

**GOVERNMENT OF PAKISTAN
MINISTRY OF ENERGY
(POWER DIVISION)**

Dasu Transmission Line Project



**Environmental and Social Impact Assessment
(Volume II: Annexes)**



**National Transmission and Despatch Company
(NTDC)**

NOVEMBER 2019

List of Annexes

Annex 5-1: Species of the Project Area.....	2
Annex 7.1: Standard Operating Procedures of NTDC on Workers.....	25
Annex 9-1: Environmental and Social Code of Practices.....	28
Annex 10-1: Newspaper Advertisements on National Public Consultation on October 6, 2016 at Islamabad	59
Annex 10-2: Details of Consultation Meetings and List of Participants	60
Annex 10-3: List of Consultation Participants	101
Annex 10.4: Consultation Photos	112

Annex 5-1: Species of the Project Area

Association of vascular plant species reported from the study area with various (sub-) habitat types

Botanical Name	Aquatic habitat	Cultivated land	Broad leaved	Open land	Riverine	Scrub	Settlements	Coniferous forest	Rangeland	Ridge
<i>Abutilon indicum</i> (Linn.) Sweet	-	-	-	+	-	-	-	-	-	-
<i>Acacia farnesiana</i> (Linn.) Willd.	-	-	-	+	-	-	-	-	-	-
<i>Acacia modesta</i> Wall.,	-	-	-	-	-	+	-	-	-	-
<i>Acacia nilotica</i> (Linn.) Delile	-	-	+	-	-	-	-	-	-	-
<i>Achyranthes aspera</i> f. <i>robustoides</i>	-	-	-	+	-	-	-	-	-	-
<i>Adiantum capillus veneris</i> L.	-	-	+	-	-	-	-	+	-	+
<i>Adiantum venustum</i> D. Don	-	-	+	-	-	-	-	+	-	+
<i>Aerva sanguinolenta</i> (Linn.) Blume	-	-	-	+	-	-	-	-	-	-
<i>Agave americana</i> L	-	-	-	-	+	+	-	-	-	-
<i>Agrostis munroana</i> Aitch. & Hemsel	-	-	-	-	-	-	-	-	+	-
<i>Ailanthus altissima</i> (Mill.) Swingle	-	+	-	-	-	-	-	-	-	-
<i>Ajuga bracteosa</i> Wall.	-	-	-	+	-	-	-	-	-	-
<i>Albizia chinensis</i> (Osbeck) Merrill	-	-	-	+	-	-	-	-	-	-
<i>Albizia lebbeck</i> (L.) Benth.	-	-	-	+	-	-	-	-	-	-
<i>Alliaria petiolata</i> (M. Bieb.) Cavara & Grande	-	+	-	-	-	-	-	-	-	-
<i>Allium cepa</i> Linn.,	-	+	-	-	-	-	-	-	-	-
<i>Allium jacquemontii</i> Kunth	-	-	+	-	-	-	-	-	-	-
<i>Allium sativum</i> Linn	-	+	-	-	-	-	-	-	-	-
<i>Alnus nitida</i> (Spash) Endl.	-	-	-	-	+	-	-	-	-	-
<i>Alocasia macrorhiza</i> (Linn.) G. Don	-	+	-	-	-	-	-	-	-	-

Botanical Name	Aquatic habitat	Cultivated land	Broad leaved	Open land	Riverine	Scrub	Settlements	Coniferous forest	Rangeland	Ridge
<i>Alternanthera pungens</i> Kunth	-	-	-	+	-	-	-	-	-	-
<i>Amaranthus viridis</i> Linn.,	-	-	-	+	-	-	-	-	-	-
<i>Ammi majus</i> Linn.,	-	-	-	+	-	-	-	-	-	-
<i>Anagallis arvensis</i> L var. <i>coerulea</i> (L.) Gouan	-	-	-	+	-	-	-	-	-	-
<i>Anaphalis adnata</i> Wall. Ex DC.	-	-	-	+	-	-	-	-	-	-
<i>Andrachne cordifolia</i> (Wall. ex Decne.) Muell	-	-	-	-	-	+	-	-	-	-
<i>Apluda mutica</i> Linn	-	-	-	-	-	-	-	-	+	-
<i>Arabis bijuga</i> G. Watt	-	+	+	-	-	-	-	-	-	-
<i>Araucaria columnaris</i> (Forster) Hook f.	-	-	-	-	-	-	+	-	-	-
<i>Arenaria leptoclados</i> (Reichb.) Guss	-	+	-	-	-	-	-	-	-	-
<i>Arenaria neelgerrensis</i> Wight & Arn	-	+	-	-	-	-	-	-	-	-
<i>Arenaria serpyllifolia</i> L	-	+	-	-	-	-	-	-	-	-
<i>Argemone mexicana</i> Linn	-	-	-	+	-	-	-	-	-	-
<i>Aristida adscensionis</i> Linn	-	-	-	-	-	+	-	-	+	-
<i>Aristida cyanantha</i> Neesex Steud	-	-	-	-	-	-	-	-	+	-
<i>Arnebia hispidissima</i> (Lehm.) A. DC	-	-	-	-	-	-	-	-	+	-
<i>Artemisia absinthium</i> L.	-	-	-	-	-	+	-	-	-	-
<i>Artemisia scoparia</i> Waldst. & Kit.	-	-	-	-	-	+	-	-	-	-
<i>Artemisia vulgaris</i> L.	-	-	-	-	-	+	-	-	-	-
<i>Arundinaria falcata</i> Nees	-	-	-	-	-	-	-	-	+	-

Botanical Name	Aquatic habitat	Cultivated land	Broad leaved	Open land	Riverine	Scrub	Settlements	Coniferous forest	Rangeland	Ridge
<i>Arundo donax</i> Linn	-	-	-	-	-	-	-	-	+	-
<i>Asparagus capitatus</i> Baker (ii) subsp. <i>gracilis</i> Browicz	-	-	-	+	-	-	-	-	-	-
<i>Avena barbata</i> Pott ex Link	-	-	-	-	-	-	-	-	+	-
<i>Avena fatua</i> Linn subsp. <i>fatua</i>	-	+	-	+	-	-	-	-	+	-
<i>Azadirachta indica</i> Adr. Juss.	-	-	-	+	-	-	-	-	-	-
<i>Barleria acanthoides</i> Vahl	-	-	-	-	+	-	-	-	-	-
<i>Bauhinia retusa</i> Roxb	-	-	+	-	-	-	-	-	-	-
<i>Berberis lycium</i> Royle	-	-	-	-	-	+	-	-	-	-
<i>Bergenia ciliata</i> (Haw.)Stern f. <i>ligulata</i> Yeo	-	-	-	-	-	-	-	-	-	-
<i>Bidens chinensis</i> (L.) Willd.	-	-	-	+	-	-	-	-	-	-
<i>Boerhavia procumbens</i> Banks ex Roxb	-	-	-	+	-	-	-	-	-	-
<i>Bombax ceiba</i> Linn	-	-	-	+	-	-	-	-	-	-
<i>Bothriochloa bladhii</i> (Retz.) S.T. Blake	-	-	-	-	-	-	-	-	+	-
<i>Bougainvillea spectabilis</i> Willd.,	-	-	-	-	-	-	+	-	-	-
<i>Brachiaria reptans</i> (Linn.) Gardner & Hubbard	-	-	-	-	-	-	-	-	+	-
<i>Brassica juncea</i> (Linn.) Czern. et Coss.	-	+	-	-	-	-	-	-	-	-
<i>Brassica rapa</i> L.	-	+	-	-	-	-	-	-	-	-
<i>Brassica rapa</i> Linn. subsp. <i>rapa</i>	-	+	-	-	-	-	-	-	-	-

Botanical Name	Aquatic habitat	Cultivated land	Broad leaved	Open land	Riverine	Scrub	Settlements	Coniferous forest	Rangeland	Ridge
<i>Broussonetia papyrifera</i> (L.) L'Herit. ex Vent	-	-	-	+	-	-	-	-	-	-
<i>Buddleja asiatica</i> Lour.,	-	-	-	-	-	+	-	-	-	-
<i>Buddleja crispa</i> Benth.,	-	-	-	-	-	+	-	-	-	-
<i>Buglossoides arvensis</i> (L.) Johnston	-	-	-	-	-	-	-	-	+	-
<i>Butea monosperma</i> (Lain.) Taubert	-	-	-	+	-	-	-	-	-	-
<i>Callicarpa macrophylla</i> Vahl	-	-	-	-	-	-	-	-	-	+
<i>Calotropis procera</i> (Ait.) Ait.	-	-	-	-	+	+	-	-	-	-
<i>Campanula pallida</i> Wall var. <i>pallida</i>	-	-	+	-	-	-	-	-	-	-
<i>Canna indica</i> Linn	-	-	-	-	+	-	-	-	-	-
<i>Cannabis sativa</i> Linn.,	-	-	-	2	-	-	-	-	-	-
<i>Capsella bursa-pastoris</i> (L.) Medik	-	+	-	+	-	-	-	-	-	-
<i>Caralluma tuberculata</i> N.E. Brown	-	-	-	-	-	+	-	-	-	-
<i>Cardamine hirsuta</i> Linn	-	+	-	+	-	-	-	-	-	-
<i>Cardaria chalepense</i> (Linn.) Hand.-Mazz.	-	-	-	-	-	-	-	-	-	-
<i>Carex brunnea</i> Thunb	-	-	-	-	-	-	-	-	-	+
<i>Carica papaya</i> Linn	-	+	-	-	-	-	-	-	-	-
<i>Carissa opaca</i>	-	-	-	-	-	+	+	-	-	-
<i>Carthamus oxycantha</i> M. B.	-	-	-	-	+	-	-	-	-	-
<i>Cassia fistula</i> Linn	-	-	-	+	-	-	-	-	-	-
<i>Cassia wallichiana</i> DC	-	-	+	-	-	-	-	-	-	-

Botanical Name	Aquatic habitat	Cultivated land	Broad leaved	Open land	Riverine	Scrub	Settlements	Coniferous forest	Rangeland	Ridge
Cedrus deodara (Roxb. Ex D Don) G. Don	-	-	-	-	-	-	-	+	-	-
Celosia argentea Linn	-	-	-	+	-	-	-	-	-	-
Centaurea iberica Tev. Ex Spreng.	-	-	-	+	-	-	-	-	-	-
Chenopodium album	-	+	-	+	-	-	+	-	-	-
Chenopodium botrys L.	-	-	-	+	-	-	-	-	-	-
Chrysopogon serrulatus Trin.	-	-	-	-	-	-	-	-	+	-
Cichorium argyracanthum DC.	-	-	-	+	-	-	-	-	-	-
Cissampelos pareira L.	-	-	-	-	-	+	-	-	-	-
Clematis buchananiana DC	-	-	-	+	-	-	-	-	-	-
Clematis grata Wall.	-	-	-	+	-	-	-	-	-	-
Clematis graveolens Lindl.	-	-	-	+	-	-	-	-	-	-
Clinopodium vulgare L	-	-	-	-	-	-	-	+	-	-
Colchicum luteum Baker	-	-	-	+	-	-	-	-	-	-
Colebrookea oppositifolia Smith,	-	-	-	-	-	+	-	-	-	-
Convolvulus arvensis Linn	-	-	-	+	-	-	-	-	-	-
Conyza bonariensis (L.) Cronquist	-	-	-	+	-	-	-	-	-	-
Conyza canadensis (L.) Cronquist	-	-	-	+	-	-	-	-	-	-
Coronopus didymus (Linn.) Smith	-	-	-	+	-	-	-	-	-	-
Cotinus coggyria Scop	-	-	+	-	-	-	-	-	-	-
Cotoneaster affinis (Lindl.) Schneider	-	-	+	-	-	+	-	-	-	-
Cotoneaster nummularia Esch. & Mey	-	-	+	-	-	+	-	-	-	-

Botanical Name	Aquatic habitat	Cultivated land	Broad leaved	Open land	Riverine	Scrub	Settlements	Coniferous forest	Rangeland	Ridge
<i>Crotalaria medicaginea</i> Lamk var. <i>medicaginea</i>	-	-	-	+	-	-	-	-	-	-
<i>Cupressus sempervirens</i> L.	-	-	-	-	-	-	+	-	-	-
<i>Cymbopogon jwarancusa</i> (Jones) Schult	-	-	-	-	-	-	-	-	+	-
<i>Cynodon dactylon</i> (Linn.) Pers	-	-	-	+	-	-	-	-	-	-
<i>Cyperus compressus</i> L.	-	-	-	-	-	-	-	-	-	+
<i>Dalbergia sissoo</i> Roxb.,	-	-	+	-	-	-	-	-	-	-
<i>Daphne mucronata</i>	-	-	-	-	-	+	-	-	-	-
<i>Datura innoxia</i> Miller	-	-	-	+	-	-	-	-	-	-
<i>Daucus carota</i> Linn	-	+	-	-	-	-	-	-	-	-
<i>Debregeasia salicifolia</i> (D.Don) Rendle	-	-	-	-	-	-	-	-	-	+
<i>Desmodium elegans</i> DC	-	-	-	-	-	-	-	-	-	+
<i>Dicliptera bupleuroides</i> Nees var. <i>bupleuroides</i>	-	-	-	+	-	-	-	-	-	-
<i>Digitaria abludens</i> (Roem. & Schult.) Veldk	-	-	-	-	-	-	-	-	+	-
<i>Diospyros lotus</i> Linn	-	-	+	-	-	-	-	-	-	-
<i>Dodonaea viscosa</i> (Linn.) Jacq	-	-	-	-	-	+	-	-	-	-
<i>Duchesnea indica</i> (Andrews) Focke	-	-	+	-	-	-	-	-	-	-
<i>Echinops niveus</i> Wall ex DC.	-	-	-	-	+	+	-	-	-	-
<i>Eclipta prostrata</i> (L.) L. Mant.	-	-	-	-	+	-	-	-	-	-
<i>Ehretia obtusifolia</i> Hochst. ex DC.,	-	-	+	+	-	-	-	-	-	-

Botanical Name	Aquatic habitat	Cultivated land	Broad leaved	Open land	Riverine	Scrub	Settlements	Coniferous forest	Rangeland	Ridge
<i>Elaeagnus umbellata</i> Thunb.	-	-	-	-	-	+	-	-	-	-
<i>Ephedra ciliata</i> Fisch. & Mey	-	-	-	-	-	+	-	-	-	-
<i>Ephedra garardiana</i> Wall. Ex Stapf	-	-	-	-	-	+	-	-	-	-
<i>Epilobium hirsutum</i> L	-	-	-	+	-	-	-	-	-	-
<i>Equisetum arvense</i> L.	+	-	-	-	+	-	-	-	-	-
<i>Eragrostis minor</i> Host	-	-	-	-	-	-	-	-	+	-
<i>Eriobotrya japonica</i> (Thunb.) Lindley	-	+	-	-	-	-	-	-	-	-
<i>Erodium cicutarium</i> (L.)L'Herit, ex Aiton	-	-	-	+	-	-	-	-	-	-
<i>Eryngium coeruleum</i> M-Bieb.,	-	-	-	+	-	-	-	-	-	-
<i>Eucalyptus amplifolia</i> Naudin	-	+	-	-	-	-	-	-	-	-
<i>Euonymus japonicus</i> Thunb	-	-	-	+	-	-	-	-	-	-
<i>Euphorbia helioscopia</i> L	-	-	-	+	-	-	-	-	-	-
<i>Fagonia indica</i> Burm. f.,	-	-	-	-	-	+	-	-	-	-
<i>Fagopyrum dibotrys</i> (D Don) Hara	-	-	-	-	-	-	-	+	-	-
<i>Ficus benghalensis</i> L	-	-	+	+	-	-	-	-	-	-
<i>Ficus carica</i> L ssp. <i>carica</i>	-	-	-	+	-	-	-	-	-	-
<i>Ficus palmata</i> Forssk.	-	-	-	+	-	-	-	-	-	-
<i>Ficus religiosa</i> L	-	-	-	+	-	-	-	-	-	-
<i>Fraxinus xanthoxyloides</i> (G. Don) DC.	-	-	+	-	-	-	-	-	-	-
<i>Fumaria indica</i> (Hauskn.) Pugsley	-	+	-	-	-	-	-	-	-	-
<i>Gageasp</i>	-	-	-	+	-	-	-	-	-	-

Botanical Name	Aquatic habitat	Cultivated land	Broad leaved	Open land	Riverine	Scrub	Settlements	Coniferous forest	Rangeland	Ridge
Galium aparine L	-	-	+	-	-	-	-	-	-	-
Glochidion velutinum Wight	-	-	-	-	-	+	-	-	-	-
Grewia damine Gaertn	-	+	-	-	-	-	-	-	-	-
Grewia optiva Drummond ex Burret	-	-	-	+	-	-	-	-	-	-
Hedera nepalensis K. Koch	-	-	+	-	-	-	-	+	-	-
Heteropogon contortus (Linn.)	-	-	-	-	-	-	-	-	+	-
Hibiscus micranthus Linn. f. var. micranthus	-	-	-	-	-	-	-	-	-	-
Himalrandia tetrasperma (Roxb.) Yamazaki	-	-	-	-	-	+	-	-	-	-
Hypericum choisianum Wall	-	-	-	-	-	+	-	-	-	-
Hypericum perforatum Linn.,	-	-	-	+	-	-	-	-	-	-
Imperata cylindrica (Linn) Raeuschel	-	-	-	-	-	-	-	-	+	-
Incarvillea emodi (Royle ex Lindl.) Chatterjee	-	-	-	-	-	-	-	-	-	+
Indigofera heterantha Wall. ex Brandis var. heterantha	-	-	-	-	-	+	-	-	-	-
Iris aitchisonii (Baker) Boiss	-	-	-	-	-	-	-	-	-	-
Iris germanica L.	-	-	-	+	-	-	+	-	-	-
Isodon rugosus (Wall. ex Benth.) Codd	-	-	-	-	-	+	-	-	-	-
Ixiolirion tataricum (Pall.) Herb	-	-	-	-	+	-	-	-	-	-
Jasminum humile Linn.	-	-	-	-	-	+	-	-	-	-
Juglans regia Linn.	-	-	-	-	-	-	-	-	-	-

Botanical Name	Aquatic habitat	Cultivated land	Broad leaved	Open land	Riverine	Scrub	Settlements	Coniferous forest	Rangeland	Ridge
<i>Juncus articulatus</i> Linn	-	-	-	-	-	-	-	-	-	+
<i>Justicia adhatoda</i> L.,	-	-	-	-	-	+	-	-	-	-
<i>Kickxia incana</i> (Wall.) Penn.	-	-	-	-	-	-	-	-	-	+
<i>Korthalsella opuntia</i> (Thunb.) Merrill	-	-	+	-	-	-	-	-	-	-
<i>Lamium amplexicaule</i> L.	-	-	-	+	-	-	-	-	-	-
<i>Lantana camara</i> Linn.	-	-	-	+	-	-	-	-	-	-
<i>Lathyrus aphaea</i> Linn.	-	-	-	+	-	-	-	-	-	-
<i>Launaea procumbens</i> (Roxb.) Ramayya & Rajagopal	-	-	-	+	-	-	-	-	-	-
<i>Lepidium sativum</i> Linn	-	-	-	+	-	-	-	-	-	-
<i>Lespedeza floribunda</i> Bunge	-	-	-	+	-	-	-	-	-	-
<i>Linum corymbulosum</i> Reichenb	-	-	-	+	-	-	-	-	-	-
<i>Lotus corniculatus</i> L. var. <i>corniculatus</i>	+	-	-	-	+	-	-	-	-	-
<i>Lycopersicon esculentum</i> Miller	-	+	-	-	-	-	-	-	-	-
<i>Lysimachia chenopodioides</i> Watt ex Hook. f	-	-	+	-	-	-	-	-	-	-
<i>Malvastrum coromendelianum</i> (Linn.) Garcke	-	-	-	+	-	-	-	-	-	-
<i>Marsdenia roylei</i> Wight	-	-	-	+	-	-	-	-	-	-
<i>Maytenus royleanus</i> (Wall. ex Lawson) Cufodontis	-	-	+	-	-	+	-	-	-	-
<i>Mazus japnicus</i> (Thunb.) O Ktze.	-	-	-	+	-	-	-	-	-	-
<i>Medicago sativa</i> Linn	-	-	-	+	-	-	-	-	-	-

Botanical Name	Aquatic habitat	Cultivated land	Broad leaved	Open land	Riverine	Scrub	Settlements	Coniferous forest	Rangeland	Ridge
<i>Melia azedarach</i> Linn.,	-	-	-	+	-	-	-	-	-	-
<i>Melilotus alba</i> Desr	-	-	-	+	-	-	-	-	-	-
<i>Mentha longifolia</i> (L.) L	-	-	-	-	+	-	-	-	-	-
<i>Micromeria bitlora</i> (Buch.-Ham. ex D. Don) Benth.	-	-	+	-	-	-	-	-	-	-
<i>Mirabilis jalapa</i> Linn	-	-	-	+	-	-	-	-	-	-
<i>Monotheca buxifolia</i> (Falc.) A. DC	-	-	-	-	-	+	-	-	-	-
<i>Morus nigra</i> L	-	+	-	-	-	-	-	-	-	-
<i>Musa paradisiaca</i> Linn	-	+	-	-	-	-	-	-	-	-
<i>Myrsine africana</i> L.	-	-	-	-	-	+	-	-	-	-
<i>Narcissus tazetta</i> Linn	-	-	-	+	-	-	-	-	-	-
<i>Nerium oleander</i> Linn	-	-	-	-	+	-	-	-	-	-
<i>Oenanthe javanica</i> (Blume) DC	-	-	-	-	+	-	-	-	-	-
<i>Oenothera rosea</i> L'Her. ex Ait	-	-	-	+	-	-	-	-	-	-
<i>Olea ferruginea</i> Royle	-	-	+	-	-	-	-	-	-	-
<i>Onosma dichroantha</i> Boiss	-	-	-	-	-	-	-	-	+	-
<i>Origanum vulgare</i> L	-	-	-	+	-	-	-	-	-	-
<i>Otostegia limbata</i> (Benth.) Boiss	-	-	-	-	-	+	-	-	-	-
<i>Oxalis</i>	-	-	-	+	-	-	-	-	-	-
<i>Pennisetum flaccidum</i> Griseb	-	-	-	-	-	-	-	-	+	-
<i>Pergularia daemia</i> (Forssk.) Chiov.	-	-	-	+	-	-	-	-	-	-
<i>Periploca aphylla</i> Dcne	-	-	-	-	-	+	-	-	-	-
<i>Persicaria capitata</i> (Buch-Ham ex D Don) H Gross	-	-	-	-	+	-	-	-	-	-

