details will be given for the disposal of contaminated soil and water, and mitigation of the damage caused.

The contractor shall ensure that all site supervision staff are aware of the plan and capable of implementing it. In the event of a leak or spillage, the contractor shall bear all liability whether the plan is implemented or not. Spill response procedure: Every spill clean-up plan must contain, as a minimum, details of the following emergency procedures:

- The person who discovers any spill must notify fellow workers and inform the supervisor that a spill has occurred. If anyone is injured or in danger, they must be rescued if it is safe to do so, and appropriate rescue and medical assistance called if required. All site staff must be informed if there is a risk of fire or explosion, or of a collapse of infrastructure, and in these cases all unnecessary personnel must be evacuated to a safe location.
- All staff will react promptly to all spills, no matter how insignificant they may appear. Whatever resources are available will be diverted immediately to assist in resolving the spill.

Action to resolve leaks and spills

The area surrounding the spill will be secured and contained to minimise additional contamination, for example by building an earth bund. Emergency containment should be started as soon as possible. This will give time for a full pollution-control strategy to be designed, agreed and implemented.

In the event that an accidental leak or spill of fuel, lubricants, paints, chemicals or chemical waste takes place, the following process must be undertaken.

- The person who identifies the leak or spill shall immediately check if anyone is injured and stop all work on the site.
- They must then inform the Contractor's Site Manager and Environmental Manager.
- The Site Manager shall ensure that any injured persons are treated.
- The Site Manager and Environmental Manager must assess the nature of the substance that has spilt or leaked.
- If the incident poses a potential risk of serious environmental pollution (e.g. leakages into nearby water bodies which are used for drinking water or irrigation), the Environmental Manager shall immediately notify MCA-Nepal.
- In such cases, the Contractor shall take immediate action to stop the spill or leak and divert it to a nearby non-sensitive area.
- The Contractor shall arrange for maintenance staff, with appropriate protective clothing, to clean up the spill. This should be done using the Contractor's spill kit, which must be provided at each site where hazardous substances are present. If this is not enough, then it may be achieved through covering the area with sawdust or rice husks, or containing it with sandbags (if the quantity is large); and using a shovel to remove the topsoil.
- The ESHS staff shall ensure that the processes for reporting spills and cleaning up the damage are properly followed. The Contractor shall prepare a report describing the root cause analysis for the spill or incident and the remedial action that was taken, the consequences and damage caused, and the proposed corrective actions. The incident report shall be submitted via the Engineer to MCA-Nepal for review and shall be maintained in the records.
- Spills must not be flushed to local surface drainage systems or streams. Instead, government approved clean-up and disposal procedures shall be carried out.
- All site management and ESHS personnel shall receive training arranged by every Contractor on emergency spill procedures, so that they are fully aware of the various potential emergency situations associated with construction activities and the corresponding response procedures to be applied.

The Engineer's representative will be notified immediately if any spill or release occurs, however small. As much information as possible should be provided about the spill location, type of material, approximate quantity, and extent of damage.

F.03 Guidance Rules for the Use of Sulphur Hexafluoride

Strict procedures for the transport, storage, handling and use of transformers filled with sulphur hexafluoride (SF_6) must be prepared by the substation Contractors, approved by the Engineer and MCA-Nepal, and followed at all times.

Guidance rules for the use of transformers filled with SF_6 are as follows.

- Do not drop or roll SF_6 cylinders.
- Do not apply direct heat to cylinders.
- Do not allow cylinder temperature to exceed 50°C.
- Do not store cylinders in direct sunlight.
- Store cylinders with the valve cap firmly in place
- Use a blanket heater or submerse in warm water to facilitate the transfer of SF_6 gas.
- Do not use an open fire for this purpose.
- Do not invert cylinders while removing SF_6.
- Use an appropriate fill hose with a proper regulator or relief device when filling from a cylinder.
- Weigh and document SF_6 gas usage every time it is added or removed from equipment, regardless of amount.
- Use a mass flow controller or weigh scale for this purpose.

- Do not rely on pressure differential calculations
- Locate and repair all leaks on equipment: leak detection tools are readily available, such as halogen leak detectors and camera detectors, which do not require an outage; and soap solutions, which may require an outage, depending on location.
- Keep hoses and equipment sealed and capped.
- Use care when connecting hoses to a SF_6 source so as to not let air into the system.
- After the handling procedure is completed, test for moisture and purity to verify the integrity of the SF_6 gas.
- A vacuum of <1 torr must be held for 1 hour. Check with specific manufacturer for their equipment specification.
- Do not fill an asset with SF_6 that has not been evacuated.
- SF_6 must be filtered for decomposition products.
- Use a multi-gas SF_6 decomposition analyser that tests for purity, moisture and acids to address safety concerns.
- Do not intentionally "sniff" SF_6 to check for a faulted condition.
- SF_6 must be reclaimed – do not vent it to the atmosphere.
- Moisture in SF_6, combined with switching, could produce harmful acids. Perform routine moisture measurements.

F.04 Management and Use of Explosives at Tower Sites or in Quarries

General principle

It is expected that any use of explosives by the ETP will be undertaken by or in close collaboration with the Nepal Army. In that case, the Nepal Army's guidance shall be followed. If a Contractor is officially permitted to use explosives, then this guideline shall be followed.

Meanings of terms

In this guideline, the following meanings shall apply.

(a) "Operator" in relation to a site where blasting is taking place means the person in overall control of the working of the quarry.
(b) "Shot" means a single shot or a series of shots fired as part of one blast.
(c) "Shotfirer" means a person appointed to be responsible for shotfiring operations.
(d) "Shotfiring operations" include:
    (i) checking to ensure that the blasting specification is still appropriate for the site conditions at the time the blasting is to take place;
    (ii) mixing explosives;
    (iii) priming a cartridge;
    (iv) charging and stemming a shot hole;
    (v) linking or connecting a round of shots;
    (vi) withdrawal and sheltering of persons;
    (vii) inspecting and testing a shotfiring circuit;
    (viii) firing a shot; and
    (ix) checking for misfires.

Transport and storage of explosives

Explosives shall be transported in escorted convoys, in accordance with all prevailing transport and safety rules. Explosives shall be stored in locked shipping containers in a secure compound sealed from the rest of the quarry site, and with permanent guards to ensure no unauthorised access. Separate containers shall be used for different components (detonators, fuses, charges etc.) and shall be placed at least 10 metres apart with earthen bunds in between, with strict guidance and supervision by the Nepal Army.

Clearance of the site and safety zone

1. The contractor shall not permit any blasting to take place without a 500-metre safety zone cleared around the site. This zone shall be cleared of people, structures and all other infrastructure.
2. Warning notices shall be posted around the site, giving at least 24 hours warning of a blast.
3. The Operator shall notify the CLO in good time to allow deployment of its staff at least one week before a

blast or series of blasts, to prepare communities for the blasting and to notify them of the times of blast(s). The signalling system shall also be explained.

4. A siren shall be sounded 30 minutes, 10 minutes, 5 minutes and 1 minute before a blast takes place. The siren shall be loud enough to be heard clearly throughout the site and safety zone. This shall include persons operating machines or required to use ear protection.
5. Where farms occur within the 500-metre safety zone, patrols shall be sent out to ensure they are cleared of people in good time. The warning signal sequence for the blast shall not be started until the patrols have reported that the farms are clear to the best of their knowledge and that they themselves are in places of safety.
6. Where a footpath runs into the safety zone, guards shall be posted at least one hour before the blast to prevent people from entering the safety zone.
7. The site is to be cleared of personnel as soon as the first warning siren is sounded.

Operator's duties

In general, the handling and use of explosives will be done by the Nepal Army and under its guidance. In such circumstances, the Nepal Army's procedures should be followed where they diverge from these.

(a) The operator shall:
  (i) ensure, so far as is reasonably practicable, that all explosives are stored, transported and used safely and securely;
  (ii) appoint one or more competent individuals to organise and supervise all work involving the use of explosives ("the Explosives Supervisor");
  (iii) ensure that at no time is there more than one person acting as the Explosives Supervisor at the site; and
  (iv) keep a copy of the written statement of duties of the person or persons appointed under paragraph (a) (ii) for at least twelve months after the date on which the appointment ceased to have effect.

(b) It shall be the duty of the operator to ensure that:
  (i) there are suitable and sufficient written rules and procedures for:
    - shotfiring operations;
    - appointing shotfirers and storekeepers;
    - authorising other persons who will be involved with the storage, transport or use of explosives;
    - dealing with misfires; and
    - ensuring, so far as is reasonably practicable, that such rules and procedures are complied with;
  (ii) an adequate written specification (whether produced by or for the operator) is prepared for each shotfiring operation to ensure, so far as is reasonably practicable, that when such firing occurs it will not give rise to danger; and
  (iii) a copy of the specification referred to in sub-paragraph (b) is given to any person upon whom it imposes duties.

(c) The operator shall ensure that operations involving the storage, transport or use of explosives are carried out by
  (i) a duly authorised and competent person; or
  (ii) a trainee under the close supervision of a duly authorised and competent person.

(d) The operator shall ensure that:
  (i) such facilities and equipment as are necessary to enable shotfiring operations to be carried out safely are provided;
  (ii) any vehicle which is provided for use in relation to shotfiring operations is so marked as to be readily identifiable from a distance;
  (iii) detonators are stored in separate containers from other explosives; and
  (iv) explosives are kept at all times either in a locked explosives store or under the constant supervision of a suitable person.

(e) The operator shall ensure, so far as is reasonably practicable, that each shotfiring operation is carried out safely and in accordance with the rules required to be made in pursuance of paragraph (b)(i) and any specification required to be prepared in pursuance of paragraph (b)(ii).

Supervision of shotfiring and records of appointment

(a) The operator shall take all reasonable steps to ensure that:
  (i) a trainee shotfirer does not fire shots and is not required to fire shots, except when he is under the close personal supervision of a shotfirer, until the operator is satisfied that he has completed a suitable period of training and has appropriate practical experience; and
  (ii) all shotfiring operations are carried out under the close personal supervision of the shotfirer.

(b) The operator shall ensure that a record of the appointment of any shotfirer or trainee shotfirer is kept at a suitable place until three years after that shotfirer's employment or trainee shotfirer's employment ends.

Shotfirer's duties

Before a shot is fired, a shotfirer shall:

(a) check that the procedure has been followed for clearing the site and the 500-metre safety zone;
(b) check the shotfiring system or circuit to ensure that it has been connected correctly;
(c) where electrical detonators are used, ensure that they have been correctly connected to the shotfiring system or circuit and that the shotfiring system or circuit is tested with an instrument suitable for the purpose from a position of safety;
(d) where appropriate, ensure that the electrical integrity of the shotfiring system or circuit is such as to make a misfire unlikely; and
(e) ensure that the shot is fired from a safe place.

Misfires

In the event of a misfire the operator shall ensure, so far as is reasonably practicable, that:

(a) apart from himself, no person other than the Explosives Supervisor, shotfirer, trainee shotfirer or any other person authorised by him enters the danger area until a period of five minutes has elapsed since the misfire and any shotfiring apparatus has been disconnected from the shot;
(b) appropriate steps are taken to determine the cause of and to deal with the misfire;
(c) a suitable record is kept of the misfire for at least three years; and
(d) appropriate steps are taken to prevent theft of the explosives and detonators or their initiation by an unauthorised person.

Use of ANFO

Where an ANFO (ammonium nitrate / fuel oil) mixture is used, special precautions shall be taken to ensure that there is no pollution. Both of the ingredients can be extremely damaging if they are leached into water courses. For this reason, the following precautions shall be taken when ANFO is used as an explosive.

(a) Ammonium nitrate shall be stored in sealed bags in a dry location.
(b) Fuel oil shall be stored and transported as per the fuel guidelines.
(c) Mixing of ANFO shall be done in such a way that there is no spillage or contamination of the ground. Should any spillage occur, then the spilt material shall be cleaned immediately and all contaminated soil shall be removed for remediation.
(d) The filling and blasting of holes shall be done on the same day to avoid the leaching of ANFO into the water table and polluting of groundwater.

Prohibited activities

(a) A person other than a person appointed by the Nepal Army of the Ministry of Forests and Environment as an Explosives Inspector, a person engaged in the transport of explosives to or from the work site, a shotfirer, a trainee shotfirer, a person authorised to handle explosives at a work site or a person appointed to be in charge of the explosives store shall not handle explosives.
(b) A person shall not bring any substance or article (other than explosives) likely to cause an unintended explosion or fire within ten metres of any explosives or take any naked flame within ten metres of any explosives.
(c) A person shall not forcibly remove any detonator lead or other system for initiating shots from a shothole after the shothole has been charged and primed.
(d) A person shall not charge or fire a shot:
    (i) unless there is sufficient visibility to ensure that work preparatory to shotfiring, the shotfiring operation and any site inspection after the shot is fired can be carried out safely;
    (ii) in a shothole which has previously been fired, unless he is dealing with a misfire; or
    (iii) in any tunnel or other excavation (not being merely a shothole) in the face or side of the quarry wall for the purpose of extracting rock.
(e) A person shall not fire a shot:
    (i) unless he is a shotfirer or trainee shotfirer; and
    (ii) other than by means of a suitable exploder, and the purpose of these guidelines, a safety fuse shall not be deemed to be a suitable exploder.
(f) No person shall be in possession of a mobile telephone when:
    (i) within 50 metres of a charged blast hole;
    (ii) inside an explosive storage compound; or
    (iii) on a vehicle transporting detonators.

Warning of Blasting

Blasting causes considerable concerns locally and can damage the structures of poorly-built houses nearby. The obligatory procedure given below is to be followed for this activity.

Obligatory Procedure for Blasting

1. Never blast on Saturdays, national public holidays, nor at night (6 pm to 7 am).
2. Blasting shall be announced at least 60 hours in advance and the timing agreed with MCA-Nepal's ESP on-site Community Assistant.
3. The blasting warning news shall be broadcast on local radio for a minimum of two days in advance: this shall be done in all local languages as well as English and on at least two radio stations.
4. Communities shall be fully informed of the blast at least 48 hours in advance. To achieve this, workers shall be sent out to carry the blasting notices to all the villages and farms within 2 km from the quarry, to inform the precise time of the blasting operation. The workers shall post the notices on specially appointed notice boards at prominent locations at the nearby villages, the quarry access road and other approaches to the area. The notices shall explain the siren signals (1 hour, 15 minutes and 5 minutes before, and all-clear afterwards) and the grievance redress mechanism.
5. The workers shall also discuss the significance of the blast with the Ward Chair or other community representative.
6. The day before any blasting, the Quarry Manager and the Community Assistant shall visit all households judged to be close enough to the 500-metre fly rock exclusion zone as to require warning of evacuation.
7. On the day of any blasting, additional security shall be deployed around the quarry, and patrols made to enforce the exclusion of people from the 500-metre safety zone.
8. The Blast Operator will sound a loud double siren (15 seconds each with a 15-second gap) 1 hour, 15 minutes and 5 minutes before the blasting shots are fired.
9. Workers equipped with radios for communication shall be sent in all directions from the blasting area to enforce the clearance within the 500-metre fly rock danger zone 1 hour in advance, and keep watching every path leading to the blasting area until the blasting has finished.
10. The Blast Operator shall separately ensure that all workers and security guards are removed to an approved safe location before the blast.
11. At the last minute, the Blast Operator shall confirm the safety one more time through the radios, and then does the blasting.
12. After the blast, the Blast Operator shall check that all shots have fired and that the site is now safe. The all-clear shall then be sounded (a single siren of 30 seconds).
13. After the all-clear has sounded, the community liaison team is sent to the villages to do the investigation for any possible damage.
14. A grievance process including a guidance form for all complaints shall be established, and a reporting mechanism to reach resolution.
15. In the event of a postponement for any reason, the all-clear shall be sounded. The Quarry Manager shall arrange a new time of blasting, which shall be not less than 48 hours ahead. The affected communities shall be informed of the reasons for postponement and updates provided every 24 hours until the blast takes place.

F.05 Prevention of Pollution from Refuelling Facilities

General

Oil is the most common water pollutant, with the potential to harm watercourses and groundwater. In addition, certain fuels, such as petrol, are highly flammable and are tightly regulated for safety reasons. This guidance is applicable to all refuelling facilities and should be consulted regardless of the type of facility.

Types of drainage system

Clean water. All clean, uncontaminated rainwater should be channelled to:

- a surface water drainage system;
- a combined drainage system downstream of the oil separator;
- directly to a local watercourse or soak-away.

This includes roof water and uncontaminated drainage from those areas of the site where vehicles are not stored, repaired, refuelled or washed. Such discharges may require prior permission from the MOFE or the local sewer provider.

Contaminated water. The entire area where fuel is delivered, stored and dispensed should be isolated from the surface water drainage system, open ground or other porous surfaces. This can be achieved using drainage grids, gullies or kerbs in conjunction with surfaces impermeable to the products used. Potentially contaminated water and spills should be directed through an oil separator and prevented from seeping into the soil and groundwater below the site. The separator should be of an adequate size to serve the surface area catchment of the site.

Sustainable drainage systems. The use of sustainable drainage systems (SUDS) should be considered. SUDS such as constructed wetlands or reed beds may offer an environmentally sound alternative to traditional methods of treating drainage effluent. Wetland or equivalent technology can be used for a variety of wastewater treatment purposes at refuelling facilities. It may also be suitable as a replacement for on-site separators for oily water run-off, provided the system is compatible with local groundwater conditions. Wetlands systems can offer an acceptable level of environmental protection provided they are properly designed, installed and maintained. In some situations, they may provide better environmental protection than conventional drainage systems.

Washing activities. All washing and cleaning operations, including the washing of all vehicles or plants, should be carried out in a designated area clearly marked on the ground and in any plans. The cleaning area should be isolated from both the surface water drainage system and unmade ground or porous surfaces (e.g. using drainage grids, gullies or kerbs). Wash water should be re-circulated whenever possible. Otherwise it should drain to, or be disposed of, via the foul sewer (where available).

Cleaning agents such as detergents (including biodegradable ones) should never be allowed to enter the surface water system or to soak into groundwater unless specifically permitted after appropriate treatment. They should not enter oil separators because they reduce their effectiveness (the oil will be dispersed and washed through).

Training in dealing with emergencies. Staff should be trained to deal with an environmental incident. Set up a system of written training records and make these available for inspection. Training should include a background to environmental sensitivities around the site and a formal emergency procedure that details actions to be taken in the event of:

- a spillage;
- a fire;
- a collision with equipment;
- odours being detected off-site;
- a suspected leak being identified.

Make this procedure available on-site in case an emergency arises.
Waste management. To avoid pollution, all waste (including separator waste and oil spill adsorbent materials) must be handled, stored and disposed of correctly. Waste producers and holders must ensure that waste:

- does not escape from their control;
- is passed only to a registered waste carrier for recycling or disposal at a suitably licensed facility;
- is accompanied by a transfer note with a full written description of the waste.

Fuel tank bund rain water discharge procedure

Diesel fuel is a hazardous substance which can cause extensive pollution to soil and water. Fuel tanks must be bunded to ensure that if a tank leaks, the fuel does not escape into the environment. However, if the bunded area is not roofed, rain water will accumulate. This needs to be drained out under controlled conditions.

The supervisor is responsible for ensuring that no leaked fuel within the bund is allowed to get out of the bund. Should there be an accidental spill or leakage, then the supervisor is responsible for ensuring that it is cleaned up immediately and the matter reported to his manager. In any event, the fuel must be cleaned before any water is drained from the bund.

The following procedure shall be followed.

1. The supervisor shall be present throughout the process of draining the bund.
2. The valve on the bund outlet must be kept closed at all times except when it is being drained.
3. At a designated time on each working day, the supervisor must inspect the bund and assess: (a) whether there has been any spillage or leakage of water from any tank; and (b) whether any rain water has accumulated and needs to be drained off.
4. If any fuel has leaked, then the cause of the leak must be investigated immediately and the leak stopped if possible. This might be done using a tank repair compound such as "Plug Pattie", which is contained in the re-fuelling station's fuel and oil spill kit. After this it must be reported to the manager. The leaked fuel must then be mopped up using appropriate pads from the spill kit. Once used, these must be placed in the polythene bags provided in the spill kit and disposed of correctly.
5. If there is water in the bund that appears uncontaminated with fuel, it may be drained off. This is done by opening the valve at the outlet, and allowing the water to flow out through the filter or water-oil separator. The supervisor must watch this process carefully, and must ensure that the flow from the valve is adjusted so that it does not flood the filter. Normally the filter will not cope with the full flow from a valve opened completely.
6. Once the bund has been drained, the valve must be screwed shut again.
7. All other staff, including security guards, are to be instructed that it is forbidden for them to drain water from the bund except when the supervisor is present.

Refuelling spill prevention procedure

Diesel is a hazardous substance which can cause extensive pollution to soil and water. It is also a valuable asset.

The supervisor is responsible for ensuring that no fuel is spilt. Should there be an accidental spill, then the supervisor is responsible for ensuring that it is cleaned up immediately and the matter reported to his manager.

Only a trained pump operator may use a fuel pump. Drivers are not permitted to do this.

The following procedure shall be followed.