Botanical Name	Aquatic habitat	Cultivated land	Broad leaved	Open land	Riverine	Scrub	Settlements	Coniferous forest	Rangeland	Ridge
Phoenix loureirii Kunth	-		-	-	+	-	-	-	-	-
Pimpinella stewartii (Dunn) E. Nasir	-	-	-	-	-	-	-	-	+	-
Pinus gerardiana Wall. Ex Lamb.	-	-	-	-	-	-	-	+	-	-
Pinus roxburghii Sargent	-	-	-	-	-	-	-	+	-	-
Pinus wallichiana A B Jackson	-	-	-	-	-	-	-	+	-	-
Pistacia chinensis Bunge	-	-	+	-	-	-	-	-	-	-
Plantago himalaica Pilger	-	-	-	+	-	-	-	-	-	-
Plumbago zeylanica Linn.,	-	-	-	-	-	-	-	-	+	-
Poa nemoralis Linn	-	-	-	-	-	-	-	-	+	-
Poa pratensis Linn subsp. augustifolia (Linn.) Gaud	-	-	-	-	-	-	-	-	+	-
Populus euphratica Olivier	-	+	-	-	-	-	-	-	-	-
Portulaca oleracea Linn.	-	-	-	+	-	-	-	-	-	-
Primula denticulata Smith	-	-	-	-	-	-	-	-	-	+
Prinsepia utilis Royle	-	-	-	+	-	-	-	-	-	-
Prunus amygdalus Barsch	-	-	+	-	-	-	-	-	-	-
Punica granatum Linn.,	-	-	-	-	-	+	-	-	-	-
Pyrus pashia Ham. ex D. Don	-	-	+	-	-	-	-	-	-	-
Quercus baloot	-	-	+	-	-	-	-	-	-	-
Quercus incana Roxb	-	-	+	-	-	-	-	-	-	-
Ranunculus arvensis L.	-	-	+	-	-	-	-	-	-	-
Ranunculus muricatus L.	-	-	+	-	-	-	-	-	-	-
Reinwardtia trigyna (Roxb.) Planch	-	-	-	-	-	-	-	-	-	+
Rhamnella gilgitica Mansf. & Melch	-	-	+	-	-	-	-	-	-	-

Botanical Name	Aquatic habitat	Cultivated land	Broad leaved	Open land	Riverine	Scrub	Settlements	Coniferous forest	Rangeland	Ridge
<i>Rhazya stricta</i> Decne	-	-	-	-	-	+	-	-	-	-
<i>Ricinus communis</i> L	-	-	-	+	-	-	-	-	-	-
<i>Robinia pseudo-acacia</i> Linn	-	-	-	-	-	-	-	-	-	-
<i>Rubus ellipticus</i> Smith	-	-	+	-	-	-	-	-	-	-
<i>Rumex hastatus</i> D Don	-	-	-	-	-	-	-	-	-	+
<i>Rumex nepalensis</i> Spreng	-	-	+	-	-	-	-	-	-	-
<i>Saccharum filifolium</i> Nees ex Steud	-	-	-	-	-	-	-	-	+	-
<i>Salix alba</i> L	-	-	+	-	-	-	-	-	-	-
<i>Salvia moorortiana</i> Wall. ex Benth	-	-	+	-	-	-	-	-	-	-
<i>Sarcococca saligna</i> (D.Don) Muell.-Arg.	-	-	+	-	-	-	-	-	-	-
<i>Scilla griffithii</i> Hochr	-	+	-	-	-	-	-	-	-	-
<i>Scutellaria linearis</i> Benth.	-	-	-	-	-	-	-	-	-	+
<i>Setaria verticillata</i> (Linn.) P. Beauv	-	-	-	-	-	-	-	-	+	-
<i>Sida cordata</i> (Burm.f.) Borss	-	-	-	+	-	-	-	-	-	-
<i>Silene conoidea</i> L	-	+	-	-	-	-	-	-	-	-
<i>Silybum marianum</i> Gaertn.	-	-	-	+	-	-	-	-	-	-
<i>Sonchus arvensis</i> f. <i>brachyotus</i> (DC.) Kirp	-	-	-	+	-	-	-	-	-	-
<i>Spermadictyon suaveolens</i> Roxb	-	-	-	-	-	-	-	-	-	+
<i>Spiraea vacciniifolia</i> D. Don	-	-	+	-	+	-	-	-	-	-
<i>Stellaria media</i> (L.) Vill	-	-	-	+	-	-	-	-	-	-
<i>Strobilanthes glutinosus</i> Nees	-	-	-	-	+	-	-	-	-	-
<i>Taraxscum officinale</i>	-	+	-	+	-	-	-	-	-	-

Botanical Name	Aquatic habitat	Cultivated land	Broad leaved	Open land	Riverine	Scrub	Settlements	Coniferous forest	Rangeland	Ridge
<i>Tecomella undulata</i> (Roxb.) Seeman	-	-	-	+	-	-	-	-	-	-
<i>Themeda anathera</i> (Nees ex Steud.) Hack.	-	-	-	-	-	-	-	-	+	-
<i>Thevetiaperuviana</i> (Pers.) Schum	-	-	-	-	+	-	-	-	-	-
<i>Thlaspi arvense</i> Linn.,	-	-	-	-	-	-	-	-	-	-
<i>Torilis japonica</i> (Houtt.) DC.	-	-	-	+	-	-	-	-	-	-
<i>Tribulus terrestris</i> Linn	-	-	-	-	-	+	+	-	-	-
<i>Trichodesma indicum</i> (L.) R. Br	-	-	-	-	-	-	-	-	+	-
<i>Trifolium repens</i> Linn	-	-	-	+	-	-	-	-	-	-
<i>Triticum aestivum</i> Linn	-	+	-	-	-	-	-	-	-	-
<i>Tulipa clusiana</i> DC.	-	-	-	+	-	-	-	-	-	-
<i>Ulmus villosa</i> Brandis ex Gamble	-	-	+	-	-	-	-	-	-	-
<i>Vaccaria hispanica</i> (Miller) Rauschert	-	-	-	-	-	-	-	-	-	-
<i>Verbena officinalis</i> Linn	-	-	-	+	-	-	-	-	-	-
<i>Verbena tenuisecta</i>	-	-	-	+	-	-	-	-	-	-
<i>Verbescum thapsus</i> L.	-	-	-	+	-	-	-	-	-	-
<i>Veronica undulata</i> Wall.	-	-	-	+	-	-	-	-	-	-
<i>Vicia faba</i> Linn	-	-	-	+	-	-	-	-	-	-
<i>Viola canescens</i> Wall. ex Roxb	-	-	+	-	-	-	-	-	-	+
<i>Vitex negundo</i> Linn	-	-	-	-	+	-	-	-	-	-
<i>Withania somnifera</i> (L.) Dunal	-	-	-	-	-	+	-	-	-	-
<i>Woodfordia fruticosa</i> (Linn.) S. Kurz	-	-	-	-	-	-	-	-	-	+

Botanical Name	Aquatic habitat	Cultivated land	Broad leaved	Open land	Riverine	Scrub	Settlements	Coniferous forest	Rangeland	Ridge
Zanthoxylum armatum DC.,	-	-	-	-	-	+	-	-	-	-
Ziziphus jujuba Mill.,	-	-	+	-	-	+	-	-	-	-
Ziziphus nummularia (Burm. f.) Wight & Arn	-	-	+	-	-	+	-	-	-	-
Ziziphus oxyphylla Edgew.	-	-	+	-	-	-	-	-	-	-
	2	30	43	94	20	43	7	9	28	18

List of Plant Species reported from Transmission line project area

	Group	Family	Botanical Name
1.	Dicotyledonae	Malvaceae	<i>Abutilon indicum</i> (Linn.) Sweet
2.	Dicotyledonae	Mimosaceae	<i>Acacia farnesiana</i> (Linn.) Willd.
3.	Dicotyledonae	Mimosaceae	<i>Acacia modesta</i> Wall.,
4.	Dicotyledonae	Mimosaceae	<i>Acacia nilotica</i> (Linn.) Delile
5.	Dicotyledonae	Amaranthaceae	<i>Achyranthes aspera</i> f. <i>robustoides</i>
6.	Dicotyledonae	Amaranthaceae	<i>Aerva sanguinolenta</i> (Linn.) Blume
7.	Dicotyledonae	Simaroubaceae	<i>Ailanthus altissima</i> (Mill.) Swingle
8.	Dicotyledonae	Lamiaceae	<i>Ajuga bracteosa</i> Wall.
9.	Dicotyledonae	Mimosaceae	<i>Albizia chinensis</i> (Osbeck) Merrill
10.	Dicotyledonae	Mimosaceae	<i>Albizia lebbeck</i> (L.) Benth.
11.	Dicotyledonae	Brassicaceae	<i>Alliaria petiolata</i> (M. Bieb.) Cavara & Grande
12.	Dicotyledonae	Betulaceae	<i>Alnus nitida</i> (Spash) Endl.
13.	Dicotyledonae	Amaranthaceae	<i>Alternanthera pungens</i> Kunth
14.	Dicotyledonae	Amaranthaceae	<i>Amaranthus viridis</i> Linn.,
15.	Dicotyledonae	Apiaceae	<i>Ammi majus</i> Linn.,
16.	Dicotyledonae	Primulaceae	<i>Anagallis arvensis</i> L var. <i>coerulea</i> (L.) Gouan
17.	Dicotyledonae	Asteraceae	<i>Anaphalis adnata</i> Wall. Ex DC.
18.	Dicotyledonae	Euphorbiaceae	<i>Andrachne cordifolia</i> (Wall. ex Decne.) Muell
19.	Dicotyledonae	Brassicaceae	<i>Arabis bijuga</i> G. Watt
20.	Dicotyledonae	Caryophyllaceae	<i>Arenaria leptoclados</i> (Reichb.) Guss
21.	Dicotyledonae	Caryophyllaceae	<i>Arenaria neelgerrensis</i> Wight & Arn
22.	Dicotyledonae	Caryophyllaceae	<i>Arenaria serpyllifolia</i> L
23.	Dicotyledonae	Papaveraceae	<i>Argemone mexicana</i> Linn
24.	Dicotyledonae	Boraginaceae	<i>Arnebia hispidissima</i> (Lehm.) A. DC
25.	Dicotyledonae	Asteraceae	<i>Artemisia absinthium</i> L.
26.	Dicotyledonae	Asteraceae	<i>Artemisia scoparia</i> Waldst. & Kit.
27.	Dicotyledonae	Asteraceae	<i>Artemisia vulgaris</i> L.
28.	Dicotyledonae	Asparagaceae	<i>Asparagus capitatus</i> Baker (ii) subsp. <i>gracilis</i> Browicz
29.	Dicotyledonae	Saxifragaceae	<i>Astilbe rivularis</i> Ham.ex D.Don
30.	Dicotyledonae	Meliaceae	<i>Azadirachta indica</i> Adr. Juss.
31.	Dicotyledonae	Acanthaceae	<i>Barleria acanthoides</i> Vahl
32.	Dicotyledonae	Caesalpinaceae	<i>Bauhinia retusa</i> Roxb
33.	Dicotyledonae	Berberidaceae	<i>Berberis lycium</i> Royle
34.	Dicotyledonae	Saxifragaceae	<i>Bergenia ciliata</i> (Haw.)Stern f. <i>ligulata</i> Yeo
35.	Dicotyledonae	Asteraceae	<i>Bidens chinensis</i> (L.) Willd.

	Group	Family	Botanical Name
36.	Dicotyledonae	Nyctaginaceae	Boerhavia procumbens Banks ex Roxb
37.	Dicotyledonae	Bombacaceae	Bombax ceiba Linn
38.	Dicotyledonae	Nyctaginaceae	Bougainvillea spectabilis Willd.,
39.	Dicotyledonae	Brassicaceae	Brassica juncea (Linn.) Czern. et Coss.
40.	Dicotyledonae	Brassicaceae	Brassica rapa Linn
41.	Dicotyledonae	Brassicaceae	Brassica rapa Linn. subsp. rapa
42.	Dicotyledonae	Moraceae	Broussonetia papyrifera (L) L'Herit. ex Vent
43.	Dicotyledonae	Buddlejaceae	Buddleja asiatica Lour.,
44.	Dicotyledonae	Buddlejaceae	Buddleja crispa Benth.,
45.	Dicotyledonae	Boraginaceae	Buglossoides arvensis (L.) Johnston
46.	Dicotyledonae	Papilionaceae	Butea monosperma (Lain.) Taubert
47.	Dicotyledonae	Verbenaceae	Callicarpa macrophylla Vahl
48.	Dicotyledonae	Asclepiadaceae	Calotropis procera (Ait.) Ait. Subsp. hamiltonii (Wight) Ali
49.	Dicotyledonae	Campanulaceae	Campanula pallida Wall var. pallida
50.	Dicotyledonae	Brassicaceae	Capsella bursa-pastoris (L.) Medik
51.	Dicotyledonae	Asclepiadaceae	Caralluma tuberculata N.E. Brown
52.	Dicotyledonae	Brassicaceae	Cardamine hirsuta Linn
53.	Dicotyledonae	Brassicaceae	Cardaria chalepense (Linn.) Hand.-Mazz.
54.	Dicotyledonae	Zygophyllaceae	Carissa opaca
55.	Dicotyledonae	Asteraceae	Carthamus oxycantha M. B.
56.	Dicotyledonae	Caesalpinaceae	Cassia fistula Linn
57.	Dicotyledonae	Caesalpinaceae	Cassia wallichiana DC
58.	Dicotyledonae	Amaranthaceae	Celosia argentea Linn
59.	Dicotyledonae	Asteraceae	Centaurea iberica Tev. Ex Spreng.
60.	Dicotyledonae	Chenopodiaceae	Chenopodium album
61.	Dicotyledonae	Chenopodiaceae	Chenopodium botrys L.
62.	Dicotyledonae	Asteraceae	Cichorium argyracanthum DC.
63.	Dicotyledonae	Menispermaceae	Cissampelos pareira L.
64.	Dicotyledonae	Ranunculaceae	Clematis buchananiana DC
65.	Dicotyledonae	Ranunculaceae	Clematis grata Wall.
66.	Dicotyledonae	Ranunculaceae	Clematis graveolens Lindl.
67.	Dicotyledonae	Lamiaceae	Clinopodium vulgare L
68.	Dicotyledonae	Lamiaceae	Colebrookea oppositifolia Smith,
69.	Dicotyledonae	Convolvulaceae	Convolvulus arvensis Linn
70.	Dicotyledonae	Asteraceae	Conyza bonariensis (L.) Cronquist
71.	Dicotyledonae	Asteraceae	Conyza canadensis (L.) Cronquist
72.	Dicotyledonae	Brassicaceae	Coronopus didymus (Linn.) Smith

	Group	Family	Botanical Name
73.	Dicotyledonae	Anacardiaceae	Cotinus coggyria Scop
74.	Dicotyledonae	Rosaceae	Cotoneaster affinis (Lindl.) Schneider
75.	Dicotyledonae	Rosaceae	Cotoneaster nummularia Esch. & Mey
76.	Dicotyledonae	Papilionaceae	Crotalaria medicaginea Lamk
77.	Dicotyledonae	Papilionaceae	Dalbergia sissoo Roxb.,
78.	Dicotyledonae	Thymeleaceae	Daphne mucronata
79.	Dicotyledonae	Solanaceae	Datura innoxia Miller
80.	Dicotyledonae	Apiaceae	Daucus carota Linn
81.	Dicotyledonae	Urticaceae	Debregeasia salicifolia (D.Don) Rendle
82.	Dicotyledonae	Papilionaceae	Desmodium elegans DC
83.	Dicotyledonae	Acanthaceae	Dicliptera bupleuroides Nees var. bupleuroides
84.	Dicotyledonae	Ebenaceae	Diospyros lotus Linn
85.	Dicotyledonae	Sapindaceae	Dodonaea viscosa (Linn.) Jacq
86.	Dicotyledonae	Rosaceae	Duchesnea indica (Andrews) Focke
87.	Dicotyledonae	Asteraceae	Echinops niveus Wall ex DC.
88.	Dicotyledonae	Asteraceae	Eclipta prostrata (L.) L. Mant.
89.	Dicotyledonae	Boraginaceae	Ehretia obtusifolia Hochst. ex DC.,
90.	Dicotyledonae	Elaeagnaceae	Elaeagnus umbellata Thunb.
91.	Dicotyledonae	Onagraceae	Epilobium hirsutum L
92.	Dicotyledonae	Rosaceae	Eriobotrya japonica (Thunb.) Lindley
93.	Dicotyledonae	Geraniaceae	Erodium cicutarium (L.)L'Herit, ex Aiton
94.	Dicotyledonae	Apiaceae	Eryngium coeruleum M-Bieb.,
95.	Dicotyledonae	Myrtaceae	Eucalyptus amplifolia Naudin
96.	Dicotyledonae	Celastraceae	Euonymus japonicus Thunb
97.	Dicotyledonae	Euphorbiaceae	Euphorbia helioscopia L
98.	Dicotyledonae	Zygophyllaceae	Fagonia indica Burm. f.,
99.	Dicotyledonae	Polygonaceae	Fagopyrum dibotrys (D Don) Hara
100.	Dicotyledonae	Moraceae	Ficus benghalensis L
101.	Dicotyledonae	Moraceae	Ficus carica L ssp. carica
102.	Dicotyledonae	Moraceae	Ficus palmata Forssk.
103.	Dicotyledonae	Moraceae	Ficus religiosa L
104.	Dicotyledonae	Oleaceae	Fraxinus xanthoxyloides (G. Don) DC.
105.	Dicotyledonae	Fumariaceae	Fumaria indica (Hausskn.) Pugsley
106.	Dicotyledonae	Rubiaceae	Galium aparine L
107.	Dicotyledonae	Euphorbiaceae	Glochidion velutinum Wight
108.	Dicotyledonae	Tiliaceae	Grewia damine Gaertn
109.	Dicotyledonae	Tiliaceae	Grewia optiva Drummond ex Burret

	Group	Family	Botanical Name
110.	Dicotyledonae	Araliaceae	Hedera nepalensis K. Koch
111.	Dicotyledonae	Malvaceae	Hibiscus micranthus Linn. f. var. micranthus
112.	Dicotyledonae	Rubiaceae	Himalrandia tetrasperma (Roxb.) Yamazaki
113.	Dicotyledonae	Hypericaceae	Hypericum choisianum Wall
114.	Dicotyledonae	Hypericaceae	Hypericum perforatum Linn.,
115.	Dicotyledonae	Bignoniaceae	Incarvillea emodi (Royle ex Lindl.) Chatterjee
116.	Dicotyledonae	Papilionaceae	Indigofera heterantha Wall. ex Brandis
117.	Dicotyledonae	Lamiaceae	Isodon rugosus (Wall. ex Benth.) Codd
118.	Dicotyledonae	Oleaceae	Jasminum humile Linn.,
119.	Dicotyledonae	Juglandaceae	Juglans regia Linn.
120.	Dicotyledonae	Acanthaceae	Justicia adhatoda L.,
121.	Dicotyledonae	Scrophulariaceae	Kickxia incana (Wall.) Penn.
122.	Dicotyledonae	Loranthaceae	Korthalsella opuntia (Thunb.) Merrill
123.	Dicotyledonae	Lamiaceae	Lamium amplexicaule L.,
124.	Dicotyledonae	Verbenaceae	Lantana camara Linn.,
125.	Dicotyledonae	Papilionaceae	Lathyrus aphaea Linn
126.	Dicotyledonae	Asteraceae	Launaea procumbens (Roxb.)
127.	Dicotyledonae	Brassicaceae	Lepidium sativum Linn
128.	Dicotyledonae	Papilionaceae	Lespedeza floribunda Bunge
129.	Dicotyledonae	Linaceae	Linum corymbulosum Reichenb
130.	Dicotyledonae	Papilionaceae	Lotus corniculatus L. var. corniculatus
131.	Dicotyledonae	Solanaceae	Lycopersicon esculentum Miller
132.	Dicotyledonae	Primulaceae	Lysimachia chenopodioides Watt ex Hook. f
133.	Dicotyledonae	Malvaceae	Malvastrum coromendelianum (Linn.) Garcke
134.	Dicotyledonae	Asclepiadaceae	Marsdenia roylei Wight
135.	Dicotyledonae	Celastraceae	Maytenus royleanus (Wall. ex Lawson) Cufodontis
136.	Dicotyledonae	Scrophulariaceae	Mazus japnicus (Thunb.) O Ktze.
137.	Dicotyledonae	Papilionaceae	Medicago sativa Linn
138.	Dicotyledonae	Meliaceae	Melia azedarach Linn.,
139.	Dicotyledonae	Papilionaceae	Melilotus alba Desr
140.	Dicotyledonae	Lamiaceae	Mentha longifolia (L.) L
141.	Dicotyledonae	Lamiaceae	Micromeria bitlora (Buch.-Ham. ex D. Don) Benth.,
142.	Dicotyledonae	Nyctaginaceae	Mirabilis jalapa Linn
143.	Dicotyledonae	Sapotaceae	Monothea buxifolia (Falc.) A. DC

	Group	Family	Botanical Name
144.	Dicotyledonae	Moraceae	Morus nigra L
145.	Dicotyledonae	Myrsinaceae	Myrsine africana L.
146.	Dicotyledonae	Apocynaceae	Nerium oleander Linn
147.	Dicotyledonae	Apiaceae	Oenanthe javanica (Blume) DC
148.	Dicotyledonae	Onagraceae	Oenothera rosea L'Her. ex Ait
149.	Dicotyledonae	Oleaceae	Olea ferruginea Royle
150.	Dicotyledonae	Boraginaceae	Onosma dichroantha Boiss
151.	Dicotyledonae	Lamiaceae	Origanum vulgare L
152.	Dicotyledonae	Lamiaceae	Otostegia limbata (Benth.) Boiss
153.	Dicotyledonae	Oxalidaceae	Oxalis corniculata
154.	Dicotyledonae	Asclepiadaceae	Pergularia daemia (Forssk.) Chiov.
155.	Dicotyledonae	Asclepiadaceae	Periploca aphylla Dcne
156.	Dicotyledonae	Polygonaceae	Persicaria capitata (Buch-Ham ex D Don) Gross
157.	Dicotyledonae	Apiaceae	Pimpinella stewartii (Dunn) E. Nasir
158.	Dicotyledonae	Anacardiaceae	Pistacia chinensis Bunge
159.	Dicotyledonae	Plantaginaceae	Plantago himalaica Pilger
160.	Dicotyledonae	Plumbaginaceae	Plumbago zeylanica Linn.,
161.	Dicotyledonae	Salicaceae	Populus euphratica Olivier
162.	Dicotyledonae	Portulacaceae	Portulaca oleracea Linn.,
163.	Dicotyledonae	Primulaceae	Primula denticulata Smith
164.	Dicotyledonae	Rosaceae	Prinsepia utilis Royle
165.	Dicotyledonae	Rosaceae	Prunus amygdalus Barsch
166.	Dicotyledonae	Valerianaceae	Punica granatum Linn.,
167.	Dicotyledonae	Rosaceae	Pyrus pashia Ham. ex D. Don
168.	Dicotyledonae	Fagaceae	Quercus baloot
169.	Dicotyledonae	Fagaceae	Quercus incana Roxb
170.	Dicotyledonae	Ranunculaceae	Ranunculus arvensis L.
171.	Dicotyledonae	Ranunculaceae	Ranunculus muricatus L.
172.	Dicotyledonae	Linaceae	Reinwardtia trigyna (Roxb.) Planch
173.	Dicotyledonae	Rhamnaceae	Rhamnella gilgitica Mansf. & Melch
174.	Dicotyledonae	Apocynaceae	Rhazya stricta Decne
175.	Dicotyledonae	Euphorbiaceae	Ricinus communis L
176.	Dicotyledonae	Papilionaceae	Robinia pseudo-acacia Linn
177.	Dicotyledonae	Rosaceae	Rubus ellipticus Smith
178.	Dicotyledonae	Polygonaceae	Rumex hastatus D Don
179.	Dicotyledonae	Polygonaceae	Rumex nepalensis Spreng
180.	Dicotyledonae	Salicaceae	Salix alba L
181.	Dicotyledonae	Lamiaceae	Salvia moorortiana Wall. ex Benth
182.	Dicotyledonae	Buxaceae	Sarcococca saligna (D.Don) Muell.-Arg.