1. The hard standing in front of the fuel pump must be kept clean at all times. It must be swept at least once per working day.
2. Vehicles must be positioned on the hard standing, with the fuel filling location between 1 and 2 metres from the pump.
3. The fuel filler cap must be removed from the vehicle before the hose is taken from the pump.
4. When moving the hose from the pump, the nozzle must be kept upright at all times.
5. The nozzle is to be inserted carefully into the vehicle filler pipe, and pushed in as far as it will go.
6. Only when the nozzle is fully inserted may the pump be started.
7. While filling the vehicle, the pump operator must watch the nozzle and reduce the pump speed if there is any splashing from the filler pipe.
8. If the nozzle does not have an automatic shut-off valve, the filling must be done slowly and the filler pipe watched carefully to ensure that the pump is stopped well before the tank overflows.
9. Once filling is complete, the pump must be switched off before the nozzle is moved.
10. The nozzle must be removed slowly and carefully, and held in an upright position as it is moved back to its cradle on the pump. The hose must then be stowed neatly beside the pump.
11. The filler cap is then to be replaced on the vehicle, and screwed down firmly.
12. If any fuel has been spilt, it must be mopped up immediately using appropriate pads from the re-fuelling station's fuel and oil spill kit. Once used, these must be placed in the polythene bags provided in the spill kit and disposed of correctly.

F.06 Management of Lubricating and Insulating Oils

General

Lubricating oils are required for most construction machines, as well as for certain infrastructure components. They are therefore used on nearly every industrial construction and operational site.

In substations, insulating oils are required in significant volumes for transformers. The anticipated volumes are as follows.

- Volume of oil at Ratmate Substation will be around 40,000 litres for each of seven transformers.
- Volume of oil at New Damauli Substation will be around 40,000 litres for each of seven transformers.
- Volume of oil at New Butwal Substation will be around 90,000 litres for each of two transformers.

Such large volumes of liquids require special care in transport, storage and handling.

All oils are potentially hazardous to the environment and so must be stored or disposed of in accordance with this protocol. This is mainly because of their potential to pollute soil and water, as well as their inflammable nature (though ignition usually requires a fire started by another cause).

The Contractor shall take full responsibility for the transportation, handling, storage, use and effects of any lubricating or insulating oils that are required for construction works, commissioning and operations that are part of the Project. The Contractor is further responsible for complying with the MCA-Nepal's policies and procedures as may from time to time be communicated, and will ensure that all aspects of its approved spill clean-up plan are followed in the event of a spill.

Approval by the Engineer for the use, storage and disposal of hazardous materials shall not reduce the Contractor's responsibility to prevent all leaks and spillages, nor his liability to remedy the damages which may be caused should such incidents occur.

Where the discretion of the Engineer is used, the guiding international standards will always apply to the project (whether environmental, health and safety, or technical standards). In any event, the requirements of ESHSMP Section 3.10 (Management of Change) must be followed.

Standard measures

Prevention. Every effort will be made to prevent spills and leaks of any kind. All oils will be stored in appropriate ways, in line with international safety practices. All operators and supervisors will be trained in appropriate inspection procedures and checks. All problems detected during inspection must be passed on to the relevant superior officer and reported to the Engineer. Appropriate repairs will be made immediately.

Storage. All oils shall be stored at least 100 metres from a flowing or dry watercourse, spring, swamp, drain or well, and at least 100 metres from a dwelling. Storage areas shall have barriers and impervious surfaces preventing leakages of spilt material outside the storage area or into the underlying soils. They shall be protected from rainfall and secure against intrusion by people other than the Contractor's personnel and inspectors from the Engineer or MCA-Nepal. There must be secondary containment of all stored oils. Where bunds are used, they must be 150 percent of the volume of oil. Where storage is temporary (i.e. for 30 days or less), such as for transformer oils during the construction phase, then the secondary containment may also be temporary, such as by using impervious membranes (such as thick grade polythene sheeting) and earth bunds. Longer term storage is expected typically to use concrete flooring and wall bunding. All storage arrangements shall be subject to prior approval by the Engineer.

Dispensing operations – lubricating oils. Oil dispensing areas must be bunded: i.e. there must be secondary containment for the full capacity plus 50 percent of the volume in the event of a leak from the tank or containers. A trained attendant will always be in control of dispensing operations. Oil dispensing drums must have spill containment trays and liners, or both, to catch and contain material. The Contractor shall submit a work procedure for the dispensing arrangements for approval by the Engineer in advance of any such operations starting.

Dispensing operations – transformer oils. Filling transformers is a specialist operation for which appropriate high quality, certified equipment shall be used. The Contractor shall submit a work procedure for the filling operation

that includes suitable arrangements for preventing and containing spills, for approval by the Engineer in advance of the operation starting.

Disposal. All used oils, lubricants, solvents, and filters will be recycled whenever possible. Where excess quantities need to be disposed of, then the Contractor shall prepare a disposal plan and seek the approval of the Engineer before implementing it.

Cleaning up spills. In the event of a spill or release of any material, the spill will be stopped and the incident reported to the nearest representative of the Engineer. The substance will then be cleaned up immediately, disposed of in an approved manner and the contaminated environment cleaned to the satisfaction of the Engineer and in compliance with the requirements of the EIA and ESHSMP.

Transportation

All oils shall be transported in vehicles and packaging specially designed for the transport of such materials to international standards. In this context, the United States Department of Transportation Regulation 49 CFR Part 130 (Oil Spill Prevention and Response Plans) shall apply.

There must always be either a double-wall tank design that ensures impact protection or a complete secondary containment arrangement. Normally it is expected that this will be in the form of a framed ISO tank container (also known as UN portable tank, tank container, ISOtainer, tanktainer, bulk storage container, shipping tank, or intermodal tank). Such tanks must have valid test certificates less than five years old. Within the steel container framework, the tank itself should typically be of stainless steel surrounded by an insulation and protective layer such as polyurethane and aluminium.

Other tank types may be accepted, subject to approval by the Engineer. In assessing the proposed arrangements, the Engineer should take account of the particular conditions of the site and access to it, and the level of environmental risk involved.

Drums used for the provision of smaller volumes of oil must be transported fixed securely to bunded pallets. They must be handled and moved on the pallets using forklift trucks or telehandlers, and not moved separately.

All transport arrangements shall be subject to prior approval by the Engineer. The Contractor must not allow oil shipments to leave their source until this has been obtained.

Deliveries and handling

Delivery and handling of materials such as oils around a site is always a high-risk activity. Good working practices are essential. Special care must be taken during delivery, loading, unloading and transfer of all oils, as there is a risk of spillage and accidents. It is important to identify these risks so they can be minimised wherever possible. Making someone responsible for supervising deliveries can help avoid spillages – and so prevent damage to the environment, save valuable raw materials and avoid potential legal action.

- Ensure all loading and unloading areas are designated, clearly marked and isolated from the surface water drainage system.
- Develop and implement procedures for supervising all deliveries.
- Minimise the quantity of material stored on site.
- Storage containers must be well designed, “fit for purpose” and comply with any relevant regulations. Their condition and storage levels must be checked before receiving each delivery to prevent loss of product, for example, by overfilling or tank failure.
- Fit appropriately sized drip trays to all delivery areas and remove any spilt material immediately.
- Pumped dispensing is preferable to gravity draw-off.
- Reducing the need for oils to be moved around the site lowers the risk of accidents or spillage. Transfer routes must be identified and kept clear at all times, the potential for environmental damage assessed and risk reduction measures carried out.
- Avoid manual handling wherever possible to reduce the risk of human error and accidents.

- Have a contingency plan and make sure everyone is aware of what to do in the event of a spillage or other accident. Have a stock of emergency equipment available, for example drain covers, absorbent materials and protective clothing, to contain spillages. Ensure that all residues and contaminated materials are disposed of correctly.

Storage

Poor storage of oils represents a major risk to the environment. The potential for accidental spillage is at its greatest during deliveries and dispensing, but storage containers (tanks, drums, bowsers, etc.) are also a risk. It is essential that they are sited appropriately, designed and maintained to take environmental protection and safety into account. The use of secondary containment systems prevents materials escaping to the environment.

For the long term (more than one month) storage of oils, the following provisions must be followed.

- Use an appropriate container for the type and volume of oil stored.
- Make sure it is fit for purpose and clearly labelled with product type, maximum capacity, and both health and safety and environment protection information.
- Locate storage facilities at least 100 metres away from watercourses, open drains, gullies, unsurfaced areas or porous surfaces.
- Protect containers from impact damage where necessary.
- Roof storage is high-risk and should be avoided because any loss of the contents may drain via guttering to the surface water system and cause pollution.
- Storage tanks and bowsers for oils must have either a complete double-wall system with full impact or puncture protection separation between the walls, or a secondary containment system able to hold at least 150% of the tank's maximum capacity (if fully roofed, then the containment system must be able to hold at least 110% of the tank's maximum capacity). It must be impermeable to the material stored, enclose the ancillary equipment (e.g. local fill and draw-off facilities, vent pipes, sight gauges, taps, valves, etc.) and have no open drain-down outlets or connection to the environment.
- Secondary containment for drum storage must be provided by using proprietary container stores, bunded pallets, drip trays or kerb-bunded areas, preferably roofed. The capacity should be at least 25% of the total volume of the drums being stored. Where access for vehicles is necessary, provide a properly designed ramp, but make sure that use of the ramp does not cause spillages.
- All liquid containment systems must have a means of monitoring to allow regular checking that the primary containment as applicable is intact.
- Maintenance schedules must be produced for regular inspections of storage facilities and any necessary remedial work must be carried out promptly.
- Rainwater which may have collected within open containment systems must be removed regularly. This waste water may be contaminated and must be disposed of appropriately through a filtration system. In the long term it may be more cost effective to roof the facility or even replace the tank with a proprietary enclosed bunded tank system.
- Security measures must be provided for storage areas to prevent vandalism and theft. Storage system valves, taps, hatches or lids and delivery hoses must be fitted with locks and locked shut when not in use. Where possible oils should be stored in secure buildings.
- Avoid underground storage of oils, since it is a significant pollution risk to groundwater.

For the short term (up to one month) storage of oils, the same principles must be followed as for long term storage, except that more temporary and low cost solutions may be used. These shall be subject to approval by the Engineer before they are adopted, and the arrangements must always ensure that spills or leakages cannot pollute any water or soil, either directly or indirectly.

Monitoring

The use of oils will be subject to regular monitoring by the Engineer's and MCA-Nepal's environmental teams.

F.07 Pollution Prevention in Vehicle and Plant Workshops

Introduction

Workshops and service centres carry out a number of operations and processes that have the potential to damage the environment. These include the cleaning of vehicles, the storage, use and disposal of polluting liquids such as oils, paints, solvents, coolant additives, brake fluids and solid waste such as oil filters, exhaust systems, batteries and tyres. Unless the site drainage is correct, waste is properly managed and spillage control procedures are in place, environmental harm could occur.

Vehicle and plant maintenance areas

Internal gullies or grids must not drain to the surface water system. If the workshop pit is subject to water infiltration, and is served by a gully and pump, then this should be directed to the foul sewer. Areas where maintenance or dismantling activities are carried out must have an impermeable surface and a raised edge with drainage to a sealed sump or via an oil separator to the foul sewer.

Disposal of waste liquids. Used liquids, such as lubricating oil, hydraulic fluid, coolant and solvents from degreasing activities, must not be disposed of into surface water systems. They should be collected in a suitably bunded tank. This oil can be taken for use in the furnaces of rubber factories until such time as Nepal has recycling facilities.

Batteries. Batteries containing acid should be stored intact and upright in an acid resistant bunded compound or purpose built bin. Both the lead and the plastic cases can be recycled, so they should be collected for sale to an authorised contractor. Storage can be minimised by the use of one-for-one exchange schemes, whereby old batteries are collected when new ones are delivered.

Tyres and other discarded dry parts. Tyres must never be burnt on site. They can be treated as a dry material for storage, but if burnt, release compounds that are extremely polluting. Tyres should be disposed of by a suitably licensed tyre incinerating or recycling company.

Oil filters and other oil contaminated components. There are certified contractors for used oil filters, and so these should be stored. Alternatively, discarded oil filters can be crushed on site and the oil and metal recovered. Intact or crushed filters and other oil contaminated parts such as engines, gearboxes and axles should be stored either in a sealed container or within an impermeable bunded area, preferably roofed to prevent the entry of rain.

Other wastes. Skips should have a designated use and be clearly marked to indicate what materials they may be used for. Material stored in skips should be drained or dry and the skips covered to prevent the entry of rainwater and kept watertight to prevent leakage. If any contaminated liquid does accumulate, it should be removed and suitably disposed of. Note that scrap metal is a potential asset.

Oil, fuel and chemical storage

Above ground storage tanks. All oil storage tanks and drums, including waste oil, must be sited on an impermeable base within an oil-tight bund wall. Any fill and draw pipes, valves and sight gauges should be enclosed within its curtilage and tank vent pipes should be directed downwards into the bund, so that in the event of overfilling the discharge is contained. Bunds should be examined on a regular basis and any rainfall that accumulates is removed by bailing or by pumping under a manually controlled system. This water may be contaminated and should be disposed of with care.

Internal storage tanks should also be bunded as above and, if served by a remote fill point, the drainage from the area should pass through a suitably sized oil separator. A high level alarm, which provides an additional safeguard against overfilling, is recommended for all storage tanks.

Underground storage tanks. Underground tanks and pipelines are susceptible to damage and corrosion, and above ground facilities are preferred. In areas of high groundwater vulnerability, the MOFE may object to the installation of underground storage tanks. Where underground storage is necessary, a number of protective measures, such as double skinned tanks and piping, and leak detection, may be required. Regular inspection, stock reconciliation and pressure testing are essential, especially where groundwater pollution could occur. The

location of underground piping should be identified and clearly marked in order to avoid damage through excessive surface loading.

Chemical storage. Chemicals such as detergents, degreasers, solvents and hydraulic fluids should be securely stored with storage vessels labelled to show their contents and should be kept as close to the point of use and as far from surface water drains as possible.

Refuelling facilities. These are covered by a separate guideline. The risk of pollution from refuelling areas is especially high. Such areas should be isolated from general yard drainage, (for example by using a raised kerb or roll-over bund). Particular care should be taken in the cleaning of such areas.

Degreasing and cleaning

The cleaning and degreasing of vehicles and components must be carried out in a designated wash-bay and not on unmade ground or in areas which discharge to surface water drains, watercourses or soak-away. A wash water recycling system will reduce water use and associated costs. The wash-bay should be impermeable and isolated from the surrounding area by a raised kerb or roll-over bund, with the effluent directed to foul sewer. Particular care should be taken when using hydrocarbons such as paraffin and white spirit as degreasers, as these substances are toxic to river life. In no circumstances should these substances be discharged to surface water drains.

F.08 Use of Chemical Herbicides

The only herbicides approved for use under MCA-Nepal's projects are Glyphosate (41.1%), commonly sold as Roundup and other trade names, and Prometon (12.5%), often sold as Pramitol and other trade names.

Glyphosate is a post-emergent herbicide, to kill off existing weeds, and needs to have direct contact with green leaves to be effective. It is diluted at 2% concentrate in water before spraying (i.e. 20 ml of concentrate is added to every litre of water in the spray mix).

Prometon is both a residual and post-emergent weed killer, and may be sprayed both before and after they have emerged. Recommendations for use vary but typically a dilution of around 5% concentrate in water appears to be effective in many situations.

Any member of the staff of MCA-Nepal or its contractors wishing to use either these or other herbicides, should contact the MCA-Nepal Environmental Specialist for advice. Details of the proposed substance, location, purpose and methods of use will be required.

Locations of use

Glyphosate and Prometon of the approved concentrations may be used for weed control within the fenced areas of substations (apart from the areas defined in the next paragraph), providing that they are mixed to the dilutions described above. No use elsewhere or use of other concentrations are permitted on Project sites without the MCA-Nepal Environmental Specialist's prior written approval.

Zones of substations are excluded if they are:

- within 50 metres of a perennial watercourse (i.e. a river or stream with water flow all year round);
- within 50 metres of a water supply borehole or underground drinking water storage tank; or
- within 25 metres of a drain that has a run of less than 100 metres to a discharge point into a perennial watercourse.

For zones where chemical herbicides are not permitted, alternative options of weed control must be found. These might typically be hand removal, cutting, or the use of a gas-powered weed burner (or weed torch). For these locations, the Contractor shall propose a suitable solution for the approval of the Engineer.

Timing of use

Chemical herbicides must not be used if rain appears possible within the next 24 hours.

Safety

Glyphosate and Prometon shall be considered as hazardous substances and shall be stored and used in accordance with the manufacturers' specifications covering the use of such materials. The Contractor using the material shall prepare and seek the Engineer's approval of a spill clean-up plan to cover its use.

No handling or storage of Glyphosate or Prometon concentrates, however temporary, is permitted within 100 metres of a water body or watercourse of any kind (either flowing or dry, including streams, wells, springs, ponds, swamps, ditches and drains). The mixing of concentrates with water, and the filling and washing out of spray tanks must be done at least 100 metres from any such water body or drain.

Workers handling Glyphosate and Prometon must be clothed with a minimum of: (a) overalls with long sleeves and legs; (b) waterproof boots; (c) thick waterproof gloves; (d) breathing masks; and (e) eye goggles. At all times when herbicide is being handled, adequate washing water and soap must be available to workers in case of an accidental splash or spill.

Application

Spraying shall be undertaken using hand-held or knapsack sprayers, operated by hand pumps and emitting a fine spray of droplets. Mist sprayers are not permitted because of the risk of drift, even in light winds. The spray nozzle must not be raised more than one metre above the ground and must always be pointed downwards.

There shall be no more than four sprayings of Glyphosate or Prometon per year in any one location. For obvious economic and environmental reasons, the Contractor should try to reduce the number of sprayings below this frequency. Glyphosate must only be sprayed on to the leaves of plants to be killed, and it is wasted if sprayed on to bare ground. On some plants the leaves take up to a month to turn brown. The Contractor should therefore wait at least a month before a second application if there is a suspicion of failure.

Sprayed herbicide must dry on the leaves of the plants and surfaces (in the case of Prometon) to be effective, and therefore spraying should not be undertaken if rain is expected within four hours: this would not only raise the risk of pollution, but would also render the spray ineffective and require another application.

Cleaning spray equipment

Tanks must be emptied completely by spraying on to the vegetation that is to be killed. They should then be completely filled with fresh water and emptied on to a gravel or bare soil area at least 100 metres from any water body or drain. Spray pipes and nozzles should also be liberally rinsed with fresh water in a similar location. Gloves, boots and any splashed clothing should also be washed liberally, away from a watercourse.

Monitoring

The use of herbicide will be subject to regular monitoring by the Engineer's and MCA-Nepal's environmental teams.

F.09 Management of Waste

Waste management in general

The principles of pollution prevention include the following key messages.

- Everyone should minimise waste production to save money and resources.
- A review of the options for minimising waste will usually help to find ways to save money on raw materials and waste disposal costs.
- Reuse your waste or buy in products that can be reused many times – it will save money in the long term.
- Recycle as much waste as possible.

A waste management strategy is to be organised on the principles of reduction, recovery, recycle and reuse. Recycling and waste reduction campaigns shall be conducted whenever there is evidence of unnecessary waste generation.

A distinction will be made between waste materials that have a potential commercial value – which shall be classed as assets – and those with no value – which shall be considered non-assets.

Waste materials shall be collected and segregated at the source. Care shall be taken to avoid spills during storage and handling. Workers must use appropriate personal protective equipment when handling all forms of waste.

Full records shall be maintained of the types and quantities of waste generation, storage, transfers and disposals.

Landfill sites should be selected with care and the location and details approved by the MOFE. They should be in areas that are not prone to slippage, cannot leach to surface water and groundwater, and are a suitable distance (at least 400 metres) from settlement. They should be located down gradient of any water supply boreholes. The base of a landfill site should be lined with an impermeable membrane and seepage water piped to a sewage treatment plant. As it is filled, the site should be progressively compacted and buried with soil. Always ensure that landfill sites are in secure compounds.

Waste materials that are assets

Topsoil. Waste topsoil generation should be minimised by disturbing the soil only where it is necessary to do so. Topsoil is to be removed carefully, by scraping it off in thin layers. It will be stored in shallow stockpiles, which must not be compacted. Stockpiles shall be planted with grass to prevent erosion and maintain soil quality. Once the work has been completed, the topsoil must be returned to rehabilitated areas.

Under no circumstances shall topsoil be sent to spoil tips, allowed to erode or be contaminated with other substances. Traffic must not be allowed to run on topsoil, causing it to become compacted, either in its natural state or in stockpiles. Topsoil is the source of almost all food, and its protection means the protection of life itself.

Scrap metals. Metallic objects and components should be re-used as far as it is practicable and safe to do so. Scrap items shall be segregated and kept in safe, dry locations, such as shipping containers. Aluminium items, especially used drink cans, shall be crushed to reduce storage volume. Once accumulated, batches of scrap metals shall be sold to an authorised dealer.

Used commercial and industrial machines (vehicles, trucks, generators etc.). Wastage should be reduced by using machines for their full design life, and repairing rather than replacing them. Once defunct, they should be stripped of re-usable parts and stored securely, in a bunded and covered area. Machines shall be decommissioned thoroughly, all fuel and lubricants removed, moving parts degreased and components with valuable materials such as copper and lead removed for separate disposal as described above. Remaining usable scrap shall then be sold as an asset, as described above.

Under no circumstances shall machines be placed into landfill sites, allowed to be stolen by informal scrappers or sold to unauthorised companies, uncertified small enterprises or individuals who might re-use their components without proper disposal of unwanted parts.