	Group	Family	Botanical Name
183.	Dicotyledonae	Lamiaceae	Scutellaria linearis Benth.
184.	Dicotyledonae	Malvaceae	Sida cordata (Burm.f.) Borss
185.	Dicotyledonae	Caryophyllaceae	Silene conoidea L
186.	Dicotyledonae	Asteraceae	Silybum marianum Gaertn.
187.	Dicotyledonae	Asteraceae	Sonchus arvensis f. brachyotus (DC.) Kirp
188.	Dicotyledonae	Rubiaceae	Spermadictyon suaveolens Roxb
189.	Dicotyledonae	Rosaceae	Spiraea vacciniifolia D. Don
190.	Dicotyledonae	Caryophyllaceae	Stellaria media (L.) Vill
191.	Dicotyledonae	Acanthaceae	Strobilanthes glutinosus Nees
192.	Dicotyledonae	Asteraceae	Taraxscum officinale
193.	Dicotyledonae	Bignoniaceae	Tecomella undulata (Roxb.) Seeman
194.	Dicotyledonae	Apocynaceae	Thevetiaperuviana (Pers.) Schum
195.	Dicotyledonae	Brassicaceae	Thlaspi arvense Linn.,
196.	Dicotyledonae	Apiaceae	Torilis japonica (Houtt.) DC
197.	Dicotyledonae	Zygophyllaceae	Tribulus terrestris Linn
198.	Dicotyledonae	Boraginaceae	Trichodesma indicum (L.) R. Br
199.	Dicotyledonae	Papilionaceae	Trifolium repens Linn
200.	Dicotyledonae	Ulmaceae	Ulmus villosa Brandis ex Gamble
201.	Dicotyledonae	Caryophyllaceae	Vaccaria hispanica (Miller) Rauschert
202.	Dicotyledonae	Verbenaceae	Verbena officinalis Linn
203.	Dicotyledonae	Verbenaceae	Verbena tenuisecta
204.	Dicotyledonae	Scrophulariaceae	Verbescum thapsus L.
205.	Dicotyledonae	Scrophulariaceae	Veronica undulata Wall.
206.	Dicotyledonae	Papilionaceae	Vicia faba Linn
207.	Dicotyledonae	Violaceae	Viola canescens Wall. ex Roxb
208.	Dicotyledonae	Verbenaceae	Vitex negundo Linn
209.	Dicotyledonae	Solanaceae	Withania somnifera (L.) Dunal
210.	Dicotyledonae	Lythraceae	Woodfordia fruticosa (Linn.) S. Kurz
211.	Dicotyledonae	Rutaceae	Zanthoxylum armatum DC.,
212.	Dicotyledonae	Rhamnaceae	Ziziphus jujuba Mill.,
213.	Dicotyledonae	Rhamnaceae	Ziziphus nummularia (Burm. f.) Wight & Arn
214.	Dicotyledonae	Rhamnaceae	Ziziphus oxyphylla Edgew.
215.	Gymnospermae	Araucariaceae	Araucaria columnaris (Forster) Hook f.
216.	Gymnospermae	Pinaceae	Cedrus deodara (Roxb. Ex D Don) G. Don
217.	Gymnospermae	Cupressaceae	Cupressus sempervirens L.
218.	Gymnospermae	Ephedraceae	Ephedra ciliata Fisch. & Mey
219.	Gymnospermae	Ephedraceae	Ephedra garardiana Wall. Ex Stapf

	Group	Family	Botanical Name
220.	Gymnospermae	Pinaceae	Pinus gerardiana Wall. Ex Lamb.
221.	Gymnospermae	Pinaceae	Pinus roxburghii Sargent
222.	Gymnospermae	Pinaceae	Pinus wallichiana A B Jackson
223.	Monocotyledonae	Agavaceae	Agave americana L
224.	Monocotyledonae	Poaceae	Agrostis munroana Aitch. & Hemsel
225.	Monocotyledonae	Alliaceae	Allium cepa Linn.,
226.	Monocotyledonae	Alliaceae	Allium jacquemontii Kunth
227.	Monocotyledonae	Alliaceae	Allium sativum Linn
228.	Monocotyledonae	Araceae	Alocasia macrorrhiza (Linn.) G. Don
229.	Monocotyledonae	Poaceae	Apluda mutica Linn
230.	Monocotyledonae	Poaceae	Aristida adscensionis Linn
231.	Monocotyledonae	Poaceae	Aristida cyanantha Neesex Steud
232.	Monocotyledonae	Poaceae	Arundinaria falcata Nees
233.	Monocotyledonae	Poaceae	Arundo donax Linn
234.	Monocotyledonae	Poaceae	Avena barbata Pott ex Link
235.	Monocotyledonae	Poaceae	Avena fatua Linn
236.	Monocotyledonae	Poaceae	Bothriochloa bladhii (Retz.) S.T. Blake
237.	Monocotyledonae	Poaceae	Brachiaria reptans (Linn.) Gardner & Hubbard
238.	Monocotyledonae	Canaceae	Canna indica Linn.
239.	Monocotyledonae	Canabaceae	Cannabis sativa Linn.
240.	Monocotyledonae	Cyperaceae	Carex brunnea Thunb
241.	Monocotyledonae	Caricaceae	Carica papaya Linn
242.	Monocotyledonae	Poaceae	Chrysopogon serrulatus Trin.
243.	Monocotyledonae	Colchicaceae	Colchicum luteum Baker
244.	Monocotyledonae	Poaceae	Cymbopogon jwarancusa (Jones) Schult
245.	Monocotyledonae	Poaceae	Cynodon dactylon (Linn.) Pers
246.	Monocotyledonae	Cyperaceae	Cyperus compressus L.
247.	Monocotyledonae	Poaceae	Digitaria abludens (Roem. & Schult.) Veldk
248.	Monocotyledonae	Poaceae	Eragrostis minor Host
249.	Monocotyledonae	Liliaceae	Gagearawalpindica Levichev et Ali
250.	Monocotyledonae	Poaceae	Heteropogon contortus (Linn.)
251.	Monocotyledonae	Poaceae	Imperata cylindrica (Linn) Rauschel
252.	Monocotyledonae	Iridaceae	Iris aitchisonii (Baker) Boiss
253.	Monocotyledonae	Iridaceae	Iris germanica L
254.	Monocotyledonae	Amaryllidaceae	Ixiolirion tataricum (Pall.) Herb
255.	Monocotyledonae	Juncaceae	Juncus articulatus Linn
256.	Monocotyledonae	Musaceae	Musa paradisiaca Linn

	Group	Family	Botanical Name
257.	Monocotyledonae	Amaryllidaceae	Narcissus tazetta Linn
258.	Monocotyledonae	Poaceae	Pennisetum flaccidum Griseb
259.	Monocotyledonae	Palmae	Phoenix loureirii Kunth
260.	Monocotyledonae	Poaceae	Poa nemoralis Linn
261.	Monocotyledonae	Poaceae	Poa pratensis Linn
262.	Monocotyledonae	Poaceae	Saccharum filifolium Nees ex Steud
263.	Monocotyledonae	Hyacinthaceae	Scilla griffithii Hochr
264.	Monocotyledonae	Poaceae	Setaria verticillata (Linn.) P. Beauv
265.	Monocotyledonae	Poaceae	Themeda anathera (Nees ex Steud.) Hack.
266.	Monocotyledonae	Poaceae	Triticum aestivum Linn
267.	Monocotyledonae	Liliaceae	Tulipa clusiana DC.
268.	Pteridophyta	Pteridaceae	Adiantum capillus veneris L.
269.	Pteridophyta	Pteridaceae	Adiantum venustum D. Don
270.	Pteridophyta	Equisetaceae	Equisetum arvense L.

Amphibian fauna found in the area around Dasu-Islamabad Transmission Line

	Scientific Name	Common Name	Family	Order	IUCN Status	CITES status
1.	<i>Euphlyctis cyanophlyctis</i>	Skittering Frog	Dicroglossidae	Anura	LC	N.A
2.	<i>Microhyla ornata</i>	Ornamented Pygmy Frog	Microhylidae	Anura	LC	N.A
3.	<i>Hoplobatrachus tigerinus</i>	Indian bull Frog or Tiger Frog	Dicroglossidae	Anura	LC	II
4.	<i>Duttaphrynus stomaticus</i>	Marbled Toad or Indus Valley Toad	Bufo nidae	Anura	LC	N.A
5.	<i>Duttaphrynus melanostictus</i>	Black-spectacled Toad	Bufo nidae	Anura	LC	N.A
6.	<i>Calotes versicolor</i>	Garden Lizard	Agamidae	Squamata	NE*	N.A
7.	<i>Laudakia agrorensis</i>	Agor valley Rock Agama	Agamidae	Squamata	NE	N.A
8.	<i>Saara hardwickii</i>	Indus Valley Spiny Tailed Lizard	Agamidae	Squamata	NE	II
9.	<i>Hemidactylus flaviviridis</i>	Yellow-bellied House Gecko	Gekkonidae	Squamata	NE	N.A
10.	<i>Hemidactylus brooki</i>	Brook's house Gecko	Gekkonidae	Squamata	NE	N.A
11.	<i>Acanthodactylus cantoris</i>	Arabian Fringe-fingered Lizard	Lacertidae	Squamata	LC	N.A
12.	<i>Asymblepharus himalayanus</i>	Himalayan Ground Skink	Scincidae	Squamata	NE	N.A
13.	<i>Eurylepis taeniolatus</i>	Yellow-bellied Mole Skink	Scincidae	Squamata	NE	N.A
14.	<i>Eutropis dissimilis</i>	Striped Grass Skink	Scincidae	Squamata	NE	N.A
15.	<i>Varanus bengalensis</i>	Common Indian Monitor	Varanidae	Squamata	LC	I
16.	<i>Amphiesma stolatum</i>	Buff-striped Keelback	Colubridae	Squamata	NE	N.A
17.	<i>Platyceps rhodorachis</i>	Braid Snake	Colubridae	Squamata	NE	N.A
18.	<i>Ptyas mucosus</i>	Dhaman	Colubridae	Squamata	NE	II
19.	<i>Spalerosophis atriceps</i>	Diadem Snake	Colubridae	Squamata	NE	N.A
20.	<i>Xenochrophis piscator</i>	Checkered Keel back	Colubridae	Squamata	NE	III
21.	<i>Bungarus caeruleus</i>	Indian / common Krait	Elapidae	Squamata	NE	N.A
22.	<i>Naja oxiana</i>	Central Asian Cobra	Elapidae	Squamata	DD*	II
23.	<i>Daboia russelii</i>	Eastern Russell's Viper	Viperidae	Squamata	LC	N.A
24.	<i>Echis carinatus</i>	Saw-scaled Viper	Viperidae	Squamata	NE	N.A
25.	<i>Python molurus</i>	Asiatic Rock Python	Pythonidae	Squamata	NT	I

* LC: Least Concern; NE: Not Evaluated; DD: Data Deficient; NT: Near Threatened

Annex 7.1: Standard Operating Procedures of NTDC on Workers

Health and Safety

NTDC has Standard Operating Procedures (SOPs) on Workers Health and Safety and these will be implemented during the operation. Regular training will be provided to the staff on the SOPs and risk registers (reporting and recording of accidents and near misses) will be maintained. NTDC's SPOs are explained below.

General Principles: Accident prevention can be accomplished only through possessing and applying safety know-how and wholehearted cooperation of all members of the organization. Learn and understand the following five basic principles in job safety to deal with the hazards:

- a) IDENTIFY the Hazards.
- b) ELIMINATE the hazards wherever practical.
- c) CONTROL the hazards when they cannot be eliminated.
- d) PROTECT against injuries in case a hazard gets out of control.
- e) MINIMIZE the severity of an injury, if an accident occurs.
 - Neither management and supervision, nor the Safety Code can prevent accident without the help of each employee.
 - Unsafe workers are a danger to themselves, their fellow workers, the public property and the equipment with which they work. Due care and attention to all safety rules and devices is essential not only to prevent injury to the workers but also to protect equipment.
 - Capable and mentally alert employees will avoid accidents by learning all they can about their work, using proper safeguards and protective equipment and avoiding shortcuts and make shift work methods.
 - Good operation is safe operation. This is true for both employees and equipment. A job done safely is job done efficiently.

Accidents do not “just happen”. Accidents are the natural result of unsafe condition or unsafe acts, usually a combination of both. Machinery and equipment generally are manufactured to perform safely within limits of design. In fact, statistics show that more than 90% of accidents are due to the human element, such as failure to use safety devices and observe safety rules and procedures

UNSAFE CONDITIONS: Some examples of unsafe conditions which may cause accidents are: Improper Guarding such as unshielded moving parts of machine, in-barricaded floor openings and excavation, unenclosed high voltage equipment, lack of protective equipment and insufficient warning signs etc.

- *Defective Material* or equipment such as mushroomed-head chisels, split handles, deteriorated poles, poorly manufactured or weak equipment.
- *Hazardous Arrangements* such as those due to poor housekeeping at work locations, unsafe planning or inadequate working space.
- *Insufficient Light* unsuitable location producing glare or objectionable shadows.
- *Improper Ventilation* such as insufficient change of air or presence of harmful vapor, dust or gas.
- *Unsafe Clothing* that fits loosely and can become entangled in wires and machinery, and failure to use goggles, proper shoes and insulated gloves or sleeves.
- *Unsafe Design and Construction* due to deviations from standard design and specifications and poor workmanship.

UNSAFE ACTS: Some examples of unsafe acts which may cause accidents are:

- *Operating Without Authority or Warning* such as closing switches without authority, operating hoists and trucks without warning, failure to place warning signs or signal man where needed, failure to block equipment against unexpected movement, failure to observe work clearance procedures.

Operating or Working at Unsafe Speed such as driving too fast, throwing material or tools to another worker, jumping from vehicles or platforms or running.

Making Safety Devices Inoperative such as removing guards from machines, using oversize fuses, blocking safety valves, bypassing interlocks and isolating fire protection etc.

Use of Unsafe Equipment or Improper Use of Equipment such as using dull cutting tools, mushroom-head chisels, pipe extension on wrenches not designed for them, or the wrong tool for the job, or using hands instead of hand tools.

Unsafe Loading such as overloading cranes and winches, carrying too heavy load.

Placing or Leaving Objects where they are likely to fall.

Mixing Improper Packing or combining chemicals to form a dangerous mixture.

Taking Unsafe Position or Posture such as working on live conductors from above instead of below, walking under suspended loads or too close to openings, lifting while in awkward position, entering areas where there are dangerous gases or fumes, passing on curves of hills, riding on running boards or other unsafe places on vehicles.

Working on Equipment without Taking Proper Precautions such as installing and removing temporary earth, cleaning, oiling or adjusting moving machinery, and working on or near live electrical equipment.

Distracting, Teasing or Startling such as practical joking, horseplay, quarrelling or annoying.

Failure to Use Safe Clothing or Protective Equipment such as failure to use insulated gloves, hardhat or goggles or other personal protective equipment (PPE)

Annex 9-1: Environmental and Social Code of Practices

Introduction

The objective of the Environmental and Social Code of Practices (ESCPs) is to address all potential and general construction related impacts and hazard risks during implementation of the Project. The ESCPs consist of environmental and social management guidelines and OHS practices to be followed by the contractors for sustainable management of all environmental, social, health and safety issues. These ESCPs shall be annexed to the general conditions of all the contracts, including subcontracts, carried out under the Project.

The list of ESCPs prepared for the Project is given below.

- ESCP 1: Waste Management
- ESCP 2: Fuels and Hazardous Goods Management
- ESCP 3: Water Resources Management
- ESCP 4: Drainage Management
- ESCP 5: Soil Quality Management
- ESCP 6: Erosion and Sediment Control
- ESCP 7: Top Soil Management
- ESCP 8: Topography and Landscaping
- ESCP 9: Quarry Areas Development and Operation
- ESCP 10: Air Quality Management
- ESCP 11: Noise and Vibration Management
- ESCP 12: Protection of Flora
- ESCP 13: Protection of Fauna
- ESCP 14: Road Transport and Road Traffic Management
- ESCP 15: Construction Camp Management
- ESCP 16: Cultural and Religious Issues
- ESCP 17: Community and Workers Health and Safety
- ESCP 18: Construction and Operation Phase Security
- ESCP 19: Operation of Heavy Equipment Management
- ESCP 20: Excavation
- ESCP 21: Transportation of Oversized Equipment
- ESCP 22: Lifting and Materials Handling
- ESCP 23: Stringing conductors at road, river, and existing transmission line crossings

Contractors will prepare site specific management plans, namely Construction Environmental and Social Action Plan (CESAP) and Occupational Health and Safety Plan, in compliance with World Bank and Government guidelines and based on the guidance given in the ESCPs. The CESAP and OHS Plan will form the part of the contract documents and will be used as monitoring tool for compliance. It is mandatory for the main contractors procured directly by the project to include these ESCPs in their subcontracts. Violation of the compliance requirements will be treated as non-compliance leading to the corrections or otherwise imposing penalty on the contractors.

ESCP 1: Waste Management

Project Activity/ Impact Source	Environmental Impacts	Mitigation Measures/ Management Guidelines
General Waste	Soil and water pollution from the improper management of wastes and excess materials from the construction sites.	<p>The Contractor shall</p> <ul style="list-style-type: none"> • Develop site specific waste management plan for various specific waste streams (e.g., reusable waste, flammable waste, construction debris, food waste etc.) prior to commencing of construction and submit to supervision consultant for approval. • Organize disposal of all wastes generated during construction in the designated disposal sites approved by the Project. • Minimize the production of waste materials by 3R (Reduce, Recycle and Reuse) approach. • Segregate and reuse or recycle all the wastes, wherever practical. • Vehicles transporting solid waste shall be covered with tarps or nets to prevent spilling waste along the route. • Train and instruct all personnel in waste management practices and procedures as a component of the environmental induction process. • Provide refuse containers at each worksite. • Request suppliers to minimize packaging where practicable. • Place a high emphasis on good housekeeping practices. • Maintain all construction sites in a cleaner, tidy and safe condition and provide and maintain appropriate facilities as temporary storage of all wastes before transportation and final disposal. • Potable water should be supplied in bulk containers to reduce the quantity of plastic waste (plastic bottles). Plastic bag use should be avoided.
Hazardous Waste	Health hazards and environmental impacts due to improper waste management practices	<p>The Contractor shall</p> <ul style="list-style-type: none"> • Collect chemical wastes in 200 liter drums (or similar sealed container), appropriately labeled for safe transport to an approved chemical waste depot. • Store, transport and handle all chemicals avoiding potential environmental pollution. • Store all hazardous wastes appropriately in banded areas away from water courses. • Make available Material Safety Data Sheets (MSDS) for hazardous materials on-site during construction. • Collect hydrocarbon wastes, including lube oils, for safe transport off-site for reuse,

Project Activity/ Impact Source	Environmental Impacts	Mitigation Measures/ Management Guidelines
		<p>recycling, treatment or disposal at approved locations.</p> <ul style="list-style-type: none"> • Construct concrete or other impermeable flooring to prevent seepage in case of spills.

ESCP 2: Fuels and Hazardous Goods Management

Project Activity/ Impact Source	Environmental Impacts	Mitigation Measures/ Management Guidelines
Fuels and hazardous goods.	Materials used in construction have a potential to be a source of contamination. Improper storage and handling of fuels, lubricants, chemicals and hazardous goods/materials on-site, and potential spills from these goods may harm the environment or health of construction workers.	<p>The Contractor shall</p> <ul style="list-style-type: none"> • Prepare spill control procedures and submit them for supervision consultant approval. • Train the relevant construction personnel in handling of fuels and spill control procedures. • Store dangerous goods in bunded areas on top of a sealed plastic sheet away from watercourses. • Refueling shall occur only within bunded areas. • Store and use fuels in accordance with material safety data sheets (MSDS). Make available MSDS for chemicals and dangerous goods on-site. • Transport waste of dangerous goods, which cannot be recycled, to a designated disposal site. • Provide absorbent and containment material (e.g., absorbent matting) where hazardous material are used and stored; and ensure personnel trained in the correct use. • Provide protective clothing, safety boots, helmets, masks, gloves, goggles, to the construction personnel, appropriate to materials in use. • Make sure all containers, drums, and tanks that are used for storage are in good condition and are labeled with expiry date. Any container, drum, or tank that is dented, cracked, or rusted might eventually leak. Check for leakage regularly to identify potential problems before they occur. • Store and use fuels in accordance with material safety data sheets (MSDSs). • Store all liquid fuels in fully bunded storage containers, with appropriate volumes, a roof, a collection point and appropriate filling/decanting point. • Store hazardous materials above flood level considered for construction purposes • Put containers and drums in temporary storages in clearly marked areas, where they will not be run over by vehicles or heavy machinery. The area shall preferably slope or drain to a safe collection area in the event of a spill.

Project Activity/ Impact Source	Environmental Impacts	Mitigation Measures/ Management Guidelines
		<ul style="list-style-type: none"> Take all precautionary measures when handling and storing fuels and lubricants, avoiding environmental pollution. Avoid the use of material with greater potential for contamination by substituting them with more environmentally friendly materials.

ESCP 3: Water Resources Management

Project Activity/ Impact Source	Environmental Impacts	Mitigation Measures/ Management Guidelines
Hazardous material and Waste	Water pollution from the storage, handling and disposal of hazardous materials and general construction waste, and accidental spillage	<p>The Contractor shall</p> <ul style="list-style-type: none"> Follow the management guidelines proposed in ESCPs 1 and 2. Minimize the generation of sediment, oil and grease, excess nutrients, organic matter, litter, debris and any form of waste (particularly petroleum and chemical wastes). These substances must not enter waterways or storm water systems.
Discharge from construction sites	Construction activities, sewerages from construction sites and work camps may affect the surface water quality. The construction works will modify groundcover and topography changing the surface water drainage patterns of the area. These changes in hydrological regime lead to increased rate of runoff, increase in sediment and contaminant loading, increased flooding, and effect habitat of fish and other aquatic biology.	<p>The Contractor shall</p> <ul style="list-style-type: none"> Install temporary drainage works (channels and bunds) in areas required for sediment and erosion control and around storage areas for construction materials. Install temporary sediment basins, where appropriate, to capture sediment-laden run-off from site. Divert runoff from undisturbed areas around the construction site. Stockpile materials away from drainage lines Prevent all solid and liquid wastes entering waterways by collecting solid waste, oils, chemicals, bitumen spray waste and wastewaters from brick, concrete and asphalt cutting where possible and transport to an approved waste disposal site or recycling depot. Wash out ready-mix concrete agitators and concrete handling equipment at washing facilities off site or into approved banded areas on site. Ensure that tires of construction vehicles are cleaned in the washing bay (constructed at the entrance of the construction site) to remove the mud from the wheels. This should be done in every exit of each construction vehicle to ensure the local roads are kept clean.
Soil erosion and siltation	Soil erosion and dust from the material stockpiles will increase the sediment and contaminant loading of surface water bodies.	<p>The Contractor shall</p> <ul style="list-style-type: none"> Stabilize the cleared areas not used for construction activities with vegetation or appropriate surface water treatments as soon as

Project Activity/ Impact Source	Environmental Impacts	Mitigation Measures/ Management Guidelines
		<p>practicable following earthwork to minimize erosion.</p> <ul style="list-style-type: none"> • Ensure that roads used by construction vehicles are swept regularly to remove dust and sediment. • Water the loose material stockpiles, access roads and bare soils on an as required basis to minimize dust. Increase the watering frequency during periods of high risk (e.g. high winds).
Construction activities in water bodies	Construction works in the water bodies will increase sediment and contaminant loading, and effect habitat of fish and other aquatic biology.	<p>The Contractor Shall</p> <ul style="list-style-type: none"> • Dewater sites by pumping water to a sediment basin prior to release off site – do not pump directly off site. • Monitor the water quality in the runoff from the site or areas affected by dredge/excavation plumes, and improve work practices as necessary. • Protect water bodies from sediment loads by silt screen or other barriers. • Minimize the generation of sediment, oil and grease, excess nutrients, organic matter, litter, debris and any form of waste (particularly petroleum and chemical wastes). These substances must not enter waterways or storm water systems. • Do not discharge cement and water curing used for cement concrete directly into water courses and drainage inlets.
Drinking water	Untreated surface water is not suitable for drinking purposes due to presence of suspended solids and ecoli.	<p>The Contractor Shall</p> <ul style="list-style-type: none"> • Provide the drinking water that meets NEQS standards. Drinking water to be chlorinated at source, and ensure presence of residual chlorine 0.1 ~ 0.25 ppm as minimum after 30 minutes of chlorine contact time.