Used oil drums. Used oil drums shall be stored securely, in a bunded and covered storage area. They shall be recycled for waste oil or other appropriate uses. They are not to be sold to unauthorised companies or uncertified small enterprises. If they need to be cleaned, they shall be washed in an area with a full oil separator drainage system.

Non-asset waste

Vegetation. The cutting of vegetation shall be minimised by only cutting plants or plant parts that are in the way of approved activities. This means plants that are in the direct area required for access tracks, quarry areas or other purposes. Vegetation shall be cut into small pieces and stacked beside the working area to decompose slowly. It shall not be burnt, either standing or cut.

Plantation trees and agricultural plants shall not be cut without following the procedures given in the Resettlement Action Plan.

Spoil (overburden). Damage to land and wasted energy shall be minimised by removing spoil only where it is essential to do so. Spoil shall be placed only in designated and approved spoil tip sites, which must be prepared in advance. Preparation shall include the installation of drainage blankets and slope toe retaining walls as necessary to ensure permanent stability. Spoil shall be placed in shallow layers, not more than 2 metres in thickness, compacted and shaped as they are developed. Erosion protection shall be provided as necessary to ensure that there is no sediment washed into water courses; this will usually be done using planted grasses. The water regime and stability of spoil tips shall be monitored and action taken as required to resolving any problems that are identified. Spoil tips will be kept away from watercourses and seasonal drainage channels unless adequate through-flow has been provided. The use of any spoil tip will be discontinued when the designated area has been used up.

Contaminated soils. The contamination of soil will be avoided by adhering to the hazardous materials storage and handling guidelines. Any soil that has become contaminated will be excavated and removed to a level and secure area, surrounded by an earth bund. The contaminated soil shall be treated fully using an approved bioremediation agent. The area affected will be fully rehabilitated, either using appropriate topsoil from a stockpile, or by replacing the remediated soil as soon as it has been decontaminated. This process will be used in every case where there has been any spill of hydrocarbons or other chemicals. Under no circumstances will contaminated soils be dumped untreated.

Used lubricants. Waste from excessive used oils shall be reduced by using lubricants for their full design life. Used lubricants shall be stored securely, in strong, leak-proof drums in either a double-walled container or in a bunded and covered storage area. Spill kits will be maintained ready and serviceable in all storage and handling areas, and carried in transporting vehicles. Used oil may be sold to large rubber factories for use in the boilers, or to disposal companies with valid certification from the MOFE. Under no circumstances may any form of used lubricant be poured away, either into the soil or into water, or sold to chain saw operators.

Oily water from workshops and fuelling stations. Industrial oil-water separators shall be installed as part of the drainage system at every mechanical workshop and every fuelling station. Drainage shall be arranged such that all spillages and rainwater drain through the separator. All separators shall be maintained according to the manufacturer's instructions.

Used grease. Waste from excessive used grease shall be reduced by using it for its full design life. Used grease shall be stored securely, in strong, leak-proof drums in a bunded and covered storage area. Grease shall be incinerated at a high temperature in a proper industrial incinerator.

Used engine filters (fuel and oil filters). Waste from excessive used filters shall be reduced by using them for their full design life, and if possible ensuring this is reached by appropriate cleaning. Used filters shall be stored securely, in strong, leak-proof drums in a bunded and covered storage area. Used filters may be sold to disposal companies with valid certification from the MOFE. Alternatively, filters may be crushed to remove residual fuel or oil, and incinerated at a high temperature in a proper industrial incinerator.

Used hazardous containers (paint tins, pesticide containers, etc.). Used containers shall be stored securely, in strong, leak-proof drums in a bunded and covered storage area. Used paint tins and pesticide containers shall be crushed as far as possible and sent to an approved landfill site. Under no circumstances shall containers or any parts of them be sold to unauthorised companies or uncertified small enterprises. Containers must not be washed in open water courses or areas that do not drain to a proper sewage treatment plant.

Used tyres. Wastage shall be reduced by using tyres for their full design life (usually until the tread is less than 1.2 mm for road vehicles). Used tyres shall be stored securely, in a recognised storage area. They may be sold to companies that will recycle them for non-road uses. Where there is doubt about the future use of tyres, they should be slashed before sale to make them useless for road vehicles. Tyres should also not be sold to people who will use them for quarrying, since this involves air pollution from low temperature burning. Tyres may also be chipped and sent to approved companies that can burn them in furnaces at high temperatures or sent to an approved landfill site.

Used batteries (12-volt lead-acid and gel-filled batteries). Where possible, batteries should be purchased under a buy-back policy from the suppliers to avoid the storage and handling of waste batteries. Wastage should be minimised by using batteries for their full design life, servicing and recharging them where feasible. Used batteries shall be stored securely, in strong, leak-proof containers in a bunded and covered storage area. Batteries containing lead shall be sold for recycling by companies with valid certification from the MOFE.

Under no circumstances shall batteries be sold to unauthorised companies, uncertified small enterprises or individuals who might re-use their components without proper disposal of acid or other unwanted parts.

Used personal protective equipment (PPE). Wastage should be reduced by using PPE for its full design life. Used PPE should be stored securely, in strong, leak-proof containers in a bunded and covered storage area. PPE shall be sorted into chemically contaminated (e.g. overalls and gloves stained with creosote from handling rail ties) and non-contaminated items. Chemically contaminated PPE shall be incinerated at high temperature in an industrial incinerator or, if this is not possible, in a purpose-dug pit. Residues shall be placed into an approved landfill site. Non-contaminated PPE shall be placed into an approved landfill site.

Used workshop clothing and rags (i.e. oily waste). Wastage should be reduced by using clothing and rags for as long as it is safe to do so. Oily waste should be stored securely, in strong, leak-proof containers in a bunded and covered storage area. It shall be incinerated at high temperature in an industrial incinerator or, if this is not possible, in a purpose-dug pit. Residues shall be placed into an approved landfill site.

Household waste. Awareness programmes shall be undertaken to encourage waste minimisation. The use of throw-away plastic bags shall be discouraged inside the concession. Households shall be given the necessary waste bins to segregate their waste into aluminium (e.g. foil and drink cans), steel (e.g. food tins), glass, plastics, cardboard, compostable and other waste. The segregated waste shall be collected for disposal as follows.

- Aluminium, steel, glass, plastics and cardboard shall be sold for recycling by companies with valid certification from the MOFE.
- Compostable waste shall be composted and, once fully decomposed and sterile, spread to land as fertiliser or mulch.
- The remaining waste shall be sent to an approved landfill.
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Food waste. Wastage shall be minimised by ensuring that canteens do not over-cook. Canteen staff shall be encouraged to use uneaten food for themselves and their families if it is still safe. Arrangements shall be made for farmers of domesticated animals to collect food waste for feeding to their stock. Any unused vegetable material shall be composted and unused animal products sent to an approved landfill site. All food waste shall be stored and transported in containers that are proof against dogs, crows and rodents.

Clinical waste. All biomedical waste shall be stored in appropriate sealed containers. Wastes shall be segregated in the hospital or clinic into different categories, in the appropriate colour bins; it is important to ensure staff involved in the handling of waste are equipped with appropriate PPE. Biomedical waste shall be incinerated at a temperature of 800 to 1600^{o}C in an approved specialist incinerator. Incinerator ash and residues shall be placed into an approved landfill site. Only appropriately trained staff shall handle hospital wastes and operate incinerators.

Used Domestic Machines (refrigerators, air conditioners, washing machines etc.) and IT Equipment (computers, printers, UPS etc.). Wastage shall be reduced by using machines for their full design life, and repairing rather than replacing them. Used machines shall be stored securely, in a bunded and covered storage area. Re-usable parts should be stripped out for repairing other equipment. Machines shall be sold for recycling by companies with valid certification from the MOFE. Under no circumstances shall machines be sold to unauthorised companies, uncertified small enterprises or individuals who might re-use their components without proper disposal of unwanted parts.

Recording hazardous waste management and disposal

Contractors are required to record the accumulation, storage and transfer of potentially hazardous waste (including materials that may be used for environmentally unsound purposes after transfer). This shall include, but not necessarily be limited to, the following:

- Used commercial and industrial machines (vehicles, trucks, generators etc.);
- Used lubricants;
- Oily water of any kind;
- Used engine filters (fuel and oil filters);
- Used hazardous containers (paint tins, pesticide containers etc.);
- Used tyres;
- Used batteries (12-volt lead-acid and gel-filled batteries); and
- Clinical waste (biomedical).

The unit generating the waste must keep a Waste Materials Record Book. This must contain as a minimum, full records of the following:

- Weekly or monthly estimate of the quantities of each type of hazardous waste;
- The location of storage and any special storage measures employed;
- Each disposal of waste, including the type, quantity, date and location of each transfer;
- The destination of all disposed waste, including the details of any waste management contractor, the method of transport and the point of transfer of responsibility;
- Where a waste contractor is involved, a copy or details of the contractor's Environmental Permit for waste handling and disposal; and
- Any accident or loss involving hazardous or potentially hazardous waste materials.

Waste Materials Record Books may be inspected at any time as part of environmental audits.

F.10 Sewage Disposal

Pit Latrines

Where temporary toilets are required on site, earth pit latrines are the preferred option. These shall consist of a simple pit with a well-ventilated shelter over the top.
Pit latrines shall be sited in locations that meet the following criteria:

- Within the right of way of the road.
- At least 50 metres from a water course or water body of any description.
- At least 100 metres from a drinking water source. This shall be determined by asking members of local communities to show their sources of drinking water before siting a latrine.
- At least 50 metres from a house.
- Where neither surface nor ground water is likely to collect in the pit.

Holes should be around 1.5 metres deep, and certainly not less than 1 metre, and approximately 1 metre in diameter. They shall be completely enclosed by a sound wooden platform over the top, apart from:

- A small hinged cover that allows use of the latrine but can be closed when not in use; and
- A vertical vent pipe at least 2 metres long, with mosquito mesh over the top, made of bamboo or plastic.

A short burst (10 seconds) of disinfectant or insecticide should be sprayed, or a small amount of lime thrown into the latrine every 2 to 3 days, to stop mosquitoes from breeding in water collected in the pit.

The latrine shall be moved to a new location if it becomes unpleasant to use due to excessive smell, becomes full, or a month of use time elapses. When this is done, the pit must be carefully backfilled and the soil compacted. The ground surface over and around the pit shall be regraded and made good, and if necessary revegetated.

Septic tanks

Outlying housing areas and camps should use appropriately-sized septic tank systems, with the liquids drawn off into an underground soakaway (see below). For temporary purposes, liquids from septic tanks may be drawn off by tanker and discharged in a place designated by the appropriate Government of Nepal authority.

The following guidelines are to be followed to provide for the underground soaking away of liquids emanating from septic tanks.

- Select an area for the soakaway that is at least 50 metres down gradient, at least 250 metres laterally and at least 500 metres up gradient of any boreholes or water supplies.
- Excavate a trench for the underground soakaway (2 metres deep by 1.5 metres wide by 50 metres long).
- Line the large trench for the soakaway with permeable geotextile.
- Place a layer of clean stone of 50 to 100 mm size to 100 mm that is 600 mm thick throughout the trench.
- Lay a UPVC pipe of 150 mm diameter perforated with at least 100 holes of 8 mm diameter per metre of pipe. The upper end shall be connected to the outlet from the septic tank and the lower end shall be covered over with permeable geotextile.

- Fill the trench with clean stone of 50 to 100 mm size to 1 metre below ground level.
- Place a sheet of permeable geotextile over the stone and then backfill the trench to ground level with 1 metre thickness of soil. This shall be lightly compacted by running an excavator track over the backfilled trench.

Other designs and sizes are permitted if supported by appropriate civil engineering calculations and design.

Soakaway for "grey" water only

"Grey" water is used water derived from kitchens, showers, laundries and other washing areas, but not from toilets. It should normally be sent to a sewage treatment plant or septic tank. If no sewerage system is available or the soil has low permeability (making it difficult to dispose of large volumes of water in a soakaway), then a reed bed system may be used.

A reed bed system uses a minimum of three and preferably five separate ponds in series, for the biological treatment of water. Water should be resident in the system for at least 7 days. This usually requires 3 m^2 of reed bed surface area per person using the system, with an outlet pipe height of 0.5 metre.

When the pond series is constructed, local swamp reeds should be transplanted into the ponds. During use, it must be ensured that the reeds are healthy and growing vigorously. If the reeds are dead, the system must be stopped until new reeds have been established.

Discharge from the final pond may go into an open water course. Samples should be tested regularly for bacterial quality if there is a water supply known to exist downstream.

Chemical toilets

The use of chemical toilets is strongly discouraged. They may only be used at project sites where it is proven that neither a standard water closet and septic tank system, nor a pit latrine, are practical. There are two main risks involved in chemical toilets: (a) damage to soils, plants, animals and water from the chemicals used in the toilets; and (b) health dangers to people in the vicinity from the sewage being disposed of.

Waste from chemical toilets shall not be poured into a foul drain leading into a sewage treatment plant that relies on biological aerobic digestion, since the bacteria would be killed by the discharge from chemical toilets; and this would ruin the treatment process. Chemical toilets should also not be discharged into septic tanks, since the chemical used in toilets can have an adverse effect on the sewage digestion process in this situation as well.

A disposal hole must be excavated to receive waste from chemical toilets. A suitable hole must be situated at least 100 metres from any dwelling and at least 100 metres from a water course, spring or well. Wherever possible, it should be on a permeable but not sandy soil. Holes shall be two metres deep when first excavated.

When full or nearly full, chemical toilets shall be transported to the approved emptying point for careful disposal under proper supervision. Once emptied, the toilet shall be sluiced down with plenty of water. The toilet receptacle shall also be well washed out with water and disinfectant, all of which shall also be discharged into the disposal hole.

Each time a toilet is emptied into the hole, the waste shall be covered with 100 mm of soil. When the hole has only 0.5 metre of depth remaining, it shall be completely filled and a new hole started.

F.11 Burning or Burial of Rubbish at Temporary Camps at Tower Sites

This guideline shall apply only to domestic rubbish at temporary site camps and not to permanent establishments, which shall have formal, long term procedures for waste disposal. All industrial and hazardous waste shall be sent to an MOFE-approved waste management facility for proper disposal. This shall include batteries, waste oil, tyres, used vehicle parts, and any form of hazardous chemicals or their containers.

All rubbish that is combustible shall be burnt. This shall be done only in a designated area, one per camp, on the downwind side of the living and working areas.

Before starting a bonfire, all vegetation shall be cleared in a radius of 5 metres around the fire site. If possible, rocks shall be placed in a circle to mark the location of the fire.

Burning shall be for a limited and defined period each day (e.g. 8 to 10 am).

One individual shall be made responsible for burning, and for ensuring that the fire is completely dead before he leaves it. The individual shall be provided with the means to control the fire if it starts to spread (e.g. buckets of water ready at the burning site).

Residues of bonfires and non-combustible items (e.g. glass) shall be buried in a designated and approved landfill site. When finished, the buried material shall be underneath at least one metre of soil.

ANNEX G: CONTRACTOR'S COVID-19 RISK MITIGATION PLAN TEMPLATE

Addendum to the Health and Safety Plan

Guidance: This template is intended to suggest a standardized, streamlined approach to help Contractors prepare and implement an acceptable COVID-19 Risk Mitigation Plan (COVID-19 Plan). Contractors should review the entire COVID-19 Plan template, adding their content to all cells shaded light blue. When complete, this Plan and its commitments would become an addendum to their health and safety management plan (or equivalent). In cases where works have been suspended or have not yet started, the COVID-19 Plan must be approved by the Supervising Engineer, MCA-Nepal and MCC before activities at the work site(s) may proceed. Ongoing work requires a COVID-19 Plan to be developed and approved within a defined time frame in order to continue without interruption.

No MCC and MCA-Nepal guidance, including this document, purports to offer medical advice with respect to COVID-19; for medical or scientific advice or information, individuals and contractors should seek guidance from qualified medical and scientific experts. The information on COVID-19 included in this guidance is based on the best-available information as of the date of publication of this document. Contractors should regularly incorporate updated guidance from international health organizations and government.

Contract information	
Project	
Company Name	
Health and Safety Plan Name	
COVID-19 Plan Date	
COVID-19 Plan Revision No.	
Acknowledgement/commitment	

Acronyms

[optional; include if needed]

CONTEXT

PURPOSE AND SCOPE

The COVID-19 pandemic creates unprecedented risks. This COVID-19 Plan template describes protection measures to avoid (where possible) and reduce risks associated with COVID-19. It applies to all Contractor employees, subcontractors, and authorized individuals (including the Supervising Engineer) on construction sites under the control of the Contractor. This Plan template meets or exceeds the minimum requirements of MCC[9] and national and local governments (whichever is stricter)[10]. It forms an addendum to the Contractor's health and safety and emergency response plans.

RISKS

1. COVID-19 is a highly infectious virus transmitted through the air and off surfaces on which it has settled. The principle exposure pathways are inhaling the airborne virus or touching a virus contaminated surface and then touching one's eyes, nose, or mouth. To prevent exposure to the virus it is essential that pathways into the respiratory system and mucus membranes are blocked. There is some concern that exposure could potentially be through contact with the eyes.

2. The virus can be transmitted before symptoms appear. These unsuspecting carriers may drive infection rates. It is important to implement measures that reduce the risk of transmission, even among people who have no symptoms of the disease.

People with underlying medical conditions (such as immunodeficiency, asthma, diabetes, and heart disease) and those who are older are at greatest risk of serious complications from the infection.
In terms of the "hierarchy of controls", the best way to protect the workforce and the public is to prevent the potential for exposure to the virus wherever possible. In the absence of being able to totally prevent exposure, the hierarchy of controls should be followed to implement the most effective measures first. The hierarchy of protection measures (listed from most effective to least effective) are elimination, substitution, engineering controls, administrative controls, safe work practices, and Personal Protective Equipment (PPE). The first three measures are designed to strengthen separation and social distancing which are proving to be perhaps the most successful means to reduce exposure risk at this time.

- Elimination/Substitution
  Elimination physically removes a hazard. An example would be to not perform an action, such as cancelling a non-essential meeting.
  Substitution replaces or reduces a hazard. An example would be using online tools to hold a meeting virtually.

- Engineering controls isolate workers from a hazard. They are built into the design of infrastructure, equipment, or a process. Examples include physical barriers to separate the public from the work site (fences, access security) and the use of portable chemical toilets for mobile sites (so workers do not have to use public or private bathrooms).

- Administrative controls change the way people work. They include policies, procedures, shift designs, and training to lessen the threat of a hazard to an individual. They are typically less effective than the engineering controls above as they rely on individual action and are most effective when used in conjunction with PPE. Examples of administrative controls include:
  - Encouraging sick workers to stay at home
  - Minimizing contact among workers, clients, and customers by replacing face-to-face meetings with virtual communications and implementing telework if feasible.
  - Establishing alternating days or extra shifts that reduce the total number of employees in an office at a given time, allowing them to maintain distance from one another while maintaining a full onsite work week.
  - Discontinuing nonessential travel to locations with ongoing COVID-19 outbreaks.
  - Developing emergency communications plans, including a forum for answering workers' concerns and internet-based communications, if feasible.

[9] IFC Performance Standards 2 and 4 include health and safety requirements to protect the work force and public.
[10] This document identifies minimum risk mitigation plan requirements for contractors to address. Based upon other national guidance, home office guidance, and local conditions, plan elements may need to go beyond these minimum requirements.

- Providing workers with up-to-date education and training on COVID-19 risk factors and protective behaviours (e.g., cough etiquette and care of PPE).

- Safe work practices are a type of administrative control. They are procedures individual workers can take to reduce their duration, frequency, or intensity of exposure to COVID-19. Examples include social distancing and good hygiene.

- Personal Protective Equipment (PPE) provides protection through equipment that a worker wears. The engineering controls, administrative controls and safe work practices mentioned above are the most effective risk mitigation measures. When social distancing cannot be consistently achieved, PPE should be deployed to break the exposure pathway. It is important to train workers in how to properly put on, use, remove, and (if appropriate) dispose of PPE.

COVID-19 ROLES AND RESPONSIBILITIES

Guidance for the table below: Articulate roles, responsibilities and procedures to implement and oversee the COVID-19 Plan (including by subcontractors). In large part, these should be established under their existing contracts (e.g., under existing health and safety responsibilities) but should be articulated given the scope of the responsibilities.

Contractor staff / Phone #	Responsibility for Implementation of Plan
	Overall responsibility for implementation of the Plan, including by subcontractors
	Screening of workers and visitors
	Adequate PPE, medical supplies, disinfectant, and other required supplies are acquired and maintained
	Training and toolbox talks
	Workplace sanitation
	Stakeholder coordination on COVID-19 issues. Notification and coordination with families and communities as appropriate
	Coordination of response to people exhibiting COVID-19 symptoms
	Reporting to the Supervising Engineer, MCA-Nepal, and as appropriate, local authorities

RESOURCES

Staffing and Stocking of First Aid Station and Infirmary	
Guidance: The Contractor should describe location, staffing and stocking for first aid and infirmary.	
Medical Facilities	
Guidance: Provide information on (1) the medical facility where people will be taken if needed and (2) how people would be transported. The protocol and contact information of the facility should be described.	