ESCP 4: Drainage Management

Project Activity/ Impact Source	Environmental Impacts	Mitigation Measures/ Management Guidelines
Excavation and earth works, and construction yards	Lack of proper drainage for rainwater/liquid waste or wastewater owing to the construction activities harms environment in terms of water and soil contamination, and mosquito growth.	<p>The Contractor shall</p> <ul style="list-style-type: none"> • Prepare drainage management procedures and submit them for supervision consultant approval. • Prepare a program to prevent/avoid standing waters, which supervision consultant will verify in advance and confirm during implementation. • Provide alternative drainage for rainwater if the construction works/earth-fillings cut the established drainage line.

Project Activity/ Impact Source	Environmental Impacts	Mitigation Measures/ Management Guidelines
		<ul style="list-style-type: none"> • Establish local drainage line with appropriate silt collector and silt screen for rainwater or wastewater connecting to the existing established drainage lines already there. • Rehabilitate road drainage structures immediately if damaged by contractors' road transports. • Build new drainage lines as appropriate and required for wastewater from construction yards connecting to the available nearby recipient water bodies. Ensure wastewater quality conforms to NEQS, before it is being discharged into the recipient water bodies. • Ensure that there will be no water stagnation at the construction sites and camps. • Provide appropriate silt collector and silt screen at the inlet and manholes and periodically clean the drainage system to avoid drainage congestion. • Protect natural slopes of drainage channels to ensure adequate storm water drains. • Regularly inspect and maintain all drainage channels to assess and alleviate any drainage congestion problem.
Ponding of water	Health hazards due to mosquito breeding	<ul style="list-style-type: none"> • Do not allow ponding of water especially near the waste storage areas and construction camps. • Discard all the storage containers that are capable of storing of water, after use or store them in inverted position.

ESCP 5: Soil Quality Management

Project Activity/ Impact Source	Environmental Impacts	Mitigation Measures/ Management Guidelines
Storage of hazardous and toxic chemicals	Spillage of hazardous and toxic chemicals will contaminate the soils	<p>The Contractor shall</p> <ul style="list-style-type: none"> • Strictly manage the wastes management plans proposed in ESCP1 and storage of materials in ESCP2. • Construct appropriate spill contaminant facilities for all fuel storage areas. • Establish and maintain a hazardous material register detailing the location and quantities of hazardous substances including the storage, and their disposals. • Train personnel and implement safe work practices for minimizing the risk of spillage. • Identify the cause of contamination, if it is reported, and contain the area of contamination. The impact may be contained by isolating the source or implementing controls around the affected site.

Project Activity/ Impact Source	Environmental Impacts	Mitigation Measures/ Management Guidelines
		<ul style="list-style-type: none"> Remediate the contaminated land using the most appropriate available method.
Construction material stock piles	Erosion from construction material stockpiles may contaminate the soils	<p>The Contractor shall</p> <ul style="list-style-type: none"> Protect the toe of all stockpiles, where erosion is likely to occur, with silt fences, straw bales or bunds.

ESCP 6: Erosion and Sediment Control

Project Activity/ Impact Source	Environmental Impacts	Mitigation Measures/ Management Guidelines
Clearing of construction sites	Cleared areas and slopes are susceptible for erosion of top soils, which affects the growth of vegetation and causes ecological imbalance.	<p>The Contractor shall</p> <ul style="list-style-type: none"> Prepare site specific erosion and sediment control measures and submit them for supervision consultant approval. Reinstate and protect cleared areas as soon as possible. Cover unused area of disturbed or exposed surfaces immediately with mulch/grass turf/tree plantations.
Construction activities and material stockpiles	The impact of soil erosion are (i) Increased run off and sedimentation causing a greater flood hazard to the downstream, and (ii) destruction of aquatic environment by erosion and/or deposition of sediment damaging the spawning grounds of fish	<p>The Contractor shall</p> <ul style="list-style-type: none"> Locate stockpiles away from drainage lines. Protect the toe of all stockpiles, where erosion is likely to occur, with silt fences, straw bales or bunds. Remove debris from drainage paths and sediment control structures. Cover the loose sediments of construction material and water them if required. Divert natural runoff around construction areas prior to any site disturbance. Install protective measures on site prior to construction, for example, sediment traps. Install 'cut off drains' on large cut/fill batter slopes to control water runoff speed and hence erosion. Observe the performance of drainage structures and erosion controls during rain and modify as required.
Soil erosion and siltation	Soil erosion and dust from the material stockpiles will increase the sediment and contaminant loading of surface water bodies.	<p>The Contractor shall</p> <ul style="list-style-type: none"> Stabilize the cleared areas not used for construction activities with vegetation or appropriate surface water treatments as soon as practicable following earthwork to minimize erosion.

Project Activity/ Impact Source	Environmental Impacts	Mitigation Measures/ Management Guidelines
		<ul style="list-style-type: none"> • Ensure that roads used by construction vehicles are swept regularly to remove sediment. • Water the material stockpiles, access roads and bare soils on an as required basis to minimize dust. Increase the watering frequency during periods of high risk (e.g. high winds).

ESCP 7: Top Soil Management

Project Activity/ Impact Source	Environmental Impacts	Mitigation Measures/ Management Guidelines
Land clearing and earth works	Earthworks will impact the fertile top soils that are enriched with nutrients required for plant growth or agricultural development.	<p>The Contractor shall</p> <ul style="list-style-type: none"> • Strip the top soil to a depth of 15 cm and store in stock piles of height not exceeding 2m. • Remove unwanted materials from top soil like grass, roots of trees and similar others. • The stockpiles will be done in slopes of 2:1 to reduce surface runoff and enhance percolation through the mass of stored soil. • Locate topsoil stockpiles in areas outside drainage lines and protect from erosion. • Construct diversion channels and silt fences around the topsoil stockpiles to prevent erosion and loss of topsoil. • Spread the topsoil to maintain the physico-chemical and biological activity of the soil. The stored top soil will be utilized for covering all disturbed area and along the proposed plantation sites. • Prior to the re-spreading of topsoil, the ground surface will be ripped to assist the bunding of the soil layers, water penetration and revegetation
Transport	Vehicular movement outside ROW or temporary access roads will affect the soil fertility of the agricultural lands	<ul style="list-style-type: none"> • Limit equipment and vehicular movements to within the approved construction zone. • Plan construction access to make use, if possible, of the final road alignment.

ESCP 8: Topography and Landscaping

Project Activity/ Impact Source	Environmental Impacts	Mitigation Measures/ Management Guidelines
Land clearing and earth works	Construction activities especially earthworks will change topography and disturb the natural rainwater/flood water drainage as well as will change the local landscape.	<p>The Contractor shall</p> <ul style="list-style-type: none"> • Prepare landscaping and plantation plan and submit the plan for supervision consultant approval. • Ensure the topography of the final surface of all raised lands (construction yards, approach roads and rails, access roads, etc.) are conducive to enhance natural draining of rainwater/flood water. • Keep the final or finished surface of all the raised lands free from any kind of depression that causes water logging. • Undertake mitigation measures for erosion control/prevention by grass-turfing and tree plantation, where there is a possibility of rain-cut that will change the shape of topography. • Cover immediately the uncovered open surface that has no use of construction activities with grass-cover and tree plantation to prevent soil erosion and bring improved landscaping. • Reinstatement the natural landscape of the ancillary construction sites after completion of works.

ESCP 9: Quarry Areas Development and Operation

Project Activity/ Impact Source	Environmental Impacts	Mitigation Measures/ Management Guidelines
Development and operation of borrow areas	Borrow areas will have impacts on local topography, landscaping and natural drainage.	<p>The Contractor shall</p> <ul style="list-style-type: none"> • Prepare quarry area management plan and submit the plan for supervision consultant approval. • Use only approved quarry and borrow sites • Identify new borrow and quarry areas in consultation with Project Director, if required. • Reuse excavated or disposed material available in the project to the maximum extent possible. • Store top soil for reinstatement and landscaping. • Develop surface water collection and drainage systems, anti-erosion measures (berms, revegetation etc.) and retaining walls and gabions where required. Implement mitigation measures in ESCP 3: Water

Project Activity/ Impact Source	Environmental Impacts	Mitigation Measures/ Management Guidelines
		<p>Resources Management, ESCP 6: Erosion and Sediment Control</p> <ul style="list-style-type: none"> • The use of explosive should be used in as much minimum quantity as possible to reduce noise, vibration and dust. • Control dust and air quality deterioration by application of watering and implementing mitigation measures proposed in ESCP 10: Air Quality Management • Noise and vibration control by ESCP 11: Noise and Vibration Management.

ESCP 10: Air and Dust Quality Management

Project Activity/ Impact Source	Environmental Impacts	Mitigation Measures/ Management Guidelines
Construction vehicular traffic	Air quality can be adversely affected by vehicle exhaust emissions and combustion of fuels.	<p>The Contractor shall</p> <ul style="list-style-type: none"> • Prepare air quality management plan (under the Pollution Prevention Plan) and submit the plan for supervision consultant approval. • Fit vehicles with appropriate exhaust systems and emission control devices. Maintain these devices in good working condition. • Operate the vehicles in a fuel efficient manner. • Cover hauls vehicles carrying dusty materials moving outside the construction site. • Impose speed limits on all vehicle movement at the worksite to reduce dust emissions. • Control the movement of construction traffic. • Water construction materials prior to loading and transport. • Service all vehicles regularly to minimize emissions. • Limit the idling time of vehicles not more than 2 minutes.
Construction machinery	Air quality can be adversely affected by emissions from machinery and combustion of fuels.	<p>The Contractor shall</p> <ul style="list-style-type: none"> • Fit machinery with appropriate exhaust systems and emission control devices. Maintain these devices in good working condition in accordance with the specifications defined by their manufacturers to maximize combustion efficiency and minimize the contaminant emissions. Proof or maintenance register shall be required by the equipment suppliers and contractors/subcontractors. • Focus special attention on containing the emissions from generators.

Project Activity/ Impact Source	Environmental Impacts	Mitigation Measures/ Management Guidelines
		<ul style="list-style-type: none"> • Machinery causing excess pollution (e.g. visible smoke) will be banned from construction sites. • Service all equipment regularly to minimize emissions. • Provide filtering systems, duct collectors or humidification or other techniques (as applicable) to the concrete batching and mixing plant to control the particle emissions in all its stages, including unloading, collection, aggregate handling, cement dumping, circulation of trucks and machinery inside the installations.
Construction activities	Dust generation from construction sites, material stockpiles and access roads is a nuisance in the environment and can be a health hazard, and also can affect the local crops;	<p>The Contractor shall</p> <ul style="list-style-type: none"> • Water the material stockpiles, access roads and bare soils on an as required basis to minimize the potential for environmental nuisance due to dust. Increase the watering frequency during periods of high risk (e.g. high winds). Stored materials such as gravel and sand shall be covered and confined to avoid their being wind-drifted. • Minimize the extent and period of exposure of the bare surfaces. • Restore disturbed areas as soon as practicable by vegetation/grass-turfing. • Store the cement in silos and minimize the emissions from silos by equipping them with filters. • Establish adequate locations for storage, mixing and loading of construction materials, in a way that dust dispersion is prevented because of such operations. • Not water as dust suppression on potentially contaminated areas so that a liquid waste stream will be generated. • Crushing of rocky and aggregate materials shall be wet-crushed, or performed with particle emission control systems. • Not permit the burning of solid waste.

ESCP 11: Noise and Vibration Management

Project Activity/ Impact Source	Environmental Impacts	Mitigation Measures/ Management Guidelines
Construction vehicular traffic	Noise quality will be deteriorated due to vehicular traffic	<p>The Contractor shall</p> <ul style="list-style-type: none"> • Prepare a noise and vibration management plan (under the Pollution Prevention Plan) and submit the plan for supervision consultant approval. • Maintain all vehicles in order to keep it in good working order in accordance with manufactures maintenance procedures.

Project Activity/ Impact Source	Environmental Impacts	Mitigation Measures/ Management Guidelines
		<ul style="list-style-type: none"> • Make sure all drivers will comply with the traffic codes concerning maximum speed limit, driving hours, etc. • Organize the loading and unloading of trucks, and handling operations for the purpose of minimizing construction noise on the work site.
Construction machinery	Noise and vibration may have an impact on people, property, fauna, livestock and the natural environment.	<p>The Contractor shall</p> <ul style="list-style-type: none"> • Appropriately site all noise generating activities to avoid noise pollution to local residents. • Use the quietest available plant and equipment. • Maintain all equipment in order to keep it in good working order in accordance with manufactures maintenance procedures. Equipment suppliers and contractors shall present proof of maintenance register of their equipment. • Install acoustic enclosures around generators to reduce noise levels. • Fit high efficiency mufflers to appropriate construction equipment. • Avoid the unnecessary use of alarms, horns and sirens.
Construction activity	Noise and vibration may have an impact on people, property, fauna, livestock and the natural environment.	<p>The Contractor shall</p> <ul style="list-style-type: none"> • Notify adjacent landholders prior any typical noise events outside of daylight hours. • Educate the operators of construction equipment on potential noise problems and the techniques to minimize noise emissions. • Employ best available work practices on-site to minimize occupational noise levels. • Install temporary noise control barriers where appropriate. • Notify affected people if major noisy activities will be undertaken, e.g. blasting. • Plan activities on site and deliveries to and from site to minimize impact. • Monitor and analyze noise and vibration results and adjust construction practices as required. • Avoid undertaking the noisiest activities, where possible, when working at night near the residential areas.

ESCP 12: Protection of Flora

Project Activity/ Impact Source	Environmental Impacts	Mitigation Measures/ Management Guidelines
Vegetation clearance	Local flora are important to provide shelters for the birds, offer fruits and/or timber/fire wood, protect soil erosion and overall keep the environment very friendly to human-living. As such damage to flora has wide range of adverse environmental impacts.	<p>The Contractor shall</p> <ul style="list-style-type: none"> • Prepare a plan for protection of flora and submit the plan for supervision consultant approval. • Minimize disturbance to surrounding vegetation. • Use appropriate type and minimum size of machine to avoid disturbance to adjacent vegetation. • Get approval from supervision consultant for clearance of vegetation. • Make selective and careful pruning of trees where possible to reduce need of tree removal. • Control noxious weeds by disposing of at designated dump site or burn on site. • Clear only the vegetation that needs to be cleared in accordance with the engineering plans and designs. These measures are applicable to both the construction areas as well as to any associated activities such as sites for stockpiles, disposal of fill a, etc. • Not burn off cleared vegetation – where feasible, chip or mulch and reuse it for the rehabilitation of affected areas, temporary access tracks or landscaping. Mulch provides a seed source, can limit embankment erosion, retains soil moisture and nutrients, and encourages re-growth and protection from weeds. • Return topsoil and mulched vegetation (in areas of native vegetation) to approximately the same area of the roadside it came from. • Avoid work within the drip-line of trees to prevent damage to the tree roots and compacting the soil. • Minimize the length of time the ground is exposed or excavation left open by clearing and re-vegetate the area at the earliest practically possible. • Ensure excavation works occur progressively and re-vegetation done at the earliest • Provide adequate knowledge to the workers regarding nature protection and the need of avoid felling trees during construction • Supply appropriate fuel in the work camps to prevent fuel wood collection.

ESCP 13: Protection of Fauna

Project Activity/ Impact Source	Environmental Impacts	Mitigation Measures/ Management Guidelines
Construction activities	The location of construction activities can result in the loss of wild life habitat and habitat quality,	<p>The Contractor shall</p> <ul style="list-style-type: none"> • Prepare a plan for protection of fauna and submit the plan for supervision consultant approval. • Limit the construction works within the designated sites allocated to the contractors. • Check the site for animals trapped in, or in danger from site works and use a qualified person to relocate the animal.
	Impact on migratory birds, its habitat and its active nests	<p>The Contractor shall</p> <ul style="list-style-type: none"> • Not be permitted to destruct active nests or eggs of migratory birds. • Minimize the tree removal during the bird breeding season. If works must be continued during the bird breeding season, a nest survey will be conducted by a qualified biologist prior to commence of works to identify and locate active nests. • If bird nests are located/ detected within the ledges and roadside embankments then those areas should be avoided. • Petroleum products should not come in contact with the natural and sensitive ecosystems. Contractor must minimize the release of oil, oil wastes or any other substances harmful to migratory birds' habitats, to any waters, wetlands or any areas frequented by migratory birds.
Vegetation clearance	Clearance of vegetation may impact shelter, feeding and/or breeding and/or physical destruction and severing of habitat areas	<p>The Contractor shall</p> <ul style="list-style-type: none"> • Restrict the tree removal to the minimum numbers required. • Relocate hollows, where appropriate. • Fell the hollow bearing trees in a manner which reduces the potential for fauna mortality. Felled trees will be inspected after felling for fauna and if identified and readily accessible will be removed and relocated or rendered assistance if injured. After felling, hollow bearing trees will remain unmoved overnight to allow animals to move of their own volition.
Night time lighting	Lighting from construction sites and construction camps may affect the visibility of night time migratory birds that use the moon and stars for navigation during their migrations.	<p>The Contractor shall</p> <ul style="list-style-type: none"> • Use lower wattage flat lens fixtures that direct light down and reduce glare, thus reducing light pollution, • Avoid flood lights unless they are absolutely required. • Use motion sensitive lighting to minimize unneeded lighting.

Project Activity/ Impact Source	Environmental Impacts	Mitigation Measures/ Management Guidelines
		<ul style="list-style-type: none"> • Use, if possible, green lights that are considered as bird's friendly lighting instead of white or red colored lights. • Install light shades or plan the direction of lights to reduce light spilling outside the construction area.
Construction camps	Illegal poaching	<p>The Contractor shall</p> <ul style="list-style-type: none"> • Provide adequate knowledge to the workers regarding protection of flora and fauna, and relevant government regulations and punishments for illegal poaching. • Ensure that staff and Subcontractors are trained and empowered to identify, address and report potential environmental problems.

ESCP 14: Road Transport and Road Traffic Management

Project Activity/ Impact Source	Environmental Impacts	Mitigation Measures/ Management Guidelines
Construction vehicular traffic	Increased traffic use of road by construction vehicles will affect the movement of normal road traffics and the safety of the road-users.	<p>The Contractor shall</p> <ul style="list-style-type: none"> • Prepare a traffic management plan and submit the plan for supervision consultant approval. • Strictly follow the Project's 'Traffic Management Plan' and work with close coordination with the Traffic Management Unit. • Prepare and submit additional traffic plan, if any of his traffic routes are not covered in the Project's Traffic Management Plan, and requires traffic diversion and management. • Include in the traffic plan to ensure uninterrupted traffic movement during construction: detailed drawings of traffic arrangements showing all detours, temporary road, temporary bridges temporary diversions, necessary barricades, warning signs / lights, road signs etc. • Provide signs at strategic locations of the roads complying with the schedules of signs contained in the Country's Traffic Regulations.
	Accidents and spillage of fuels and chemicals	<p>The Contractor shall</p> <ul style="list-style-type: none"> • Restrict truck deliveries, where practicable, to day time working hours. • Restrict the transport of oversize loads. • Operate vehicles, if possible, to non-peak periods to minimize traffic disruptions. • Enforce on-site speed limit.

ESCP 15: Construction Camp Management

Project Activity/ Impact Source	Environmental Impacts	Mitigation Measures/ Management Guidelines
Siting and Location of construction camps	Campsites for construction workers are the important locations that have significant impacts such as health and safety hazards on local resources and infrastructure of nearby communities.	<p>The Contractor shall</p> <ul style="list-style-type: none"> • Prepare a construction camp management plan ensuring labor influx management and submit the plan to NTDC, WB and supervision consultant for approval. • Locate the construction camps within the designed sites or at areas which are acceptable from environmental, cultural or social point of view. • Consider the location of construction camps away from communities in order to avoid social conflict in using the natural resources such as water or to avoid the possible adverse impacts of the construction camps on the surrounding communities. • Submit to the supervision consultant for approval a detailed layout plan for the development of the construction camp showing the relative locations of all temporary buildings and facilities that are to be constructed together with the location of site roads, fuel storage areas (for use in power supply generators), solid waste management and dumping locations, and drainage facilities, prior to the development of the construction camps. • Local authorities responsible for health, religious and security shall be duly informed on the set up of camp facilities so as to maintain effective surveillance over public health, social and security matters.
Construction Camp Facilities	Lack of proper infrastructure facilities, such as housing, water supply and sanitation facilities will increase pressure on the local services and generate substandard living standards and health hazards.	<p>Contractor shall provide the following facilities in the campsites</p> <ul style="list-style-type: none"> • Adequate housing for all workers. • Safe and reliable water supply, which should meet NEQS. Drinking water to be chlorinated at source, and ensure presence of residual chlorine 0.1 ~ 0.25 ppm as minimum after 30 minutes of chlorine contact time (WHO guideline). • Hygienic sanitary facilities and sewerage system. The toilets and domestic waste water will be collected through a common sewerage. Provide separate latrines and bathing places for males and females with total isolation by location. The minimum number of toilet facilities required is one toilet for every ten persons. • Treatment facilities for sewerage of toilet and domestic wastes. • Storm water drainage facilities.