PREVENTATIVE MEASURES

National COVID-19 Requirements	
Guidance: The Contractor will describe national requirements, and this will be included as standard in all Contractor COVID-19 Plans. The Ministry of Health and Population (MoHP) is responsible for developing COVID-19 related guidelines in Nepal. The MoHP has set up a dedicated website for COVID-19 related information (www.covid19.mohp.gov.np). Corona Crisis Management Centre (CCMC) under Deputy-PM also issues various guidelines from time to time which are available on their website https://www.opmcm.gov.np/category/news/ . The Contractor should review these information while developing risk mitigation plan. In addition, the Ministry of Home Affairs (MoHA), district administration offices, and local governments also issues travel and other COVID-19 related guidelines/directives which needs to be considered by the Consultant while developing plans.	
Work Schedule	
Guidance: Contractor will describe, as appropriate, high level strategies to reduce the density of the work force. This may include: (a) opportunities for remote or teleworking so as to reduce the number of staff on the premises at any given time; (b) staggered shifts to reduce crowding; and (c) increased physical separation between staff when on the premises. Changes to the strategy and associated operational details should be communicated in monthly reports.	
Transportation	
Guidance: Describe measures to get workers safely to and from site.	
Personnel Management	
Guidance: Describe measures to: (a) Maintain complete contact information of all people on the site – name, identification number, address, emergency contact; (b) Ensure that no 'punitive' measures are taken when a sick worker is sent home for an extended period of time; (c)- Guide when workers are permitted to return to work (see Annex 1 for additional guidance).	

Work Force Screening and Site Management	
Workforce screening is an essential strategy for managing COVID-19 risks.	The Contractor will identify and (as appropriate) isolate sick workers before they come onto the job site through the following steps: 1. Implement a consistent health screening protocol upon entry (daily temperature and checks of key symptoms – see Annex 1). 2. During screening, contact information should be verified and updated if required. 3. Deny access to site for people suspected of COVID-19 (based on protocol and health screening results). The Contractor will take a person to a predetermined place of isolation and follow the protocol mandated by the national and local public health and other governmental organizations for suspected COVID-19 cases. 4. Strongly encourage workers to stay home if they are sick or are living with someone who is confirmed or symptomatic of COVID-19. If anyone on site demonstrates symptoms consistent with COVID-19, see the Emergency Response section below.
	Pre-determined location for isolation: Protocol for contacting government organizations regarding suspected COVID-19 cases:
Social Distancing	
Social distancing has proven to be an effective means to control the Coronavirus.	Minimum requirements include: 1. Avoid crowding and gathering in groups. 2. Keeping people at least 2m apart. 3. Staging and staggering crews where possible, assigning workers to dedicated shifts (which could include night-time and weekend work, where permitted). 4. Avoiding handshaking and using other forms of greeting that involve being in close proximity. 5. Conducting meetings and other work virtually whenever possible (including through technology such as onsite closed-circuit television cameras to monitor work progress, drones to assess construction coordination, and telecommunications platforms (e.g. skype, zoom). Where work tasks must be done near other workers, additional measures to break the potential exposure pathways are required (e.g., see PPE below).
Good Personal Hygiene	
These safe work practices are among the most effective in reducing the risk of transmission of the virus.	The following practices will be implemented on site: 1. Frequent hand washing (for at least 20 seconds). If soap and running water are not available, Contractors will provide hand rubs containing at least 60% alcohol or 70% isopropanol. The Contractor will provide an adequate number of hand washing stations (with soap and paper towels and/or sanitizer). a. For mobile field operations, there will be at least one hand washing station per crew.

	b. For fixed sites, the minimum standard for hand wash stations is: one at entrance to the office, one at the entrance to the job site, at each toilet, at each break area, and at the infirmary. 2. Prohibition of sharing cups, silverware, and utensils unless adequately cleaned with soap and water between uses. 3. Encouraging workers to cough or sneeze into a tissue or bent arm. Tissues are assumed to be contaminated and should be disposed of carefully so as not to become a source of transmission.
Workplace Sanitation	
Current evidence suggests that a novel Coronavirus may remain viable for hours or days on surfaces made from a variety of materials. The objective of workplace sanitation is to clean surfaces that people are likely to come into contact with their hands. Cleaning of visibly dirty surfaces followed by disinfection is a best practice measure for prevention of COVID-19 and other viral respiratory illnesses. Additional disinfection should take place of areas and equipment used by workers who present symptoms of COVID-19.	Minimum requirements include: ● Disinfecting a minimum of two times daily: once mid-morning / mid-day and once at the end of the shift. ● Wearing the required PPE (including disposable gloves and face masks) when cleaning and disinfecting surfaces. Use eye protection and coveralls or apron where appropriate. Preference is for gloves to be discarded after each cleaning. However, if reusable gloves are used, those gloves should be dedicated for cleaning and disinfection and should not be used for other purposes. ● Cleaning hands with soap and water immediately after gloves are removed. Disinfecting non-porous surfaces: ● If a surface is visibly dirty, clean it first with soap and water. ● Use either a diluted solution of unexpired bleach (1 part bleach to 60 parts water), an alcohol solution with at least 70% alcohol, and/or a government recommended solution for use against COVID- 19. ● After application, allow 2 minutes of contact time before wiping, or allow to air dry (without wiping). ● *NOTE: NEVER mix household bleach with ammonia or other cleaner.* Workplace sanitation focusses on high touch surfaces in: ▪ Structures, including offices, gates, toilets, change rooms, canteens, meal preparation areas, break areas, grievance boxes, suggestion boxes, stairs, scaffolding, handrails, tools, buckets, wheel barrels, and other equipment shall be cleaned regularly. ▪ Vehicles & Construction Equipment. This includes inside of work vehicles and heavy equipment. Handles, knobs, levers, seatbelts and commonly touched surfaces should be cleaned. ▪ Hand and Power Tools. Please note electric tools must be disconnected prior to disinfection. No person may use tools or equipment that have been used by another person without being disinfected first.
Training/Toolbox Talks and Safety Awareness	

	All workers must be provided an initial training that includes, at a minimum: signs and symptoms of COVID-19 - How it is transmitted; - What "social distancing" is; - What preventative measures have been found to be effective; - Site protocols (transportation, screening, where the infirmary is, what to do if you have symptoms, safe work practices); - How to properly wear and dispose or reuse PPE. - Who to contact with COVID-19 related follow up questions Toolbox talks will be used subsequent to the initial training to reinforce messages and communicate any changes.
Personal Protective Equipment	
PPE provides protection through equipment that a person wears. When social distancing cannot be consistently achieved, PPE should be deployed to break the exposure pathway. PPE must be chosen based on risks to a person.	As appropriate, the Contractor will provide adequate supplies and training in the inspection, use, maintenance, on site storage, and proper disposal of: 1. *Masks:* Masks reduce inhalation of the virus and can minimize the virus being exhaled by contaminated individuals. Masks that cover the nose and mouth are particularly important where work must be done in close quarters. 2. *Gloves*: There are four categories of PPE gloves: leather, canvas/metal mesh; fabric/coated; chemical-/liquid-resistant and insulating rubber. Glove selection should be task specific to afford needed protection from injury. Gloves can help reduce the tendency to touch the face. If known or suspected contaminated surfaces are touched, the gloves should be disposed of carefully so as not to become a source of transmission and replaced with new gloves.

EXPOSURE RESPONSE

Isolation	
Guidance: Contractor must: 1. Specify a location to isolate any individual exhibiting signs and symptoms of COVID-19 identified on-site. 2. Specify quarantine hygiene requirements (mask, hand washing, cough/sneeze control, etc.). 3. Identify all individuals to be notified of the action to quarantine (Contractor team, designated medical facility, National COVID-19 organization.	During screening, observation and interview of personnel for symptoms of COVID-19 infection (temperature checks, history of travel, coughs, chest pains, places visited, etc.) by trained staff, a person suspected of COVID-19 symptoms will immediately be sent to the site infirmary or designated isolation quarters for quarantine. [contractor to add additional information]

Response to suspected COVID-19 cases	
	Follow national and Contractor protocol for how to manage individuals suspected of having COVID-19 symptoms. In the event national and Contractor protocol are not consistent or complimentary, the stricter protocol will apply. Contractor will evaluate additional measures to be taken such as pausing the task the individual was involved with so as to screen co-workers, initiating sanitization procedures noted above and initiating contact tracing of persons who may have come into contact with the individual.
Personnel management	
Guidance: Individuals confirmed to have been in contact with an individual suspected to have COVID-19 shall be released for a minimum 14-day self-quarantine period. Contractor is to describe what their policy is for pay and benefits to individuals during this quarantine period.	

ENGAGEMENT

Stakeholder Engagement	
	Stakeholder engagement and grievance management will continue under the Contractor's existing mechanisms and responsibilities. Contractors may expand these efforts to address COVID-19 risks. Contractors should avoid in-person meetings where possible while maintaining open lines of communication.
Reporting	
	Contractors should provide Immediate notification to the MCA of incidences of suspected and confirmed COVID-19 cases (using the contractor's screening criteria). In the regular monthly report, the Contractor will include, as a minimum, the following information on: 1. The implementation of the COVID-19 Plan and any updates to the Plan; 2. Incidences of suspected and confirmed COVID-19 cases; 3. Incidences of non-compliance with the Plan and remedial actions; 4. Impacts of COVID-19 on project implementation and completion; 5. Additional steps taken to reduce COVID-19 risks through lessons learned.
Review of this Plan	
Adaptive management is a key element.	Plans will be reviewed and updated as needed. Given the rapidly changing nature of the situation, it may be necessary to review and update the plans frequently.

APPENDIX 1: HEALTH SCREENING PROTOCOL FOR CORONAVIRUS D-19 SYMPTOMS

Implementing a consistent protocol for screening workers will not prevent workers from getting sick, as 25 – 50% of infected people may not show symptoms. But it is important to limit the spread, as people appear to be most infectious when showing symptoms. ***A Contractor's screening protocol should be based on the best available medical advice[11] and a country's guidance (whichever is stricter) and updated as new information becomes available***. The protocol below should be considered a starting point.

Key symptoms[12]	YES	NO	Action
Fever (>/= 38ºC [100.4°F])			**If yes, isolate the employee, call the relevant Health Authority and/or seek private medical advice, and follow that guidance. If no medical advice is available through either source, quarantine for 14 days. Difficulty breathing always requires immediate medical attention, regardless of COVID-19.**
Cough (usually dry)			
Shortness of breath or difficulty breathing			
Any exposure to someone who has a confirmed case of COVID-19			
Symptoms sometimes associated with COVID-19			
Recent loss of taste or smell			**If the employee has no fever but exhibits two of these symptoms, consult medical personnel and follow the country's protocols. At the discretion of the medical personnel, the employees may be placed on a 72-hr quarantine.**
Chills / repeated shaking with chills			
Fatigue			
Sore throat			
Headache			
Muscle pains			
Diarrhoea			
Sneezing			
Additional Quarantine Consideration			
Have you been in contact with anyone who has symptoms of COVID-19 in the last 14 days?			**If yes, quarantine for 14 days since contact, and if symptoms develop, follow the guidance above.**

Employees can return to work providing:

- The quarantine/self-isolation period has been completed.
  - **AND**
- Temperature has been< 38ºC for at least 72-hours prior to returning to work site (that is three full days of no fever without the use medicine that reduces fevers). Temperature will continue to be monitored along with rest of work force.
  - **AND**
- other symptoms have improved (ex. when their cough or shortness of breath have improved).
  - **AND**
- The answer to the **Additional Quarantine Consideration** is **No.**

[11] Material here is drawn from the World Health Organization and the U.S. Center for Disease Control. Companies should consult their own medical practitioners and follow national regulations and norms.