Project Activity/ Impact Source	Environmental Impacts	Mitigation Measures/ Management Guidelines
		<ul style="list-style-type: none"> • Paved internal roads. • Provide in-house community/common entertainment facilities. Dependence of local entertainment outlets by the construction camps to be discouraged/prohibited to the extent possible.
Disposal of waste	Management of wastes is crucial to minimize impacts on the environment	<p>The Contractor shall</p> <ul style="list-style-type: none"> • Ensure proper collection and disposal of solid wastes within the construction camps. • Insist waste separation by source; organic wastes in one container and inorganic wastes in another container at household level. • Store inorganic wastes in a safe place within the household and clear organic wastes on daily basis to waste collector. Establish waste collection, transportation and disposal systems with the manpower and equipment/vehicles needed. • Do not establish site specific landfill sites. All solid waste will be collected and removed from the work camps and disposed in approval waste disposal sites.
Fuel supplies for cooking purposes	Illegal sourcing of fuel wood by construction workers will impact the natural flora and fauna	<p>The Contractor shall</p> <ul style="list-style-type: none"> • Provide fuel to the construction camps for their domestic purpose, in order to discourage them to use fuel wood or other biomass. • Made available alternative fuels like natural gas or kerosene on ration to the workforce to prevent them using biomass for cooking. • Conduct awareness campaigns to educate workers on preserving the protecting the biodiversity and wildlife of the project area, and relevant government regulations and punishments on wildlife protection.
Health and Hygiene	Increased risk of communicable diseases and burden on local health services to be transmitted including malaria, exacerbated by inadequate health and safety practices.	<p>The Contractor shall</p> <ul style="list-style-type: none"> • Provide adequate health care facilities within construction sites. • Provide first aid facility round the clock. Maintain stock of medicines in the facility and appoint fulltime designated first aider or nurse. • Provide ambulance facility for the laborers during emergency to be transported to nearest hospitals. • Initial health screening of the laborers coming from outside areas. • Train all construction workers in basic sanitation and health care issues and safety

Project Activity/ Impact Source	Environmental Impacts	Mitigation Measures/ Management Guidelines
		<p>matters, and on the specific hazards of their work.</p> <ul style="list-style-type: none"> • Provide adequate drainage facilities throughout the camps to ensure that disease vectors such as stagnant water bodies and puddles do not form. Regular mosquito repellent sprays during rainy season in offices and construction camps and yards. • Not dispose food waste openly as that will attract rats and stray dogs. • Carryout short training sessions on best hygiene practices to be mandatorily participated by all workers. Place display boards at strategic locations within the camps containing messages on best hygienic practices.
Safety	In adequate safety facilities to the construction camps may create security problems and fire hazards	<p>The Contractor shall</p> <ul style="list-style-type: none"> • Provide appropriate security personnel (police or private security guards) and enclosures to prevent unauthorized entry in to the camp area. • Maintain register to keep a track on a head count of persons present in the camp at any given time. • Encourage use of flameproof material for the construction of labor housing / site office. Also, ensure that these houses/rooms are of sound construction and capable of withstanding wind storms/cyclones. • Provide appropriate type of firefighting equipment suitable for the construction camps • Display emergency contact numbers clearly and prominently at strategic places in camps. • Communicate the roles and responsibilities of laborers in case of emergency in the monthly meetings with contractors.
Social and cultural aspect for Camp setup	Labor Influx in the project area will have risk of social conflict, illicit behavior and crime, burden on and competition for public service provision	<p>The Contractor will</p> <ul style="list-style-type: none"> • The Contractor will schedule construction time particularly near the settlements, to cause least disturbance to the local population, particularly women. • Contractor will take due care of the local community and observe sanctity of local customs and traditions by his staff. Contractor will warn the staff strictly not to involve in any unethical activities and to obey the local norms and cultural restrictions. • The Contractor will carry out the construction activities in such a way that the open defecation timings by the local community should not be affected. The normal defecation timings are early in the morning and at late in

Project Activity/ Impact Source	Environmental Impacts	Mitigation Measures/ Management Guidelines
		<p>the evening. So, the Contractor will have to take care of these timings.</p> <ul style="list-style-type: none"> • During construction activities, if privacy of the nearby households is affected, the Contractor will inform the house owner to make some arrangements. Similarly, Contractor will take care as much as possible that the construction activities should not affect the privacy. • The Contractor will also ensure that noise and light pollution from the labor camp is kept at minimal levels especially at night.
Site Restoration	Restoration of the construction camps to original condition requires demolition of construction camps.	<p>The Contractor shall</p> <ul style="list-style-type: none"> • Dismantle and remove from the site all facilities established within the construction camp including the perimeter fence and lockable gates at the completion of the construction work. • Dismantle camps in phases and as the work gets decreased and not wait for the entire work to be completed. • Give prior notice to the laborers before demolishing their camps/units. • Maintain the noise levels within the national standards during demolition activities. • Different contractors should be hired to demolish different structures to promote recycling or reuse of demolished material. • Reuse the demolition debris to a maximum extent. Dispose remaining debris at the designated waste disposal site. • Handover the construction camps with all built facilities as it is if agreement between both parties (contractor and land-owner) has been made so. • Restore the site to its condition prior to commencement of the works or to an agreed condition with the landowner.

ESCP 16: Cultural and Religious Issues

Project Activity/ Impact Source	Environmental Impacts	Mitigation Measures/ Management Guidelines
Construction activities near religious and cultural sites	Disturbance from construction works to the cultural and religious sites, and contractors lack of knowledge on cultural issues cause social disturbances.	<p>The Contractor shall</p> <ul style="list-style-type: none"> • Communicate to the public through community consultation regarding the scope and schedule of construction, as well as certain construction activities causing disruptions or access restriction.

Project Activity/ Impact Source	Environmental Impacts	Mitigation Measures/ Management Guidelines
		<ul style="list-style-type: none"> • Not block access to cultural and religious sites, wherever possible. • Restrict all construction activities within the foot prints of the construction sites. • Stop construction works that produce noise (particularly during prayer time) should there be any mosque/religious/educational institutions close to the construction sites and users make objections. • Take special care and use appropriate equipment when working next to a cultural/religious institution. • Stop work immediately and notify the site manager if, during construction, an archaeological or burial site is discovered. It is an offence to recommence work in the vicinity of the site until approval to continue is given. • Provide separate prayer facilities to the construction workers. • Show appropriate behavior with all construction workers especially women and elderly people. • Allow the workers to participate in praying during construction time. • Resolve cultural issues in consultation with local leaders and supervision consultants. • Establish a mechanism that allows local people to raise grievances arising from the construction process. • Inform the local authorities responsible for health, religious and security duly informed before commencement of civil works so as to maintain effective surveillance over public health, social and security matters.

ESCP 17: Worker Health and Safety

Project Activity/ Impact Source	Environmental Impacts	Mitigation Measures/ Management Guidelines
Best practices	Construction works may pose health and safety risks to the construction workers and site visitors leading to severe injuries and deaths. The population in the proximity of the construction site and the construction workers will be exposed to a number of (i) biophysical health risk factors, (e.g. noise, dust, chemicals, construction material, solid waste, waste water, vector	<p>The Contractor shall</p> <ul style="list-style-type: none"> • Prepare an Occupational Health and Safety plan and submit the plan for supervision consultant's approval. • Implement suitable safety standards for all workers and site visitors which should not be less than those laid down on the international standards (e.g. International Labor Office guideline on 'Safety and Health in Construction; World Bank Group's 'Environmental Health and Safety Guidelines') and contractor's own national

Project Activity/ Impact Source	Environmental Impacts	Mitigation Measures/ Management Guidelines
	transmitted diseases etc.), (ii) risk factors resulting from human behavior (e.g. STD, HIV etc.) and (iii) road accidents from construction traffic.	<p>standards or statutory regulations, in addition to complying with National Standards.</p> <ul style="list-style-type: none"> • Provide the workers with a safe and healthy work environment, taking into account inherent risks in its particular construction activity and specific classes of hazards in the work areas. • Provide personal protection equipment (PPE) for workers, such as safety boots, helmets, masks, gloves, protective clothing, goggles, full-face eye shields, and ear protection. Maintain the PPE properly by cleaning dirty ones and replacing them with the damaged ones. • Safety procedures include provision of information, training and protective clothing to workers involved in hazardous operations and proper performance of their job. • Appoint an environment, health and safety manager to look after the health and safety of the workers. • Inform the local authorities responsible for health, religious and security duly informed before commencement of civil works and establishment of construction camps so as to maintain effective surveillance over public health, social and security matters.
	Child and pregnant labor	<p>The Contractor shall</p> <ul style="list-style-type: none"> • not hire children of less than 14 years of age and pregnant women or women who delivered a child within 8 preceding weeks.
Accidents	Lack of first aid facilities and health care facilities in the immediate vicinity will aggravate the health conditions of the victims	<p>The Contractor shall</p> <ul style="list-style-type: none"> • Ensure health care facilities and first aid facilities are readily available. Appropriately equipped first-aid stations should be easily accessible throughout the place of work. • Document and report occupational accidents, diseases, and incidents. • Prevent accidents, injury, and disease arising from, associated with, or occurring in the course of work by minimizing, so far as reasonably practicable, the causes of hazards, in a manner consistent with good international industry practice. • Identify potential hazards to workers, particularly those that may be life-threatening and provide necessary preventive and protective measures. • Provide awareness to the construction drivers to strictly follow the driving rules. • Provide adequate lighting in the construction area, inside the tunnels, inside the powerhouse cavern and along the roads.

Project Activity/ Impact Source	Environmental Impacts	Mitigation Measures/ Management Guidelines
Construction Camps	Lack of proper infrastructure facilities, such as housing, water supply and sanitation facilities will increase pressure on the local services and generate substandard living standards and health hazards.	<p>The Contractor shall provide the following facilities in the campsites to improve health and hygienic conditions as mentioned in ESCP 16 Construction Camp Management</p> <ul style="list-style-type: none"> • Adequate ventilation facilities • Safe and reliable water supply. • Hygienic sanitary facilities and sewerage system. • Treatment facilities for sewerage of toilet and domestic wastes • Storm water drainage facilities. • Recreational and social facilities • Safe storage facilities for petroleum and other chemicals in accordance with ESCP 2 • Solid waste collection and disposal system in accordance with ESCP1. • Arrangement for trainings • Paved internal roads. • Security fence at least 2 m height. • Sick bay and first aid facilities
Water and sanitation facilities at the construction sites	Lack of Water sanitation facilities at construction sites cause inconvenience to the construction workers and affect their personal hygiene.	<p>The contractor shall</p> <ul style="list-style-type: none"> • Provide portable toilets at the construction sites, if about 25 people are working the whole day for a month. Location of portable facilities should be at least 6 m away from storm drain system and surface waters. These portable toilets should be cleaned once a day and all the sewerage should be pumped from the collection tank once a day and should be brought to the common septic tank for further treatment. • Provide safe drinking water facilities to the construction workers at all the construction sites.
Other ESCPs	Potential risks on health and hygiene of construction workers and general public	<p>The Contractor shall follow the following ESCPs to reduce health risks to the construction workers and nearby community</p> <ul style="list-style-type: none"> • ESCP 2: Fuels and Hazardous Goods Management • ESCP 4: Drainage Management • ESCP 10: Air Quality Management • ESCP 11: Noise and Vibration Management • ESCP 15: Road Transport and Road Traffic Management
Trainings	Lack of awareness and basic knowledge in health care among the construction workforce, make them susceptible to potential diseases.	<p>The Contractor shall</p> <ul style="list-style-type: none"> • Train all construction workers in basic sanitation and health care issues (e.g., how to avoid malaria and transmission of sexually transmitted infections (STI) HIV/AIDS. • Train all construction workers in general health and safety matters, and on the specific hazards of

Project Activity/ Impact Source	Environmental Impacts	Mitigation Measures/ Management Guidelines
		<p>their work. Training should consist of basic hazard awareness, site specific hazards, safe work practices, and emergency procedures for fire, evacuation, and natural disaster, as appropriate.</p> <ul style="list-style-type: none"> • Implement malaria, HIV/AIDS and STI education campaign targeting all workers hired, international and national, female and male, skilled, semi- and unskilled occupations, at the time of recruitment and thereafter pursued throughout the construction phase on ongoing and regular basis. This should be complemented by easy access to condoms at the workplace as well as to voluntary counseling and testing.

ESCP 18: Construction and Operation Phase Security

Project Activity/ Impact Source	Impacts /Concerns	Mitigation Measures/ Management Guidelines
Construction Phase	<p>Inadequate construction site security poses a significant risk to assets, construction materials and property. Theft/vandalism of assets, materials and property would increase construction costs and cause delays in project completion.</p>	<p>The Contractor shall:</p> <ul style="list-style-type: none"> • Provide appropriate security personnel (i.e. security guards) to prevent unauthorized entry into the camp area. • Employ night watchman for periods of significant on-site storage or when the area necessitates. • Ensure all assets (i.e., tools, equipment, etc.) and construction materials at construction site are identified, inventoried and tracked as closely as possible. All assets should be clearly labeled and marked. Keep records of tool serial numbers and check inventory on a regular basis. • All tools and equipment should have a check out/in system, if not in use should be secured and stored in a proper place to prevent theft or loss. Provide storage sheds for the secure storage of equipment and tools when not in use. • Ensure there is proper fencing around construction site perimeter. Fencing should be chain-link at least 2.4 m high and secured with a steel chain and lock. If possible the entire site should be fenced; if this is not possible, make sure construction trailer and any equipment storage areas are fenced. • Ensure construction site has controlled access points (one or two entry points at most), allowing for close monitoring of comings and goings from the site. • Workers should be easily identified and have credentials that indicate site access. • No trespassing signs should be posted in conspicuous areas throughout the job site.

		<ul style="list-style-type: none"> List of employees who have after hour access to the property should be available to the BWB and local authorities. Ensure job site is properly lighted at night. Well-lit areas should include any office trailers and equipment storage trailers. Floodlights operated by sensors should also be installed where appropriate. Pre-employment screening investigations should be used to verify the applicants relating to their employment, education and criminal history background.
	Improper security measures may pose security risk for construction workers and especially foreign staff on construction sites.	<p>The Contractor shall:</p> <ul style="list-style-type: none"> Prepare site specific security plan. Maintain register to keep track of number of persons present in the camp at any given time. Provide appropriate security personnel at job sites as mentioned above. Ensure proper fencing as mentioned above. Ensure controlled access points to job site as mentioned above. Ensure works have easily identified credentials as mentioned above. Ensure job sites are properly lighted at night, as mentioned above.
Operation Phase	Vandalism/damage (including use of explosives) and theft of infrastructure (i.e. metals and etc.).	<ul style="list-style-type: none"> Ensure strategic infrastructure sites are secure and fenced with controlled access points. Fencing should be chain-link at least 2.4 m high and secured with a steel chain and lock.

ESCP 19: Operation of Heavy Equipment Management

Project Activity/ Hazard Source	Hazard Risks	Preventive Measures
Grid station, tower erection	Hazards associated with Heavy equipment movement are: <ul style="list-style-type: none"> Run over Pinch in / caught in between 	<p>The Contractor shall</p> <ul style="list-style-type: none"> All above listed hazards shall be prevented through safe working procedures, training of the operators and workers and exclusion of the operation, ensuring visibility and providing signaler etc. where applicable.
Before Operations	<ul style="list-style-type: none"> Falling of equipment form road edge / into excavations Falling of loads Overturning Driver negligence / poor operations 	<ul style="list-style-type: none"> All construction equipment shall be maintained, equipped and operated in accordance with manufactures' requirements. Only authorized and trained personnel shall operate equipment. Equipment operators and truck drivers shall make a pre-shift safety inspection of their equipment. Any conditions that effect safe operation shall be corrected before use. All visibility aids like side / back view mirrors will be available with all site vehicles and machinery. Blocking of side / back wind shields will not be allowed by any means like curtains, posters, wall papers etc. Use 3 point mounting and dismounting technique off of heavy equipment - NEVER JUMP OFF HEAVY EQUIPMENT.

Project Activity/ Hazard Source	Hazard Risks	Preventive Measures
During Operation		<p>Predefined hand signals or use of two way radios between the operator and person in charge of the work crew to accomplish any and all movement.</p> <ul style="list-style-type: none"> • Designate the route for earth moving machinery; avoid reversing where possible by providing in – out route. • Separate routes will be established for site vehicles and pedestrians where applicable. • All site staff will be trained for the following: • Always try to walk on the driver side of equipment as the passenger side has a larger blind spot. • Arrange to provide enough space to allow the equipment and workers to perform the planed tasks safely otherwise safe distance will be maintained from all sides of the heavy equipment while they are in use. • Use of high visibility vest for all site personnel. • Prohibition of cell phone use while operating any equipment. • Restriction in transporting workers on equipment or vehicles that are not equipped with seats for passengers. • Deployment of flagman when heavy equipment are in motion, especially where machinery and workers are working at close distance to ensure communication between the operator and flagman to maintain safe movement. • Cordon of swing radius of vehicles in danger zones with warning tape of barriers. • Restriction of work under any suspended or overhead load. • Restrictions in overloading of dumpers and insurance of offloading at level ground with rear wheels stop logs at the edges. • Insurance of reverse alarm with the site vehicles. • Ensure three main principles at site to avoid any mishap. • Exclusion: exclusion will be done by specifying the work area by barricades / fencing/isolating from pedestrian / worker. • Visibility: best view around machinery directly from the operator position will be ensured by adequate visibility aids (clear front, side and rare screens with side / back view mirrors covering all blind areas). <p>Signaler: A signaler will be provided in a safe position to direct operation and any pedestrian movements in danger zones.</p>
After Operations		<p>The Contractor shall</p> <ul style="list-style-type: none"> • Never leave any machinery / vehicle unattended in running position or key inside. • After completion of operation all equipment shall be switched off and doors locked where applicable. • Bucket of excavator, loader shall be grounded. • All power transmission shall be neutral. • All equipment shall be parked in secured ground.

ESCP 20: Excavation

Project Activity/ Hazard Source	Hazard Risks	Preventive Measures
Sloping and benching	<ul style="list-style-type: none"> • Landslides, cave-ins, excavation collapse • Falling, rolling or dislodging material • Personal Falls, machinery falls into excavated area or trenches • Water accumulation • Confined Space • Being struck or crushed by a workplace vehicle, • Machinery Hazards; Loading and dumping hazards, e.g. struck by or pinch in between object, crushed by when reversing, overloading, overturning of the vehicles while unloading. 	<p>The slopes and configurations of sloping and benching systems will be selected and constructed by contractor and will be in accordance with the approved design following applicable code and designed by a registered professional engineer.</p> <ol style="list-style-type: none"> i. Allowable configurations and slopes: Excavations will be sloped at an angle not steeper than one and one-half horizontal to one vertical (34 degrees measured from the horizontal), unless the contractor follows other applicable design procedures approved by the engineer. ii. Sloping and benching systems not utilizing previous options will be approved by a registered professional engineer. Designs shall be in written form and shall include at least the following: <ol style="list-style-type: none"> (a) The magnitude of the slopes that were determined to be safe for the particular project; (b) The configurations that were determined to be safe for the particular project; (c) The identity of the registered professional engineer approving the design; and (d) At least one copy of the design shall be maintained at the jobsite while the slope is being constructed. After that time the design need not be at the jobsite, but a copy shall be made available to the PMU upon request.
Design of support systems, shield systems, and other protective systems		<p>Designs of support systems, shield systems, and other protective systems shall be selected and constructed by contractor and shall be in accordance with the approved design specifications following applicable code and designed by a registered professional engineer.</p> <ol style="list-style-type: none"> i. Design of support systems, shield systems, or other protective systems that are drawn from manufacturer's tabulated data shall be in accordance with all specifications, recommendations, and limitations issued or made by the manufacturer. ii. Deviation from the specifications, recommendations, and limitations issued or made by the manufacturer shall only be allowed after the manufacturer issues specific written approval. iii. Manufacturer's specifications, recommendations, and limitations, and manufacturer's approval to deviate from the specifications, recommendations, and limitations shall be in written form at the jobsite during construction of the protective system. After that time this data may be stored off the jobsite, but a copy shall be made available to the PMU upon request. iv. Support systems, shield systems, and other protective systems not utilizing Option i, Option ii or Option iii, above, shall be approved by a registered professional engineer. v. Designs shall be in written form and shall include the following: <ol style="list-style-type: none"> a. A plan indicating the sizes, types, and configurations of the materials to be used in the protective system; and

Project Activity/ Hazard Source	Hazard Risks	Preventive Measures
		<ul style="list-style-type: none"> b. The identity of the registered professional engineer approving the design. c. At least one copy of the design shall be maintained at the jobsite during construction of the protective system. After that time, the design may be stored off the jobsite, but a copy of the design shall be made available to the PMU upon request.
<p>Selection of Materials and equipment.</p>		<p>Materials and equipment used for protective systems shall be free from damage or defects that might impair their proper function. Manufactured materials and equipment used for protective systems shall be used and maintained in a manner that is consistent with the recommendations of the manufacturer, and in a manner that will prevent employee exposure to hazards.</p> <ul style="list-style-type: none"> i. When material or equipment that is used for protective systems is damaged, the competent person shall examine the material or equipment and evaluate its suitability for continued use. If the competent person cannot assure the material or equipment is able to support the intended loads or is otherwise suitable for safe use, then such material or equipment shall be removed from service, and shall be evaluated and approved by a registered professional engineer before being returned to service. ii. Installation and removal of support - Members of support systems shall be securely connected together to prevent sliding, falling, kickouts, or other predictable failure. iii. Support systems shall be installed and removed in a manner that protects workers from cave-ins, structural collapses, or from being struck by members of the support system. iv. Individual members of support systems shall not be subjected to loads exceeding those which those members were designed to withstand. v. Before temporary removal of individual members begins, additional precautions shall be taken to ensure the safety of employees, such as installing other structural members to carry the loads imposed on the support system. vi. Removal shall begin at, and progress from, the bottom of the excavation. Members shall be released slowly so as to note any indication of possible failure of the remaining members of the structure or possible cave-in of the sides of the excavation. vii. Backfilling shall progress together with the removal of support systems from excavations. viii. Additional requirements for support systems for trench excavations: <ul style="list-style-type: none"> a. Excavation of material to a level no greater than 2 feet (.61 m) below the bottom of the members of a support system shall be permitted, but only if the system is designed to resist the forces calculated for the full depth of the trench, and there are no indications while the trench is open of a possible loss of soil from behind or below the bottom of the support system.

Project Activity/ Hazard Source	Hazard Risks	Preventive Measures
		<p>b. Installation of a support system shall be closely coordinated with the excavation of trenches.</p>
Shield systems		<ul style="list-style-type: none"> • Shield systems shall not be subjected to loads exceeding those which the system was designed to withstand. • Shields shall be installed in a manner to restrict lateral or other hazardous movement of the shield in the event of the application of sudden lateral loads. • Employees shall be protected from the hazard of cave-ins when entering or exiting the areas protected by shields. • Employees shall not be allowed in shields when shields are being installed, removed, or moved vertically. • Excavations of earth material to a level not greater than 2 feet (.61 m) below the bottom of a shield shall be permitted, but only if the shield is designed to resist the forces calculated for the full depth of the trench, and there are no indications while the trench is open of a possible loss of soil from behind or below the bottom of the shield.

ESCP 21: Transportation of Oversized Equipment

Project Activity/ Hazard Source	Hazard Risks	Preventive Measures
Grid station	<p>Hazards associated with transportation of oversized equipment:</p> <ul style="list-style-type: none"> • Traffic disruptions along the way • Traffic accidents • Impact on infrastructure, roads, bridges • Nuisance to people along the transportation route 	<p>The Contractor shall:</p> <ul style="list-style-type: none"> • Identify the appropriate special vehicles depending on the characteristics of the load • Ensure that special vehicles are maintained, in good operating condition and have all permits required under the national laws • Ensure that the drivers are trained for the particular type of vehicles • Ensure that drivers are in good physical condition • Ensure that the equipment is loaded appropriately and secured on the vehicle • Ensure that the transportation route avoids schools, hospitals, mosques, markets or other places of concentration of people, as far as possible • Ensure that the vehicle route is surveyed and that its geometric design and condition is appropriate for the transportation of the big and heavy load. • Ensure that turning curves are appropriate for the special vehicles. • Ensure that the necessary clearance is available, i.e., bridges, transmission lines along the way • Ensure that a pilot vehicle is available to inform people on the coming load and to inform the vehicle driver on likely obstacles • Liaise with the traffic police to inform on the dates and the route of the transportation, and request their permit • Liaise with the communities along the route, at least a week before, to inform them on the dates of the transportation

ESCP 22: Lifting and Materials Handling

Project Activity/ Hazard Source	Hazard Risks	Preventive Measures
Mechanical Handling	<p>Injuries associated with mechanical handling of loads may result from:</p> <ul style="list-style-type: none"> • Unsafe operating practices • Inappropriate condition of equipment • Improper loading • Carrying too heavy a load • Improper training 	<p>General Requirements</p> <ul style="list-style-type: none"> • Lifting equipment selection shall be based on a risk assessment and shall be suitable for the task for which it will be used. • Lifting equipment selection should also consider the various operating environments under which the equipment may be used. • All lifting equipment used will comply with the necessary legal requirements. • All lifting equipment must be clearly marked with its safe working load as well as a unique identification number. Where the load capacity is variable, a table of load to conditions must be affixed. • Testing, including non-destructive testing where relevant, must be carried out by accredited contractors. • No equipment may be used if proof of inspection and test is not available (as recorded in the register). • No purpose made or adapted lifting equipment will be used, unless the special adaptation has been approved (after risk assessment) by the respective Responsible Engineer and the approval as well as limitations on use or special instructions are held with the register and communicated to the user. • Only employees who have been tested, found competent and authorised will be allowed to operate lifting equipment.
Manual handling	<p>Injuries associated with manual handling of loads may result from:</p> <ul style="list-style-type: none"> • Unsafe working habits • Improper lifting • Carrying too heavy a load • Incorrect gripping • Failure to wear correct personal protective equipment • Improper training 	<ul style="list-style-type: none"> • Training in safe manual handling methods. • Inspect material for the physical size and weight, and sharp or jagged edges, rough or slippery surfaces, splinters or burrs. • Adequate supervision. • Wearing of the correct personal protective equipment. • Pre-employment medical examinations and periodic examinations may reveal a hernia, knee or back injuries. • Consider physical matters such as small worker – heavy load. • Keep fingers away from pinch points, especially when setting down material. • When handling timber, pipes or other long objects, keep the hands away from the ends to prevent them from being pinched. • Wipe off grease, wet, slippery or dirty objects before handling them. • Keep hands free from oil and grease. • When possible, use holders, containers, handles or tongs when manually handling material.

ESCP 23: Stringing conductors at road, river, and existing transmission line crossings

Project Activity/ Hazard Source	Hazard Risks	Preventive Measures
Stringing conductors at road crossings	<p>Hazards associated with stringing conductors at road crossing are;</p> <ul style="list-style-type: none"> • Traffic disruptions along the way 	<p>The Contractor shall:</p> <ul style="list-style-type: none"> • Prepare and submit a traffic management plan to the CSC for his approval at least 30 days before commencing work on any project component involved in traffic diversion and management.

Project Activity/ Hazard Source	Hazard Risks	Preventive Measures
	<ul style="list-style-type: none"> • Traffic accidents • Damage to equipment • Accidents and spillage of fuels and chemicals • Less working time 	<ul style="list-style-type: none"> • Coordinate with local administration to communicate traffic closures for the construction work, along with traffic closure schedules. • Include in the traffic management plan to ensure uninterrupted traffic movement during construction: detailed drawings of traffic arrangements showing all detours, temporary road, temporary bridges temporary diversions, necessary barricades, warning signs / lights, and road signs. • Provide signs at strategic locations of the roads complying with the schedules of signs contained in the Country's Traffic Regulations. • Install and maintain a display board at each important road intersection on the roads to be used during construction, which shall clearly show the following information in Bangla: <ul style="list-style-type: none"> • Location: chainage and village name • Duration of construction period • Period of proposed detour / alternative route • Suggested detour route map • Name and contact address/telephone number of the concerned personnel • Name and contact address / telephone number of the Contractor • Inconvenience is sincerely regretted.
Stringing conductors at river crossings	<p>Hazards associated with the stringing at river crossings;</p> <ul style="list-style-type: none"> • Risk of drowning of worker and machinery • Corrosion of material and equipment • Electrocutation • Slip trips and fall • Chemical Spillage • Flood in rivers • Slope failure • Cold-water shock and immersion 	<p>The contractor shall;</p> <ul style="list-style-type: none"> • Ensure the provision of Lifejackets/buoyancy aids worn by workers with risk of falling into water. Lifejackets/buoyancy aids should conform to BS EN ISO 12402-1, 2, 3 or 4, or other equivalent international standards according to working conditions. • Ensure the checking of Lifejackets thoroughly by the user before each use • Provide a lifebuoy with sufficient lifeline (not less than 30 metres) and the locations of the lifebuoys should be at less than 50-metre intervals along the edges of places where work is being carried out over side. To avoid any delays to rescue operations, lifebuoys should not be tightly tied to posts. • Provide safety harnesses with continuous and effective anchorage system when it is impracticable to provide a suitable working platform, access and egress and safe place of work. • Ensure the provision of Rescue facilities, including sufficient stretcher(s), portable resuscitation equipment and first aid facilities, and kept readily accessible for emergency use. • Ensure the presence of Shelters, vessels for evacuation from adverse weather, etc. in the vicinity of workplaces over/near water. • Ensure the Job specific safety training and regular refresher training to workers to enhance/maintain their safety awareness of potential hazards associated with work over water/near water. • Ensure the safe handling of the chemicals while transporting or using. • Ensure the implementation of the safety standards • Ensure the usage of PPEs by the Workers
Stringing conductors at	Hazards associated with the stringing over	The contractor shall;

Project Activity/ Hazard Source	Hazard Risks	Preventive Measures
existing transmission line crossings	<p>existing transmission line includes;</p> <ul style="list-style-type: none"> • Electrocutation • Electromagnetic interference • Falling of existing line/conductor 	<ul style="list-style-type: none"> • Coordinate with the transmission line staff/concerned DISCO or NTDC to plan the work • Take necessary approval from the concerned department • Take necessary shutdown on the live transmission lines • Provide training and appropriate personal protection equipment for workers; • Maintain construction equipment in good condition; • Test structures for integrity prior to undertaking work; • Ensure Implementation of a fall protection program that includes training in climbing techniques and use of fall protection measures; inspection, maintenance, and replacement of fall protection equipment; among others; • Ensure hoisting equipment should be properly rated and maintained and hoist operators properly trained; • Ensure the specs of safety belts which should be of not less than 16 millimeters (5/8inch) two-in-one nylon or material of equivalent strength. Rope safety belts should be replaced before signs of aging or fraying of fibers become evident; • Ensure when operating power tools at height, workers should use a second (backup) safety strap; • Provide safe working space for workers when working at properties with additional structure around the power poles

Annex 10-1: Newspaper Advertisements on National Public Consultation on October 6, 2016 at Islamabad


NATIONAL TRANSMISSION & DESPATCH COMPANY LIMITED

NOTICE OF STAKEHOLDERS WORKSHOP AND PUBLIC CONSULTATION

Environmental and Social Assessment of Dasu Transmission Line Project

THE STUDY

National Transmission & Despatch Company (NTDC) is undertaking environmental and social assessment for the Dasu Transmission Line Project under the financial assistance from the World Bank. The proposed transmission line project aims to evacuate 5400 MW of power to be generated from the proposed Dasu Hydropower Project through a 250 km long 765 kV double circuit transmission line from Dasu to the proposed Islamabad West Grid Station near Fateh Jhung in Attock district. The proposed transmission line passes through the districts of Kohistan, Shangla, Battagram, Mansehra, Abbottabad and Haripur of Khyber Pakhtunkhwa, and through Attock district of Punjab.

PUBLIC CONSULTATION

A team of environmental and social consultants are preparing Environmental Impact Assessment, Social Impact Assessment and Resettlement Action Plan for this Project. These draft reports are available on NTDC website for public review (see www.ntdc.com.pk). As part of these studies and in accordance with the World Bank Operational Policy 4.01 and Environmental Protection Acts of Governments of Khyber Pakhtunkhwa and Punjab, public consultations and a stakeholder workshop will be conducted at Islamabad at the following date and location:

Date: Thursday, 06 October 2016
Time: 8:30 am to 2:00 pm
Location: Best Western Islamabad Hotel, 6-Islamabad Club Road, Islamabad, Pakistan.

In this consultation meeting, the public can meet with the study team, discuss the study objectives, environmental and social issues and mitigation measures for all environmental and social impacts and can participate in the project planning process. All the concerned and interested people are invited to attend these meetings.

COMMENTS

We are interested in hearing any comments that you may have about the study. With the exception of personal information, all comments will be part of the public record. In addition, there will be a comment sheet available, please drop the completed complete sheet in the box provided at the venue or mail it to the address below:

CHIEF ENGINEER / PROJECT DIRECTOR
 PMU Dasu Transmission Line Project, NTDC,
 8th Floor, PIA Tower, Egerton Road, Lahore.
 Ph: **042-99200695-6**
 Email: cepdpmudasu@gmail.com

PDU 008


نیشنل ٹرانسمیشن اینڈ ڈسپچ کمپنی لمیٹڈ

سٹیک ہولڈرز ورکشاپ اور عوامی مشاورت کانفرنس

داسو ٹرانسمیشن لائن پراجیکٹ کی ماحولیاتی اور سماجی تشخیص

مطالعہ

نیشنل ٹرانسمیشن اینڈ ڈسپچ کمپنی (این ٹی ڈی سی) اور ولڈ بینک سے مالی مدد کے تحت داسو ٹرانسمیشن لائن پراجیکٹ کے لئے ماحولیاتی اور سماجی تشخیص کا مطالعہ کر رہی ہے۔ مجوزہ ٹرانسمیشن لائن پراجیکٹ کا مقصد مجوزہ داسو ہائیڈرو پراجیکٹ سے 5400 MW پیدا شدہ بجلی کی بڑی حد تک 250 کلومیٹر طویل 765 KV ڈبل سرکٹ ٹرانسمیشن لائن طے کر کے قریب مجوزہ اسلام آباد ویسٹ گریڈ اسٹیشن تک منتقل ہے۔ مجوزہ ٹرانسمیشن لائن پراجیکٹ خیبر پختونخواہ کے اضلاع کوہستان، شانگلہ، بٹگرام، مانسہرہ، اہلڈیٹ آباد، ہری پور اور صوبہ پنجاب کے ضلع اٹک میں سے گزرتی ہے۔

پبلک کنسلٹیشن (عوامی مشاورت)

ماحولیاتی اور سماجی کنسلٹنٹس کی ایک ٹیم اس منصوبے کے لیے ماحولیاتی ردعمل کی تشخیص (EIA) سماجی اثرات کا تعین (SIA) اور آباد کاری ایکشن پلان (RAP) تیار کر رہی ہے۔ یہ مسودہ رپورٹس عوامی جائزے کے لیے NTDC کی ویب سائٹ (www.ntdc.com.pk) پر دستیاب ہیں۔ ولڈ بینک کی آپریشنل پالیسی 4.01 اور صوبہ خیبر پختونخواہ اور صوبہ پنجاب کے ماحولیاتی تحفظ کے اقدامات کے تحت عوامی مشاورت اور سٹیک ہولڈرز ورکشاپ اسلام آباد میں مندرجہ ذیل تاریخ اور مقام پر کی جائے گی۔

تاریخ: 06 اکتوبر 2016 بروز جمعرات
ٹائم: (02:00 pm to 08:30 am)
مقام: بیسٹ ویسٹرن ہوٹل اسلام آباد، 6 کلب روڈ، اسلام آباد پاکستان

اس کنسلٹیشن (مشاورتی) میٹنگ میں لوگ مطالعاتی ٹیم سے مل سکتے ہیں۔ ان تمام ماحولیاتی و سماجی اثرات کے مطالعہ، مقاصد، ماحولیاتی و سماجی مسائل اور ان کے تخفیف پانچوں پر بات چیت کر سکتے ہیں۔ تمام متعلقہ اور دلچسپی رکھنے والے افراد کو میٹنگ پر مدعو کیا جاتا ہے۔

تبصرہ

ہم اس مطالعہ کے بارے میں آپ کا تبصرہ سنانے میں دلچسپی رکھتے ہیں۔ ذاتی معلومات کے علاوہ تمام تبصرے پبلک ریکارڈ کا حصہ بنیں گے۔ اضافی طور پر وہاں مخصوص شیٹ موجود ہوگی۔ آپ سے التماس ہے کہ اس شیٹ کو مکمل طور پر لکھ کر موجودہ باکس میں ڈال دیں یا مندرجہ ذیل پتہ پر ارسال کریں۔

چیف انجینئر / پراجیکٹ ڈائریکٹر
 ڈاسو ٹرانسمیشن لائن پراجیکٹ (این ٹی ڈی سی) ٹور پور، 8^{ویں} فلوئر، پی اے ٹاور، اگرتون روڈ، لاہور۔
 فون: **042-99200695-6** ای میل: cepdpmudasu@gmail.com

PDU 008

Annex 10-2: Details of Consultation Meetings and List of Participants

List of Secondary Stakeholder's Consultations, July 2019

Date	Location	Designation	Name of Participants	Summary of Feedbacks	Recommendation in ESIA
12.07.2019	Abbottabad	Director and Assistant Director Environment Protection Agency (EPA)-North Directorate	Mr. Muhammad Ali Khan (Director), Mr. Asif Khan (Assistant Director)	<ul style="list-style-type: none"> The project should get the environmental approval before the commencement as it is the mandatory regulatory requirement. The whole operations should be in compliance with the National Environmental Quality Standards (NEQS). There should be proper mechanism of reporting the compliance against NEQS. 	The project is committed to show compliance with all rules regulation and standards of EPA as well as IFC's EHS Guidelines during the whole project life.
15.07.2019	Mansehra	Divisional Forest Office	Mr. Abdul Ghafoor	<ul style="list-style-type: none"> The project should comply with the regulatory requirements of all stakeholders including the forest Department. The Project should take care the Billion Tree Project (BTP) afforestation 	<ul style="list-style-type: none"> The project activities should be in compliance with the applicable forest rules and environmental standards. The cost of Afforestation in compensation of tree removing from BTP should be included in the project cost.

Date	Location	Designation	Name of Participants	Summary of Feedbacks	Recommendation in ESIA
				implementation activities.	
15.07.2019	Mansehra	Divisional Forest Officer-BTP	<ul style="list-style-type: none"> Mr. Jawad Mumtaz (DFO-Unhar Water Shed Division) Mr. Arsam Ahmad 	The Project should take care the Billion Tree Project (BTP) afforestation implementation activities.	The cost of afforestation in compensation of tree removing from BTP should be included in the project cost.
15.07.2019	Mansehra	Managing Director – HFO (NGO)	Dr. M. Haidary	He was in opinion that the need of grid will surely reduce the electricity shortfall and help to overcome the electric interruptions due to lack of infrastructure.	--
16-07-2019	Mansehra	SDO –Irrigation	Mr. Inayat Hussain	He briefed that the project site doesn't fall in the irrigation department owned land/area.	--
16-07-2019	Mansehra	Highway Department	Mr. Sajjad Haider	The project should adhered traffic and road safety rules of the department.	A traffic management plan will be prepared and implemented at site.
17.07-2019	Abbottabad	Wildlife	Mr. Arif Abbass	Any illegal hunting must of discouraged by the project developers and their associates.	Wildlife and biodiversity action plan should be adhere with full spirit.

**Community Consultations along the Proposed DTL Route
(During the update of the ESIA)**

Date of Meeting	District	Name of villages	Main Concerns/Issues	Point Discussed/ Addressed
15.07.19 To 16. 07.19	District Kohistan	<ul style="list-style-type: none"> • Khushi Village • Rungoo village • Afsarabad • Mosamabad • Mandraza • Saleh Abad • Kuz Komila 	<ul style="list-style-type: none"> • Compensation for the land acquired for the proposed project prior from commencement of work • Community has fear of electric shocks • Electricity to the community should be provided. • Access road is <i>kacha</i> (earthen) and community demands for the road widening and pavement. • Drinking water supply scheme should be provided • The natural landscape of the village will be disturbed • Community Safety concern 	<ul style="list-style-type: none"> • The compensation issue has been addressed in the RAP for DTL. This includes any damage to grazing and cultivated land as well. • A safety plan has been developed in the ESMP for communities along the project. • The DTL design includes safety measures to protect communities from risks such as electrocution. <p>Assistance will be provided to the communities to address some of the community needs.</p>
17.07.19 To 18. 07.19	District Shangla	<ul style="list-style-type: none"> • Nika Lahore Village • Sang-e-Toh, • Konshe • Ormal • Maira • Kashmir Abad • Farooq Muhalla • Garai 	<ul style="list-style-type: none"> • Residential land is very limited and it should not be affected • There are fears of electric shocks • DTL should not pass over residential houses, in doing so; the affected people must be given more • Generally the residents of this village are strongly opposing the proposed project 	<ul style="list-style-type: none"> • Mitigation measures have been proposed in the ESMP for these sites to change the location of angle marker • The compensation issue has been addressed in the RAP for DTL. • Houses have been avoided to the extent possible while selecting the DTL route. If unavoidable, compensation will be

			<ul style="list-style-type: none"> • Compensation for the affected land should be paid • DTL will affect the land adversely, as that this land will be available for residential use. 	<p>paid as detailed in RAP.</p> <ul style="list-style-type: none"> • Community liaison will be maintained during project implementation particularly while finalizing the tower locations. • The project is not likely to affect the grazing areas or livestock.
19.07.19	District Battagram	<ul style="list-style-type: none"> • Penjoni • Thakot • Khonan Bandai 	<ul style="list-style-type: none"> • Full compensation for the affected land should be paid • Residential structures must not be damaged. • The area has commercial lands for poultry farms, this land should be avoided. • Proper fencing of the towers to avoid any incidents. 	<ul style="list-style-type: none"> • The compensation issue has been addressed in the RAP for DTL. • Assistance will be provided to the communities to address some of the community needs. • Contractor will maximize employing local laborers.
21.07.19 To 22.07.19	District Mansehra	<ul style="list-style-type: none"> • Ichrian 	<ul style="list-style-type: none"> • Compensation for the affected land should be paid • Residential structures must not be damaged. • The area has commercial lands for poultry farms, this land should be avoided. • Proper fencing of the towers to avoid any incidents. 	<ul style="list-style-type: none"> • The compensation issue has been addressed in the RAP for DTL. • Assistance will be provided to the communities to address some of the community needs. • Contractor will maximize employing local laborers.
23.07.19 To 25.07.19	District Haripur	<ul style="list-style-type: none"> • Nartopa • Kaala Pind • Tanda 	<ul style="list-style-type: none"> • Access roads are in worse condition and may damage further due to construction 	<ul style="list-style-type: none"> • Proper mitigation measures have been proposed in the ESMP to minimize

		<ul style="list-style-type: none"> • Sultanpur • Bafaad • Beer 	<p>works of the DTL project</p> <ul style="list-style-type: none"> • Drinking water supply scheme should be provided • Employment opportunities to local educated individuals • Electricity should be provided to the local communities 	<p>disturbance to existing infrastructure such as access roads. Damaged infrastructure will either be repaired/replaced or compensation paid</p> <ul style="list-style-type: none"> • Assistance will be provided to the communities to address some of the community needs. • Contractor will maximize employing local laborers.
<p>26.07.19 To 28.07.19</p>	<p>District Attock</p>	<ul style="list-style-type: none"> • Jallo • Iqbal Nagar • Burhan • Pathar Garh • Chowa Sharif • Kamalpur • Dhok Khuda Bakhsh • Jhang Bahtar 	<ul style="list-style-type: none"> • Once the DTL is completed, the land will have no use for the locals and the value will decrease. • Locals have very limited land for residential purpose so; the line must not pass near the residential area. • Compensation for the affected land should be paid at once and as per market rates. • Communal trees/forest should not be damaged and damages should be compensated in case of any disturbance. 	<ul style="list-style-type: none"> • The compensation issue has been addressed in the RAP for DTL. • Houses and other structures have been avoided to the extent possible while selecting the DTL route. If unavoidable, compensation will be paid as detailed in RAP. • Damage to forest has been minimized through appropriate routing of the DTL. Any damages will be compensated.

**Community Consultations along the Proposed DTL Route
(Carried Out by RAP Team)**

Concerns	Redress
Consultations with PAPs/ Local Community (Male members)	

Concerns	Redress
Employment to local skilled and unskilled labor in the project should be provided to increase the livelihood. At least one third of the local community especially PAPs should be engaged in the project related jobs.	Contractor will maximize employing local laborers. Preference will be given to the PAPs.
The impact of electromagnetic induction increases during the rainy days.	<ul style="list-style-type: none"> • A safety plan has been provided in the ESIA for communities along the project. • The DTL design includes safety measures to protect communities from risks such as electrocution.
In some cases, local women are working in agricultural fields, so their routine activities should not be disturbed due to the construction activities.	<ul style="list-style-type: none"> • Liaison with the community will be maintained during construction activities. • The construction staff will be provided trainings regarding local norms. • The construction staff will comply with code of conduct. • A GRM will also be established to address community complaints.
RoW clearance for installation of towers and transmission line should be minimized at the best possible extent.	<ul style="list-style-type: none"> • Cultivation fields have been avoided to the extent possible while selecting the DTL route. If unavoidable, compensation will be paid as detailed in the present RAP. • The contractor will minimize the RoW clearance through astute planning.
Installation should be done after harvest of crops	<ul style="list-style-type: none"> • Liaison with the community will be maintained during construction activities. • Construction activities will be commenced after the harvest to the extent possible. Otherwise compensation will be paid in accordance with the present RAP.
Compensation should be fair and should be delivered before start of work. Payment of compensation for project affected person especially vulnerable PAPs should be ensured.	<ul style="list-style-type: none"> • Compensation for any loss to crops, trees, and structures will be paid in accordance with the rates given in the present RAP. These rates have been established based upon the official rates. • PAPC will be established to ensure that compensation is fair and paid in a timely manner. • Vulnerable PAPs have been identified and assistance will be provided to them in addition to the compensation.
Impacts on the structures should be avoided and relocation of settlements should be minimized by changing the design, where possible	<ul style="list-style-type: none"> • Settlements, houses, and other structures have been avoided to the extent possible while selecting the DTL route. If unavoidable, compensation will be paid as detailed in the present RAP.
Transport for relocation of assets and timely compensation to all the affectees should be provided.	<ul style="list-style-type: none"> • Transition/ shifting assistance will be provided to the eligible/ entitled persons in addition to the compensation for the lost assets.

Concerns	Redress
Policy framework should be made and ensured to project affectees for resettlement and compensation	Compensation against losses of crops, trees, structures and other assets will be paid to the PAPs in accordance with the present RAP.
Damaged lands should be rehabilitated/ restored after the construction work is completed.	Contract will rehabilitate/ restore the lands damaged by the construction activities.
Local norms should be honored; and construction work should be completed in time	<ul style="list-style-type: none"> • Liaison with the community will be maintained during construction activities. • The construction staff will be provided trainings regarding local norms. • The construction staff will comply with code of conduct. • Construction activities will be completed in the shortest possible time.
Compensation for the affected cropped area, houses and other private assets should be in accordance with current market rates/ replacement cost	<ul style="list-style-type: none"> • Compensation against losses of crops, trees, structures and other assets will be paid to the PAPs in accordance with the present RAP. • The compensation rates have been established based upon the official rates.
Consultations with PAPs/ Local Community (Female members)	
Women involvement in the activities outside the home is limited. However, in case of loss of any property/ assets, crops/ trees, compensation should be provided.	Compensation will be provided to the eligible and entitled PAPs including women and vulnerable people in accordance with the entitlement matrix of compensation given in the present RAP.
The local community should be allowed to collect the wood material from the removed trees.	<ul style="list-style-type: none"> • Compensation for any tree to be felled will be paid to the owner. • The owner will be allowed to take the felled tree.
Resettlement issues should be discussed in the presence of whole local community/ local population involving female.	<ul style="list-style-type: none"> • Extensive consultations have been carried out while preparing the present RAP • Finalized RAP will be disclosed and an Urdu translation will be shared with the communities also. • RAP implementation will be carried out in a participatory manner as explained in the present RAP. • P APC will be established to ensure PAPs participation in the process.
Land owners will allow installing spotting tower and stringing transmission line if compensation of losses is given to them.	<ul style="list-style-type: none"> • Settlements, houses, other structures, and cultivation fields have been avoided to the extent possible while selecting the DTL route. • If unavoidable, compensation will be paid as detailed in the present RAP.
Male members should be employed in the project related jobs so that they could get the jobs in their own city/village instead of moving towards other cities for jobs. In this way their social safety could be enhanced.	Contractor will maximize employing local laborers. Preference will be given to the PAPs.