[12] Emergency warning signs that merit immediate attention include: difficulty breathing or shortness of breath; persistent pain or pressure in the chest; mental confusion or inability to arouse/respond; and bluish lips or face.

Annex 4

Annex 6_ESHSMP_Pricing_Guide_Addendum

Annex
6_ESHSMP_Pricing_(

Annex 6
ESHSMP BOQ: PRICING GUIDE

S No.	ESHSMP-related work	Unit	No (estimate)	Expectation	Milestone guide *
1.	**General Mitigation Measures**				
1.01	Develop a Contractor's Environmental, Social, Health, and Safety Management Plan (CESHSMP) based on Employer's ESHSMP		1	A detailed CESHSMP that uses the Employer's ESHSMP as its basis and either meets or exceeds its requirements; obtain approval for the plan from both the Engineer and the Employer; meeting the Employer's ESHSMP is a legal requirement under the project's Environmental Permit.	On completion of plan; before site works commence.
1.02	Conduct employee induction training on Anti-Sexual Harassment Policy, Gender based Violence, Worker's Code of Conduct, GRM, Environmental, Social, Cultural sensitivity as specified in the ESHSMP before commensement of site activites as well as bi-annually refresher training		1 course, 6 training events (One event half yearly each)	The induction training content meets or exceeds the requirements of Chapter 4, 5, 6, 7, 8, 9 of the Employer's ESHSMP; training of all staff and labors in its use; refresher training of staff and new training for new staff; and evidence from regular reporting that it is being implemented effectively.	Half Yearly on evidence of verification, as relevant, according to agreed schedule.
1.03	Conduct training to the Contractor's employees on TIP risks including child labor		1 course, 6 events (Half Yearly per year)	Training to all staff in the issue of gender and social inclusion, TIP, child labor meeting or exceeding the requirement of Chapter 7 and Annex D.04, D.05, D.12, D.15, D.16; refresher training of staff and new training for new staff; and evidence from regular reporting that it is being implemented effectively.	Half Yearly on evidence of verification, as relevant, according to agreed schedule.
1.04	Conduct training on Occupational Health and Safety including hazardeous materials		1 course, 6 events (One event half yearly)	An appropriate training course and training materials on these matters that comply with or exceed the requirements of Chapter 6 and Annex C of the Employer's ESHSMP; competent delivery of the training to all of the Contractor's staff; refresher training of staff and new training for new staff; and evidence from regular reporting that it is being implemented effectively.	Half Yearly on evidence of verification, as relevant, according to agreed schedule.
1.05	Develop and implement Grievance Redress Mechanism for addressing grievances from Workers and Community		1	A Contractor's Worker's Grievance Redress Mechanism in accordance with Chapter 4 section 4.5, Chapter 7, Annexes D04, D14 of the Employer's ESHSMP; and evidence from the Engineer's ESHS monitoring and reporting that it is being implemented effectively.	Monthly on evidence of verification, as relevant, according to agreed schedule.
2.	**Physical Environment Mitigation Measures**				
2.01	Manage excavated soils and control erosion		1 per pole replaced or erected	All topsoil and subsoil required to be removed in sites disturbed by the Contractor's activities are stored and replaced on site as required in sections E.14 and E.17 of the Employer's ESHSMP. Effective structures for erosion prevention and sediment capture at all Contractor's work sites, camps, stores and accommodation areas, etc.; and evidence from the Engineer's ESHS monitoring and reporting that the measures are effective.	Monthly on evidence of verification, as relevant, according to agreed schedule.
2.02	Spray disturbed areas with water if substantive off-site fugitive dust impacts occur		Spray during the vehicular movement for transporttion of materials.	All surfaces from where dust is otherwise blowing are watered as necessary in the dry season, according to the Engineer's instruction (which the Contractor may also recommend).	Monthly on evidence of verification, as relevant, according to agreed schedule.
2.03	Provide appropriate toilet facilities and bury all organic wastes		Per Contractor's planned facilities	Provision of pit latrines at all tower sites, as per the specification in section F10 of the Employer's ESHSMP; management of waste at all tower sites, as per the specifications in sections F09 and F11 of the Employer's ESHSMP; and evidence from the Engineer's ESHS monitoring and reporting that the measures are effective.	Monthly on evidence of verification, as relevant, according to agreed schedule.
2.04	Provide secondary containment for any fuel or hazardous materials		Per Contractor's planned facilities	Compliance by the Contractor of the requirement in Chapter 9 and Annex F of the Employer's ESHSMP to provide double containment of hazardous materials, especially fuels, as approved by the Engineer; and evidence from regular reporting of the diligent management of such facilities.	Monthly on evidence of verification, as relevant, according to agreed schedule.
2.05	Collect, segregate and dispose all waste for reuse, recycle, or disposal at approved facilities		Per Contractor's planned facilities	Management of waste by the Contractor according to the requirements of sections 9.3 and F.09 of the Employer's ESHSMP; and evidence from the Engineer's ESHS monitoring and reporting that the measures are effective.	Monthly on evidence of verification, as relevant, according to agreed schedule.
3.	**Biological Environmental Mitigation Measures**				
3.01	Conduct environmental and social impact and mitigation survey through checklist prepared and approved by the engineer and employer		1 survey	Undertake Environmental and Social impact and mitigation surveys as directed by the Engineer's Environmental Management Plan checklist and evidence from the Engineer's monitoring and reporting that the actions have been undertaken diligently.	Monthly on evidence of verification, as relevant, according to agreed schedule.
3.02	Implement forest fire management strategy		30 events	Undertake forest fire management measures as instructed by the Engineer and in accordance with Annex B2 of the Employer's ESHSMP; and evidence from the Engineer's ESHS monitoring and reporting that the actions have been undertaken diligently.	Yearly evidence of verification, as relevant, according to agreed schedule.
4.	**Socio-economic and Cultural Environment Mitigation Measures**				
4.01	Implement Workforce Management Plan		1	A Contractor's Workforce Management Plan that meets or exceeds the requirements of section 7 of the Employer's ESHSMP; and evidence from regular reporting that it is being implemented effectively.	Monthly on evidence of verification, as relevant, according to agreed schedule.
4.02	Implement Worker Access Management Protocol		1	A Contractor's procedure for the implementation of the protocol in section D.08 of the Employer's ESHSMP; and evidence from the Engineer's ESHS monitoring and reporting that it has been effective.	Monthly on evidence of verification, as relevant, according to agreed schedule.
5	**Gender, Social Inclusion and Counter-TIP Measures**				
5.01	Develop and implement Anti-Sexual Harassment Policy		1	Contractor's Anti-Sexual Harassment Policy meeting the requirements of MCC's Guidance Note on Sexual Harassment; Obtain approval from both the Engineer and the Employer.	On completion of plan; before site works commence.
5.02	Develop and Implement TIP Risk Management Plan		1	A detailed Contractor's Trafficking in Persons Risk Management Plan that uses the Employer's TIP Risk Management Plan in accordance with Chapter 7 Annex D.05 and D.09 to D.16 of the Employer's ESHSMP and Employer's TIP Risk Management Plan; Obtain approval from both the Engineer and the Employer; and evidence from the Engineer's ESHS monitoring and reporting that it is being implemented effectively.	On completion of plan; before site works commence.
6	**Health and Safety Measures**				
6.01	Personal Protective Equipment (PPEs) and specialized PPEs for erection and stringing activities		1	The PPEs must be available to all the Consultants, Engineers, employees and labors meeting the standards as in ESHSMP Chapter-06 and Annex C and from the Engineer's ESHS monitoring and reporting that it is being implemented.	Monthly on evidence of verification, as relevant, according to agreed schedule.
6.02	First Aid Kits and necessary Emergency medical items as required		1	First Aid Kits and necessary emergency medical items meet the standards as in ESHSMP and from the Engineer's ESHS monitoring and reporting that it is being implemented.	Monthly on evidence of verification, as relevant, according to agreed schedule.

6.03	Any other items not mentioned above but the bidder may wish to include as per standard practice and mentioned in ESHSMP document.		1	As per employer's ESHSMP	Monthly on evidence of verification, as relevant, according to agreed schedule.

*Note on Milestones for ESHSMP works. Some ESHSMP actions will be paid against deliverables at the end of the month in which they are certified as complete: these are the creation of a satisfactory CESHSMP. A monthly schedule will be agreed with the Engineer for all other ESHSMP activities, and the completed items may be billed as per that schedule as part of each regular monthly claim. All bills (for all works implemented by the contractor) will require an ESHS certificate for payment (as well as other certificates). ESHS certificates will be dependent on the Contractor meeting the agreed ESHSMP schedule.

Annex 5

TECH-8: Manufacturer's Authorization

Design and Construction of Electricity Distribution System- Extension & Upgradation
Ref No: MCA-N/ETP/CB/007

[This letter of authorization should be on the letterhead of the manufacturer of the Goods/Equipment and should be signed by a person with the proper authority to sign documents that are binding on such manufacturer. A Offeror shall include this letter of authorization in its Bid/Offer].

WHEREAS

We, *[insert name of manufacturer]* are reputable manufacturers of *[insert type of goods/equipment manufactured]* having factories at *[insert location(s) of factories]*.

THEREFORE, we do hereby

(a) Authorize *[insert name of Offeror]* to submit a Offer in response to the Invitation for Bids indicated above. The purpose of such Offer is to provide the following Goods/Equipment: *[insert description of Goods/Equipment]* manufactured by us, and to subsequently negotiate and sign the Contract for the supply and install such Goods/*Equipment*.

AND

(b) Extend our full guarantee and warranty in accordance with the provision stated under Employer's Requirement/Work's Requirement, with respect to the Goods/*Equipment* offered in the Offer and ensure the delivery of the required specified quantity within stipulated time. W*e confirm that we hold a valid ISO 9001* (including design in scope of registration) certification *for the offered* Goods/Equipment*]*.

Signed:

In the capacity of:

[Print Name]

duly authorized to sign on behalf of the Manufacturer

[Insert name, address of Manufacturer and email id]

(Note: This form is only for reference, the manufacturers may issue the manufacturer's authorization form in their own format)