National Public Consultation

Feedback	Points Discussed/Addressed
The environmental considerations should be given priority in the alternative analysis.	The criteria for alternative analysis are based on technical, environmental, social and economic data. All aspects of alternatives were analyzed based on these criteria. Based on environmental and social environmental criteria, the final route alignment for the DTL and design options has been finalized. Environmental and social aspects are also main criteria in some cases. For example, one of the options for route alignment was passing through Palas valley, a biodiversity hot spot, but due to environmental considerations this option is not recommended.
The region is geologically unstable and seismically active. These issues to be considered in the design of the towers.	Geotechnical studies and seismic assessment have been carried out as part of the engineering designs. Retaining walls will be built near the towers to protect the slopes in geologically unstable areas. Seismic design has considered the Pakistan Building code.
Third party monitoring should be included to monitor the effectiveness of implementation of projects environmental and social impacts	External monitoring and evaluation consultants will be procured by NTDC during implementation
Whether existing transmission lines can be upgraded instead of building a new line	A new transmission line has to be developed for DTL since there is no existing transmission line.
Communities should be given further benefits in addition to compensation	Community development assistance program will be carried out during project implementation.
Whether the distance between the conductors of TL is more than general wing span of the bird.	Avian risk assessment has been carried out for all the birds based on their height and wingspan. The maximum height and wingspan of the birds are generally within 1.5 m and 3 m, respectively; while the vertical distance between conductors is 15 m and horizontal distance are about 25m - much higher than the morphometric features of the birds.
The EMP implementation by the contractor should be linked to payment to the contractor and amount should be deducted for non-compliance.	Implementation of EMP will be a paid item in the BOQ and also a requirement under technical specifications of the contractor. Contractors' payments will be linked to their performance.

Feedback	Points Discussed/Addressed
Any replantation for cutting of trees along the right of way of TL?	Afforestation and forest rejuvenation programs will be carried out under the parent Dasu Hydropower Project.
Restriction on the land use along the ROW will affect the communities and the land value will also be decreased. Any compensation will be paid for these losses?	Currently NTDC has no policy on paying compensation on the restriction of land use and diminution of land value under the right of way of transmission lines.

List of Participants -Community Consultations

Date	No. of Participants	Participants	Location
02.02.16	6	Bakht Rawan, Gul Zamin, Haji Samanadar, Zaman, Bakht Biland, Lal Muhammad	Khushi Village UC Komila District Dasu
02-02-2016	3	Sadat Hussain, Nadar Shah, Khadi Khan	Seo Village UC Komila District Kohistan
02-02-2016	5	Hafizullah, M.Karim, Gull Namir, Bakht Muhammad, Shah Zamin	Rango village UC Komila District Kohistan
03-02-2016	6	Sayed Dedar Shah, Hamim Shah, Lajo, Ziaullah, Khadi, Gul Zamin	Zal Village UC Komila District Dasu
03-02-2016	6	Habiburehman, Abdurehman, Muhammad Salim, Muhammad Bostan, Ahmad Noor, Sayed Alam	Afsarabad UC Komila, District Dasu
03-02-2016	5	Wali, Rehman, Ghulo, Buraq, Islamuddin	Komila (Mosamabad) UC Komila District Kohistan
04-02-2015	7	Umar Khan, Muhammad Javed, Saider Shah Pirzada, Muhammad Aslam, Khan Muhammad, Sayed Ali	Kuz Komila UC Komila, District Kohistan
04-02-2016	4	Muhammad Siraj, Muhammad Umar, Allah Dad, Jehanzeb	Mandraza UC Kial, District Dasu
05-02-2016	9	Shah Alam, Abdurehman, Mujeburehman, Haji Zalander, Ziaurehman, Rehmat Gul, Fayaz Khan, Rakhim, Ikram Khan	Saleh Abad UC Shelkan Abad, District Pallas
05-02-2016	4	Sher Mehmood, Khan Zeb, Aziz, Saddam Hussain	Sang-e-Toh District Shangla

Date	No. of Participants	Participants	Location
06-02-2016	6	Muhammad Ayub, Rashol Khan, Sardar Jan, Ubaidullah, Muqaddar Shah, Karim Khan	Lahore Village, UC Kurmang, District Shangla
07-02-2016	5	Minhajuddin, Dilawar , Shad Alam, Mukeem Jan, Dad Wali	Konshe village, District Shangla
08-02-2016	5	Bakht Gul, Rehman Gul, Usman Ali, Addul Hakim Mehmood	Ormal Village, District Shangla
09-02-2016	4	Said Khan, Zarin, Rehman Wali, Islam Zada	Garai Maira District Shangla
10-10-2016	6	Naseeburehman, Sahib Zada, Tauseer Khan, Khan Alam, Naseeb, Nazir	Mian Farooq Muhalla District Shangla
11-02-2016	4	Gulshan, Sanifullah, Mohibullah, Mian Rehman	Kashmir Abad District Shangla
12-02-2016	6	Tasleemullah (Kisan Councilor), Khalidullah, Zafar Ihsan, Shakir, Zakir, Muneeb	Penjoni Village District Battagram
13-02-2016	7	Azizullah, Ihsan, Abdul Majid, Saleemullah, Saif, Hidayatullah, Rehman	Chanjal UC Thakot District Battagram
14-02-2016	4	Ghani Muhammad, Faqir Khan, Muhammad Javed, Ihsanullah	Khonan Bandai District Battagram
15-02-2016	4	Muhammad Younis, Khalilurehman, Zarvaid, Sharif	Baipaeen UC Ichrian District Mansehra
16-02-2016	6	Mushtaq Ahmad, Auranzeb, Muhammad Siddique, Iftikhar Ahmad, Muhammad Safdar, Sajid Habib	Beer Village District Haripur

Date	No. of Participants	Participants	Location
17-02-2016	4	Muhammad Ijaz Shah, Muhammad Qayyum, Raja Khaliq, Syed Akthar Shan	Nartopa UC Pind Hashim Khan District Haripur
17-02-2016	3	Jehangir Shah, Gul Zaman, Muhammad Bilal	Tanda UC Bhaure Tog District Haripur
18-02-2016	6	Muhammad Waseem, Muhammad Shoaib, Babar Ali, Muhammad Akram, Banaras, Khyber Zaman	Sultanpur Village UC Sultanpur District Attock
19-02-2016	4	Kamran, M.Liaqat, M.Tufail, Nawazish Ali	Kaala Pind UC Jari Kas District Attock
20-02-2016	5	Rukhsar Ali, Abdul Waheed, Mazhar Ali, Muhammad Sohail, Shafique Ahmad	Bafaad UC Jallo District Attock
21-02-2016	4	Nazar Elahi, Naeem, Waqar Ali, M.Maskin	Bai Village UC Jallo District Attock
22-02-2016	4	Khalid Mehmood, M.Ishaq, M.Shafiq, M.Hayat	Iqbal Nagar UC Jallo District Attock
23-02-2016	3	Mehbood Alam, Liaqat Hussain, Shauka Al	Kohisar UC Burhan District Attock
24-2-2016	4	Akhtar Ali , Inayat Ali, Talib Hussain, Zamarud	Pattar Garh UC Kot Attock
25-02-2016	1	Bakht Rawan	Chowa Sharif UC Jallo Attock
26-02-2016	8	M.Islam, Bilal Majeed, Dilawar, Sakhawat, Umar Hayat, Amjad , Israr Khan, Zahir Shah	Bahtar Maira, District Attock
27-02-2016	4	Nazakat Ali, Sajid Ali, M.Faizan, Matloob	Dhok Khuda Bakhsh District Attock

Date	No. of Participants	Participants	Location
28-02-2016	5	, Masood, Abdul Raof, Dir Alam, Ismail, Aurangzeb	Kamalpur UC Bahthar District Attock

Details of Secondary Consultation Participants (Departmental)

Date	Department	Contact person Details
07-03-2016	EPA KP	Wajid Ali Assistant Director EIA/IEE Faridullah Shah Monitoring Inspector EIA/IEE
07-03-2016	Wildlife Department KP	Faiq Khan (DFO-Mansehra as focal person for Dasu Hydropower Project and Transmission Line in KPK)
08-03-2016	Forest Department KP	Gauhar Ali (DFO Directions) 0333-9227849
15-03-2016	National Highway Authority	Fareeha Mumtaz Malik- Director (Environment)
17-03-2016	IUCN	Azfar Hasan Ansari (Programme Officer)
22-03-2016	Ministry of Climate Change	Sajjad Yaldram (Deputy Secretary)

**Community Consultations along the Proposed DTL Route
(Carried Out by Environmental Team)**

Date of Meeting	Location	Main Concerns/Issues	Point Discussed/ Addressed
02.02.16	Khushi Village UC Komila, near Dasu, District Kohistan	<ul style="list-style-type: none"> • Compensation must be given for any damage to the land and market rates should be paid in case the land needs to be acquired. • The access roads to the villages may be disturbed during construction phase • Fear of electric currents from the DTL • Road safety during construction phase due to increased traffic volume might be of concern. • Local skilled labors should be given priority during construction works. • Uninterrupted electric supply should be provided to the local community from this project. • Drinking water supply scheme should be allocated for the local communities. 	<ul style="list-style-type: none"> • The compensation issue has been addressed in the resettlement action plan (RAP) for DTL. • Proper mitigation measures have been proposed in the ESMP to minimize disturbance to existing infrastructure e.g. access roads. Damaged infrastructure will either be repaired/replaced or compensation paid, • A traffic management plan will be prepared and implemented. • The contractor will develop a recruitment policy for locals as is addressed in the ESMP. Contractor will maximize employing local laborers. • A safety plan has been developed in the ESMP for communities along the project. • Assistance will be provided to the communities to address some of the community needs.
02-02-2016	Seo Village UC Komila, District Kohistan	<ul style="list-style-type: none"> • Land compensation must be paid to the affected owners. • Local skilled or unskilled labor should be given priority during construction. • Bridge over the Indus river is the major demand of this village • Electricity should be given on priority basis to the local community. 	<ul style="list-style-type: none"> • The compensation issue has been addressed in the RAP for DTL. • Contractor will maximize employing local laborers. • A safety plan has been developed in the ESMP for communities along the project. • Residential structures have been avoided as far

Date of Meeting	Location	Main Concerns/Issues	Point Discussed/ Addressed
		<ul style="list-style-type: none"> • Since it is a high voltage transmission line, it should not pass over or near any residential structure. 	<p>as possible while selecting the DTL route.</p> <ul style="list-style-type: none"> • The DTL design includes safety measures to protect communities from risks such as electrocution. • Assistance will be provided to the communities to address some of the community needs.
02-02-2016	Rango village UC Komila, District Kohistan	<ul style="list-style-type: none"> • Land compensation should be given prior to the project construction. • Grazing land should be protected during construction activities • DTL should not pass over any residential structure. • Provide fencing around the towers to prevent any mishap due to electric shocks • Access roads should not be damaged and if damaged should be restored • Access ways/roads should be improved as a developmental incentive for the local areas • Locals should be preferred for employment during construction. 	<ul style="list-style-type: none"> • The compensation issue has been addressed in the RAP for DTL. • No damage to grazing land is expected. However in case of any damage, compensation will be provided. • Contractor will maximize employing local laborers. • A safety plan has been developed in the ESMP for communities along the project. • Residential structures have been avoided as far as possible while selecting the DTL route. • Proper mitigation measures have been proposed in the ESMP to minimize disturbance to existing infrastructure e.g. access roads. Damaged infrastructure will either be repaired/replaced or compensation paid • The DTL design includes safety measures to protect communities from risks such as electrocution. • Assistance will be provided to the communities to address some of the community needs.

Date of Meeting	Location	Main Concerns/Issues	Point Discussed/ Addressed
03-02-2016	Zal Village UC Komila, District Kohistan	<ul style="list-style-type: none"> • Full compensation for the affected land should be given • The condition of access road must be improved and should not be damaged during construction works. • Drinking water supply scheme should be allocated in this proposed project • There is a fear of electric currents from the DTL • Grazing lands should be protected • Local skilled and unskilled labor should be given priority during construction of the project. 	<ul style="list-style-type: none"> • The compensation issue has been addressed in the RAP for DTL. • No damage to grazing land is expected. However in case of any damage, compensation will be provided. • Contractor will maximize employing local laborers. • A safety plan has been developed in the ESMP for communities along the project. • Proper mitigation measures have been proposed in the ESMP to minimize disturbance to existing infrastructure e.g. access roads. Damaged infrastructure will either be repaired/replaced or compensation paid • The DTL design includes safety measures to protect communities from risks such as electrocution. • Assistance will be provided to the communities to address some of the community needs.
03-02-2016	Afsarabad UC Komila, District Kohistan	<ul style="list-style-type: none"> • Compensation for affected land should be given prior to commencement of construction works. • Damage to agricultural and residential lands must be avoided. • Access road will be damaged and traffic volume will increase creating problems for the local people. • Local skilled and unskilled labor should be given priority during construction of the project. 	<ul style="list-style-type: none"> • The compensation issue has been addressed in the RAP for DTL. This includes any damage to grazing and cultivated land as well. • Contractor will maximize employing local laborers. • A safety plan has been developed in the ESMP for communities along the project. A traffic management plan will also be prepared and implemented.

Date of Meeting	Location	Main Concerns/Issues	Point Discussed/ Addressed
			<ul style="list-style-type: none"> • Proper mitigation measures have been proposed in the ESMP to minimize disturbance to existing infrastructure e.g. access roads. Damaged infrastructure will either be repaired/replaced or compensation paid.
03-02-2016	Komila (Mosamabad) UC Komila, District Kohistan	<ul style="list-style-type: none"> • Agricultural land is limited and will be affected; measures must be taken to avoid this loss. • The value of land above which the transmission line is passing depreciates in value; hence, compensation should also be given for the land under the transmission line. • Access ways will be affected due to increase in traffic • Electric shocks related to high power DTL is a major concern. • Towers and transmission line should be far from residential houses • At present, the village has no electricity. Hence, its provision must be ensured. 	<ul style="list-style-type: none"> • Cultivation fields and houses have been avoided to the extent possible while selecting the DTL route. If unavoidable, compensation will be paid as detailed in RAP. • The compensation issue has been addressed in the RAP for DTL. • A safety plan has been developed in the ESMP for communities along the project. A traffic management plan will also be prepared and implemented. • Proper mitigation measures have been proposed in the ESMP to minimize disturbance to existing infrastructure e.g. access roads. Damaged infrastructure will either be repaired/replaced or compensation paid • The DTL design includes safety measures to protect communities from risks such as electrocution. • Assistance will be provided to the communities to address some of the community needs.
04-02-2015	Kuz Komila UC Komila, District Kohistan	<ul style="list-style-type: none"> • Compensation for the land acquired for the proposed 	<ul style="list-style-type: none"> • The compensation issue has been addressed in the RAP for DTL. This

Date of Meeting	Location	Main Concerns/Issues	Point Discussed/ Addressed
		<p>project prior from commencement of work</p> <ul style="list-style-type: none"> • Community has fear of electric shocks • Electricity to the community should be provided. • Access road is <i>kacha</i> (earthen) and community demands for the road widening and pavement. • Drinking water supply scheme should be provided • The natural landscape of the village will be disturbed. 	<p>includes any damage to grazing and cultivated land as well.</p> <ul style="list-style-type: none"> • A safety plan has been developed in the ESMP for communities along the project. • The DTL design includes safety measures to protect communities from risks such as electrocution. • Assistance will be provided to the communities to address some of the community needs.
04-02-2016	Mandraza UC Kial, District Kohistan	<ul style="list-style-type: none"> • Fear of electric shocks • Land compensation for the affected (agricultural, grazing and forest land) land should be provided. • Construction works will involve cutting of trees in the local forest creating disturbance in the natural habitat • Drinking water supply scheme is the most important for this village • Access roads should be improved. • Health facility should be provided. 	<ul style="list-style-type: none"> • The compensation issue has been addressed in the RAP for DTL. This includes any damage to grazing and cultivated land as well. • Tree cutting will be minimized. Compensatory tree plantation will be carried out for any tree felling. • A safety plan has been developed in the ESMP for communities along the project. • The DTL design includes safety measures to protect communities from risks such as electrocution. • Assistance will be provided to the communities to address some of the community needs.
05-02-2016	Saleh Abad UC Shelkan Abad, District Kohistan	<ul style="list-style-type: none"> • Communal forest and forest land would be disturbed. • The Community relies mainly on livestock; Disturbance of grasslands will increase vulnerability of this community. 	<ul style="list-style-type: none"> • The compensation issue has been addressed in the RAP for DTL. This includes any damage to grazing and cultivated land as well. • Mitigation measures have been proposed in the ESMP to avoid

Date of Meeting	Location	Main Concerns/Issues	Point Discussed/ Addressed
		<ul style="list-style-type: none"> • Compensation for the affected land should be paid as per market rates • If possible, project should allocate funds for road, drinking water scheme, and dispensary for the local community as these are dire needs at present. • Community is concerned about the safety related issues of transmission line i.e. falling of tower and electric shocks. • Employment opportunities should be provided to the locals. 	<ul style="list-style-type: none"> • disturbance to natural habitat. • The project would not have any impacts on the grazing land, livestock animals could move freely for grazing. • A safety plan has been developed in the ESMP for communities along the project. • The DTL design includes safety measures to protect communities from risks such as electrocution. • Mitigation measures have been proposed in the ESMP for communal safety. • Contractor will maximize employing local laborers.
05-02-2016	Sang-e-Toh, District Shangla	<ul style="list-style-type: none"> • Affected land should be compensated as per market rates • Access roads should be improved • Locals should be allowed to work as general labors • Water supply scheme should be allocated for this area in the project. • The community is optimistic about the development changes that the project will bring. 	<ul style="list-style-type: none"> • The compensation issue has been addressed in the RAP for DTL. This includes any damage to grazing and cultivated land as well. • Proper mitigation measures have been proposed in the ESMP to minimize disturbance to existing infrastructure such as access roads. Damaged infrastructure will either be repaired/replaced or compensation paid • Contractor will maximize employing local laborers. • Assistance will be provided to the communities to address some of the community needs.
06-02-2016	Lahore Village, UC Kurmang, District Shangla	<ul style="list-style-type: none"> • Community's basic demand is that compensation for the affected land should be paid 	<ul style="list-style-type: none"> • The compensation issue has been addressed in the RAP for DTL. This includes any damage to

Date of Meeting	Location	Main Concerns/Issues	Point Discussed/ Addressed
		<p>prior from commencement of work</p> <ul style="list-style-type: none"> • Residential areas should be avoided as land for residential houses is very limited • The DTL route should not pass close to the houses as there will be fear of electric shocks due to falling or tilting. • Privacy of the locals should be given priority during construction phase • If possible engage local labors in construction work 	<p>grazing and cultivated land as well.</p> <ul style="list-style-type: none"> • Cultivation fields and houses have been avoided to the extent possible while selecting the DTL route. If unavoidable, compensation will be paid as detailed in RAP. • A safety plan has been developed in the ESMP for communities along the project. • The DTL design includes safety measures to protect communities from risks such as electrocution. • Privacy of locals will be respected. Community liaison will be maintained during project implementation. • Contractor will maximize employing local laborers.
07-02-2016	Konshe village, District Shangla	<ul style="list-style-type: none"> • Land compensation should be paid at once and as per market rates • At present there is shortage of electricity, community demands for the provision of electricity. • Access ways should not be damaged by the project • Towers should be erected far from residential houses and should be at stable sites. • Locals must be informed prior to the commencement of construction works about any precautionary measures that they might have to take. 	<ul style="list-style-type: none"> • The compensation issue has been addressed in the RAP for DTL. This includes any damage to grazing and cultivated land as well. • Cultivation fields and houses have been avoided to the extent possible while selecting the DTL route. If unavoidable, compensation will be paid as detailed in RAP. • Proper mitigation measures have been proposed in the ESMP to minimize disturbance to existing infrastructure such as access roads. Damaged infrastructure will either be repaired/replaced or compensation paid

Date of Meeting	Location	Main Concerns/Issues	Point Discussed/ Addressed
			<ul style="list-style-type: none"> • A safety plan has been developed in the ESMP for communities along the project. • The DTL design includes safety measures to protect communities from risks such as electrocution. • Community liaison will be maintained during project implementation. • Assistance will be provided to the communities to address some of the community needs.
08-02-2016	Ormal Village, District Shangla	<ul style="list-style-type: none"> • Land compensation should be given • Provision of electricity for the local community • Existing road need improvement. • Communal forest, grazing and residential lands should be avoided 	<ul style="list-style-type: none"> • The compensation issue has been addressed in the RAP for DTL. This includes any damage to grazing and cultivated land as well. • Mitigation measures have been proposed in the ESMP to avoid disturbance to natural habitat. • The project would not have any impacts on the grazing land, livestock animals could move freely for grazing. • A safety plan has been developed in the ESMP for communities along the project. • The DTL design includes safety measures to protect communities from risks such as electrocution. • Mitigation measures have been proposed in the ESMP for communal safety. • Contractor will maximize employing local laborers.

Date of Meeting	Location	Main Concerns/Issues	Point Discussed/ Addressed
09-02-2016	Garai Maira, District Shangla	<ul style="list-style-type: none"> • Community has fears that residential houses will be affected if TL passes close to them. • Community is skeptical that land compensation will not be paid in time and will be much lower than market rates. • Their access roads/pathways will be damaged • Due to high voltage line their children may be at risk. 	<ul style="list-style-type: none"> • The compensation issue has been addressed in the RAP for DTL. • Houses have been avoided to the extent possible while selecting the DTL route. If unavoidable, compensation will be paid as detailed in RAP. • Proper mitigation measures have been proposed in the ESMP to minimize disturbance to existing infrastructure such as access roads. Damaged infrastructure will either be repaired/replaced or compensation paid • A safety plan has been developed in the ESMP for communities along the project. • The DTL design includes safety measures to protect communities from risks such as electrocution.
10-10-2016	Mian Farooq Muhalla, District Shangla	<ul style="list-style-type: none"> • Residential land is very limited and it should not be affected • There are fears of electric shocks • DTL should not pass over residential houses, in doing so; the affected people must be given more compensation. 	<ul style="list-style-type: none"> • The compensation issue has been addressed in the RAP for DTL. • Houses have been avoided to the extent possible while selecting the DTL route. If unavoidable, compensation will be paid as detailed in RAP.
11-02-2016	Kashmir Abad, District Shangla	<ul style="list-style-type: none"> • Generally the residents of this village are strongly opposing the proposed project and suggest to change the DTL route, especially for the AM 93 to AM 95 • In-case of change in route, community must be consulted and allowed to participate in finalizing the route 	<ul style="list-style-type: none"> • Mitigation measures have been proposed in the ESMP for these sites to change the location of angle marker • The compensation issue has been addressed in the RAP for DTL. • Houses have been avoided to the extent possible while selecting the DTL route. If

Date of Meeting	Location	Main Concerns/Issues	Point Discussed/ Addressed
		<ul style="list-style-type: none"> • Compensation for the affected land should be paid • DTL will affect the land adversely, as that this land will be available for residential use. 	<ul style="list-style-type: none"> • unavoidable, compensation will be paid as detailed in RAP. • Community liaison will be maintained during project implementation particularly while finalizing the tower locations.
12-02-2016	Penjoni Village, District Battagram	<ul style="list-style-type: none"> • Compensation for affected land should be given • Due to DTL live stock will be restricted for grazing to limited area • They have fear of electric shocks • Government should provide electricity. • During construction works, labors from the local community should be engaged. 	<ul style="list-style-type: none"> • The compensation issue has been addressed in the RAP for DTL. • The project is not likely to affect the grazing areas or livestock. • A safety plan has been developed in the ESMP for communities along the project. • The DTL design includes safety measures to protect communities from risks such as electrocution. • Assistance will be provided to the communities to address some of the community needs. • Contractor will maximize employing local laborers.
13-02-2016	Chanjal UC, Thakot, District Battagram	<ul style="list-style-type: none"> • Compensation for the affected land should be given • Community is optimistic that this project will bring income generation opportunities to locals during construction phase • Electricity should be provided to the community • drinking water scheme should be provided for the community in the proposed project 	<ul style="list-style-type: none"> • The compensation issue has been addressed in the RAP for DTL. • Assistance will be provided to the communities to address some of the community needs. • Contractor will maximize employing local laborers.
14-02-2016	Khonan Bandai, District Battagram	<ul style="list-style-type: none"> • Full compensation for the affected land should be paid • Residential structures must not be damaged. 	<ul style="list-style-type: none"> • The compensation issue has been addressed in the RAP for DTL.

Date of Meeting	Location	Main Concerns/Issues	Point Discussed/ Addressed
		<ul style="list-style-type: none"> • The area has commercial lands for poultry farms, this land should be avoided. • Proper fencing of the towers to avoid any incidents. 	<ul style="list-style-type: none"> • Houses and other structures have been avoided to the extent possible while selecting the DTL route. If unavoidable, compensation will be paid as detailed in RAP. • A safety plan has been developed in the ESMP for communities along the project. • The DTL design includes safety measures to protect communities from risks such as electrocution.
15-02-2016	Baipaeen UC Ichrian, District Mansehra	<ul style="list-style-type: none"> • Land compensation should be paid for the affected land • Community has fear that the land rates under the DTL will decline too much. • Community also have fear of electric shocks from the TL • If possible for the DTL project proponent, schemes for basic health and road improvement should be initiated. 	<ul style="list-style-type: none"> • The compensation issue has been addressed in the RAP for DTL. • A safety plan has been developed in the ESMP for communities along the project. • The DTL design includes safety measures to protect communities from risks such as electrocution. • Assistance will be provided to the communities to address some of the community needs.
16-02-2016	Beer Village, District Haripur	<ul style="list-style-type: none"> • Towers should be erected at stable rocks to avoid sliding • Compensation for the affected land should be paid • If possible, government should allocate funds for generating power on small scale on local nullahs. • Basic facilities should be provided like, health facilities and school 	<ul style="list-style-type: none"> • Proper design of tower foundations has been prepared. It will be finalized during construction phase. • The compensation issue has been addressed in the RAP for DTL. • Assistance will be provided to the communities to address some of the community needs.
17-02-2016	Nartopa UC Pind Hashim Khan, District Haripur	<ul style="list-style-type: none"> • Decrease in land value and limited use after DTL project completion 	<ul style="list-style-type: none"> • The compensation issue has been addressed in the RAP for DTL.

Date of Meeting	Location	Main Concerns/Issues	Point Discussed/ Addressed
		<ul style="list-style-type: none"> • Compensation should be paid for affected land, to the owners • Access roads are in worse condition and may damage further due to construction works of the DTL project • Drinking water supply scheme should be provided • Employment opportunities to local educated individuals • Electricity should be provided to the local communities 	<ul style="list-style-type: none"> • Proper mitigation measures have been proposed in the ESMP to minimize disturbance to existing infrastructure such as access roads. Damaged infrastructure will either be repaired/replaced or compensation paid • Assistance will be provided to the communities to address some of the community needs. • Contractor will maximize employing local laborers.
17-02-2016	Tanda UC Bhaure Tog, District Haripur	<ul style="list-style-type: none"> • Community has experienced damages to lands, crops and communal forest and therefore, compensation for crops, local forest and land damages should be paid. • Existing access roads should be improved to support the DTL activities and the community. • Drinking water supply scheme should be allocated in the DTL project 	<ul style="list-style-type: none"> • The compensation issue has been addressed in the RAP for DTL. • Proper mitigation measures have been proposed in the ESMP to minimize disturbance to existing infrastructure such as access roads. Damaged infrastructure will either be repaired/replaced or compensation paid • Assistance will be provided to the communities to address some of the community needs.
18-02-2016	Sultanpur Village UC Sultanpur, District Attock	<ul style="list-style-type: none"> • Compensation for the affected land should be paid • Land under the DTL will not be usable for residential purpose • Compensation is usually paid for the land under the tower, while the surrounding land is also damaged in terms of its uses, therefore, compensation for that land should also be paid. • Community has serious concerns regarding chances 	<ul style="list-style-type: none"> • The compensation issue has been addressed in the RAP for DTL. • Houses and other structures have been avoided to the extent possible while selecting the DTL route. If unavoidable, compensation will be paid as detailed in RAP. • A safety plan has been developed in the ESMP for communities along the project.

Date of Meeting	Location	Main Concerns/Issues	Point Discussed/ Addressed
		<p>of electric shocks from falling and tilting of transmission line and its towers.</p>	<ul style="list-style-type: none"> The DTL design includes safety measures to protect communities from risks such as electrocution.
19-02-2016	Kaala Pind UC Jari Kas, District Attock	<ul style="list-style-type: none"> Once the DTL is completed, the land will have no use for the locals and the value will decrease. Locals have very limited land for residential purpose so; the line must not pass near the residential area. Compensation for the affected land should be paid at once and as per market rates. 	<ul style="list-style-type: none"> The compensation issue has been addressed in the RAP for DTL. Houses and other structures have been avoided to the extent possible while selecting the DTL route. If unavoidable, compensation will be paid as detailed in RAP.
20-02-2016	Bafaad UC Jallo, District Attock	<ul style="list-style-type: none"> Compensation for the affected land should be paid Residential areas should be avoided Communal trees/forest should not be damaged and damages should be compensated in case of any disturbance. Agricultural lands are very limited and expensive to develop therefore, agricultural land must not be damaged Developmental projects for local community should be allocated 	<ul style="list-style-type: none"> The compensation issue has been addressed in the RAP for DTL. Houses and other structures have been avoided to the extent possible while selecting the DTL route. If unavoidable, compensation will be paid as detailed in RAP. Damage to forest has been minimized through appropriate routing of the DTL. Any damages will be compensated. Assistance will be provided to the communities to address some of the community needs.
21-02-2016	Bai Village UC Jallo, District Attock	<ul style="list-style-type: none"> Affected land should be compensated as per market rates Value of the land will be decreased by almost 50% AM 207 is almost above a residential house, which should be relocated away from it. Electricity should be provided to the local community 	<ul style="list-style-type: none"> The compensation issue has been addressed in the RAP for DTL. Houses and other structures have been avoided to the extent possible while selecting the DTL route. If unavoidable, compensation will be paid as detailed in RAP. Assistance will be provided to the

Date of Meeting	Location	Main Concerns/Issues	Point Discussed/ Addressed
		<ul style="list-style-type: none"> • Employment opportunities should be given to locals 	<p>communities to address some of the community needs.</p> <ul style="list-style-type: none"> • Contractor will maximize employing local laborers.
22-02-2016	Iqbal Nagar UC Jallo, District Attock	<ul style="list-style-type: none"> • Compensation for affected land should be paid • Residential houses should be avoided • Electricity to the community should be provided 	<ul style="list-style-type: none"> • The compensation issue has been addressed in the RAP for DTL. • Houses and other structures have been avoided to the extent possible while selecting the DTL route. If unavoidable, compensation will be paid as detailed in RAP. • Assistance will be provided to the communities to address some of the community needs.
23-02-2016	Kohisar UC Burhan, District Attock	<ul style="list-style-type: none"> • Compensation for the affected land should be given to the owners • The land beneath the TL will not be of use for residential and commercial purposes • The value of the land will be adversely affected, which is loss of community 	<ul style="list-style-type: none"> • The compensation issue has been addressed in the RAP for DTL. • Houses and other structures have been avoided to the extent possible while selecting the DTL route. If unavoidable, compensation will be paid as detailed in RAP. • Assistance will be provided to the communities to address some of the community needs.
24-2-2016	Pathar Garh UC Kot, District Attock	<ul style="list-style-type: none"> • AM 210 is located in a leased crash quarry site, which should be relocated • Crush plant is in good operational status and the owner feel fears of damage to his business due to DTL • The main concern of the owner is to relocate this tower to an alternate site 	<ul style="list-style-type: none"> • The compensation issue has been addressed in the RAP for DTL. • Structures have been avoided to the extent possible while selecting the DTL route. If unavoidable, compensation will be paid as detailed in RAP.

Date of Meeting	Location	Main Concerns/Issues	Point Discussed/ Addressed
		<p>which could not hinder his business</p>	
25-02-2016	Chowa Sharif UC Jallo, District Attock	<ul style="list-style-type: none"> • Bakht Rawan is running self-help business of chair lift for crossing Hassan Abdal Nullah, which is the only source of income for him and will be affected • Community has only single source for crossing Hassan Abdal Nullah which will be affected • Community demands for relocating the DTL route in-order to save their access • Community has also shown their concerns regarding chances of mishaps due to electric shocks from DTL in case of falling or tilting 	<ul style="list-style-type: none"> • Mitigation measures have been proposed in the ESMP for sites that will be affected on individual business by changing the location of angle marker. • A safety plan has been developed in the ESMP for communities along the project. • The DTL design includes safety measures to protect communities from risks such as electrocution.
26-02-2016	Bahtar Maira, District Attock	<ul style="list-style-type: none"> • Land compensation should be given prior from the commencement of work • Residential and commercial lands should be avoided to reduce impacts on community from the DTL project • Job opportunities should be given to the locals especially as skilled and unskilled labor • Access roads should be improved 	<ul style="list-style-type: none"> • The compensation issue has been addressed in the RAP for DTL. • Houses and other structures have been avoided to the extent possible while selecting the DTL route. If unavoidable, compensation will be paid as detailed in RAP. • Contractor will maximize employing local laborers. • Assistance will be provided to the communities to address some of the community needs.
27-02-2016	Dhok Khuda Bakhsh, District Attock	<ul style="list-style-type: none"> • Land compensation should be paid • Village road should be rehabilitated • Electricity to the village should be provided 	<ul style="list-style-type: none"> • The compensation issue has been addressed in the RAP for DTL. • Proper mitigation measures have been proposed in the ESMP to minimize disturbance to existing infrastructure such as access roads. Damaged infrastructure will either be

Date of Meeting	Location	Main Concerns/Issues	Point Discussed/ Addressed
			<p>repaired/replaced or compensation paid</p> <ul style="list-style-type: none"> Assistance will be provided to the communities to address some of the community needs.
28-02-2016	Kamalpur UC Bahthar, District Attock	<ul style="list-style-type: none"> Affected land should be compensated as per market rates Community is facing electricity shortage and if possible electricity should be provided Residential houses should be avoided. 	<ul style="list-style-type: none"> The compensation issue has been addressed in the RAP for DTL. Houses and other structures have been avoided to the extent possible while selecting the DTL route. If unavoidable, compensation will be paid as detailed in RAP. Assistance will be provided to the communities to address some of the community needs.

**Community Consultations along the Proposed DTL Route
(Carried Out by Social Assessment Team)**

Date of Meeting	Location	Main Concerns/Issues	Point Discussed/ Addressed
2 Jan 2016	Jijal, District Kohistan	<ul style="list-style-type: none"> There is no committee in the village at local level to address the concerns of the community. The local community expects some job opportunities from the project. The village was deprived of basic needs such as shops, industries, electricity and water supply schemes. Transmission line will be of high voltage which will cause various health and safety issue to the local dwellers of the area. There might be some loss of residential structure under the wires as according to 	<ul style="list-style-type: none"> Cultivation fields and houses have been avoided to the extent possible while selecting the DTL route. If unavoidable, compensation will be paid as detailed in RAP. During RAP implementation, a committee of the affected persons will be formed. Liaison will be maintained with the local community during project implementation. Contractor will maximize employing local laborers. Assistance will be provided to the communities to address

Date of Meeting	Location	Main Concerns/Issues	Point Discussed/ Addressed
		<p>them it would be high power transmission line, which might be dangerous in the rain and high wind.</p> <ul style="list-style-type: none"> • It will cause widespread imbalance by cutting fruit and commercial trees in their locality • Project will disturb the habitat of animals. Landscape of the area may be destroyed due to transmission line project 	<p>some of the community needs.</p> <ul style="list-style-type: none"> • A safety plan has been developed in the ESMP for communities along the project. • The DTL design includes safety measures to protect communities from risks such as electrocution. • Tree cutting will be minimized. Compensatory tree plantation will be carried out in case of any unavoidable tree cutting. • Appropriate measures have been included to protect habitat and wildlife resources.
2 Jan 2016	Keru, U/C Kayal, District Kohistan	<ul style="list-style-type: none"> • There was no communication network in their area. • They perceived high potential in the project for creating opportunities for employment in their area • Their main source of drinking water was a water tank, made by government. There was shortage of water for consumption due to broken pipes and fitting of medium size water pipes, which do create problems in sufficient water supply to common households. • There feel that there would be some impacts on land resource. Vegetation and crops may be damaged due to unnecessarily construction activities. Similarly tower location may disturb agricultural land and even the movement of agricultural equipment. • They also assumed that there would be some effects 	<ul style="list-style-type: none"> • Cultivation fields and houses have been avoided to the extent possible while selecting the DTL route. If unavoidable, compensation will be paid as detailed in RAP. • Liaison will be maintained with the local community during project implementation. • Contractor will maximize employing local laborers. • Assistance will be provided to the communities to address some of the community needs. • Appropriate measures have been included to protect habitat and wildlife resources.

Date of Meeting	Location	Main Concerns/Issues	Point Discussed/ Addressed
		<p>on community social life, due to the project.</p> <ul style="list-style-type: none"> The construction of the project might adversely change migration pattern of animals with the destruction of fields and habitats and also due to high voltage lines. 	
3 Jan 2016	Kashmir Abad Mira, U/C Mira, District Shangla	<ul style="list-style-type: none"> Their main concern was regarding design of the project, which should utilize minimum of their land resources. The project should be design to reduce the risk of land sliding and degradation, and all the safety measures and consideration should be taken into account for their safety. The participant were of the opinion that this project will helpful in terms of employment opportunities for the local unskilled or semiskilled laborers, meson, transporter and small contractors of material supplying. There was no irrigation channel in the area; they were totally depended on rain water for agriculture purposes No major losses of any residential or commercial structure may occur, but some cultivated land may come under the transmission line. 	<ul style="list-style-type: none"> Cultivation fields and houses have been avoided to the extent possible while selecting the DTL route. If unavoidable, compensation will be paid as detailed in RAP. Liaison will be maintained with the local community during project implementation. The project includes appropriate design of tower foundation. A safety plan has been developed in the ESMP for communities along the project. The DTL design includes safety measures to protect communities from risks such as electrocution. Contractor will maximize employing local laborers. Assistance will be provided to the communities to address some of the community needs.
6 Jan 2016	Batkool, Tehsil Alai, District Battagram	<ul style="list-style-type: none"> Some part of their residential and cultivated land would be affected due to the project ultimately affecting the life of the community. The drinking water comes from natural sources, they 	<ul style="list-style-type: none"> Cultivation fields and houses have been avoided to the extent possible while selecting the DTL route. If unavoidable, compensation will be paid as detailed in RAP. During RAP implementation, a

Date of Meeting	Location	Main Concerns/Issues	Point Discussed/ Addressed
		<p>always fear of shortage of water at any time.</p> <ul style="list-style-type: none"> • The participants perceived that the project may damage the land and crops and some of them were worried about health and safety issues. • No organization of social nature was active in the area. 	<p>committee of the affected persons will be formed.</p> <ul style="list-style-type: none"> • Liaison will be maintained with the local community during project implementation. • Contractor will maximize employing local laborers. • Assistance will be provided to the communities to address some of the community needs. • A safety plan has been developed in the ESMP for communities along the project. • The DTL design includes safety measures to protect communities from risks such as electrocution.
19 Jan 2016	Ghulamabad, U/C Pind Hashim Khan. District Haripur	<ul style="list-style-type: none"> • There would be many job opportunities for skilled and non-skilled workers in the project • The only source of drinking water was natural spring. • The participant perceived losses of land and properties from the project. 	<ul style="list-style-type: none"> • Cultivation fields and houses have been avoided to the extent possible while selecting the DTL route. If unavoidable, compensation will be paid as detailed in RAP. • Contractor will maximize employing local laborers. • Assistance will be provided to the communities to address some of the community needs.
20 Jan 2016	Malik Pur, U/C Malik Pur, Mohalla Hafeez Abad, District Mansehra	<ul style="list-style-type: none"> • The participants informed about their meager land resources in the plain area, they were worried that if the transmission line would be installed in their cultivable land then it will be difficult for them to cultivate and secondly with the population growth in the area, the same land would be used for residential purpose in the future. • The participants were of the view that this project will be helpful in providing 	<ul style="list-style-type: none"> • Cultivation fields and houses have been avoided to the extent possible while selecting the DTL route. If unavoidable, compensation will be paid as detailed in RAP. • Contractor will maximize employing local laborers. • Assistance will be provided to the communities to address some of the community needs.

Date of Meeting	Location	Main Concerns/Issues	Point Discussed/ Addressed
		<p>employment for laborers, mesons transportation and small contracts for required materials supply in the construction phase.</p> <ul style="list-style-type: none"> • The participants show their concerns about some health and safety issues due to project. • Majority use drink water from wells, the quality was not good and they face shortage of water during summer season. 	<ul style="list-style-type: none"> • A safety plan has been developed in the ESMP for communities along the project. • The DTL design includes safety measures to protect communities from risks such as electrocution. • Assistance will be provided to the communities to address some of the community needs.
30 Jan 2016	Maddam, U/C Jabo, District Mansehra.	<ul style="list-style-type: none"> • The participants showed their concerns regarding their agricultural land, which they were depending on, and they therefore, suggested that project should be designed in such a manner that it reduces the utilization of agriculture land. • According to them the project will be helpful for generating employment opportunities for the local people • As the water comes from natural sources and hand pumps so they were under fear of shortage of drinking as well as water for irrigation in the area. The participant showed their concerns about health and safety issues like heart disease and hearing loss due to the noise and after effects of heavy transmission line. 	<ul style="list-style-type: none"> • Cultivation fields and houses have been avoided to the extent possible while selecting the DTL route. If unavoidable, compensation will be paid as detailed in RAP. • Contractor will maximize employing local laborers. • Assistance will be provided to the communities to address some of the community needs. • A safety plan has been developed in the ESMP for communities along the project. • The DTL design includes safety measures to protect communities from risks such as electrocution. • Assistance will be provided to the communities to address some of the community needs.
30 Jan 2016	Chansure, U/C Malik Pur District Mansehra.	<ul style="list-style-type: none"> • The perception of the community was that a huge project of national interest would be passing through their village. • They showed their concerns about the safety measures of the project. • No organization ever worked in their area before. 	<ul style="list-style-type: none"> • Liaison will be maintained with the local community during project implementation. • Contractor will maximize employing local laborers. • Assistance will be provided to the communities to address

Date of Meeting	Location	Main Concerns/Issues	Point Discussed/ Addressed
		<p>Only one primary school existed in the village.</p>	<p>some of the community needs.</p> <ul style="list-style-type: none"> • A safety plan has been developed in the ESMP for communities along the project. • The DTL design includes safety measures to protect communities from risks such as electrocution.
31 Jan 2016	Baidra Jaloo, District Mansehra	<ul style="list-style-type: none"> • The participants showed their concern about the residential area of the village and asked for avoiding that area for reducing the risk of health and safety issues. • Some part of their cultivated land will be used in the project. • Water comes from natural resources so they always feared shortage of drinking water, besides there was no water for irrigation in their village • According to the participants there were health facility and some schools present in the areas besides that there were no government services delivery agencies operating in the area. 	<ul style="list-style-type: none"> • Cultivation fields and houses have been avoided to the extent possible while selecting the DTL route. If unavoidable, compensation will be paid as detailed in RAP. • Liaison will be maintained with the local community during project implementation. • Contractor will maximize employing local laborers. • A safety plan has been developed in the ESMP for communities along the project. • The DTL design includes safety measures to protect communities from risks such as electrocution. • Assistance will be provided to the communities to address some of the community needs.
2 Feb 2016	Kal Bala, U/C Ali Khan, District Haripur	<ul style="list-style-type: none"> • The participants were concerned about the safety of the project they were also concerned about the land value depreciation due to project. • Most of them were poor and daily wagers laborers; they perceived some employment opportunities during construction of the project. • The sources of drinking water were some wells and its quality was poor also for 	<ul style="list-style-type: none"> • Cultivation fields and houses have been avoided to the extent possible while selecting the DTL route. If unavoidable, compensation will be paid as detailed in RAP. • Liaison will be maintained with the local community during project implementation. • Contractor will maximize employing local laborers.

Date of Meeting	Location	Main Concerns/Issues	Point Discussed/ Addressed
		<p>irrigation there was no water resources in the community. As the water come from natural sources, they always feared shortage of drink water.</p>	<ul style="list-style-type: none"> • A safety plan has been developed in the ESMP for communities along the project. • The DTL design includes safety measures to protect communities from risks such as electrocution. • Assistance will be provided to the communities to address some of the community needs.
14 Feb 2016	Chakai, District Kohistan	<ul style="list-style-type: none"> • The participants were of the view that when the wires and towers pass through their lands, it would thus limit their use of land for agriculture and residential purposes. • The participant perceived only temporary benefit e.g. at the time of construction of the project, some laborers and small jobs would be available for them, they do not perceived any long term benefits from the project. • The participant perceived the land and crop damages from the project and some of them were worried about health and safety issues. 	<ul style="list-style-type: none"> • Cultivation fields and houses have been avoided to the extent possible while selecting the DTL route. If unavoidable, compensation will be paid as detailed in RAP. • Liaison will be maintained with the local community during project implementation. • Contractor will maximize employing local laborers. • A safety plan has been developed in the ESMP for communities along the project. • The DTL design includes safety measures to protect communities from risks such as electrocution.
16 Feb 2016	Shao, U/C Shang, District Shangla	<ul style="list-style-type: none"> • The main concerns regarding the project were about the utilization of their valuable agriculture land and the safety and security of their lives and other belonging from the high voltage transmission line in their area. 	<ul style="list-style-type: none"> • Cultivation fields and houses have been avoided to the extent possible while selecting the DTL route. If unavoidable, compensation will be paid as detailed in RAP. • A safety plan has been developed in the ESMP for communities along the project. • The DTL design includes safety measures to protect communities from risks such as electrocution.

Date of Meeting	Location	Main Concerns/Issues	Point Discussed/ Addressed
20 Feb 2016	Bai Pai, U/C Chinar Kot, District Battagram	<ul style="list-style-type: none"> • The participants' main concern was regarding utilization of their valuable agricultural land in the project, besides they also showed their concerns regarding their safety and security issues. • Short term job opportunities will emerge due to construction activities • Supply of drinking water was found insufficient and unhygienic because they have natural water reserves but the distribution lines were very old and rusty • There were chances of occurrence of landslides and soil erosion within the project area. 	<ul style="list-style-type: none"> • Cultivation fields and houses have been avoided to the extent possible while selecting the DTL route. If unavoidable, compensation will be paid as detailed in RAP. • Contractor will maximize employing local laborers. • A safety plan has been developed in the ESMP for communities along the project. • The DTL design includes safety measures to protect communities from risks such as electrocution.
26 Feb 2016	Qaim Gali, U/C Chinar Kot, District Battagram	<ul style="list-style-type: none"> • The participants' main concern was acquisition of land for towers and mode of compensation paid to real owner. • The community normally faces shortage of water during summer season. • The participants showed their concerns about health and safety issues from the project 	<ul style="list-style-type: none"> • Cultivation fields and houses have been avoided to the extent possible while selecting the DTL route. If unavoidable, compensation will be paid as detailed in RAP. • A safety plan has been developed in the ESMP for communities along the project. • The DTL design includes safety measures to protect communities from risks such as electrocution.
13 Mar 2016	Dhok Sultana Bafad , District Attock	<ul style="list-style-type: none"> • The respondents were of the view that plain land within the project area was limited which is used for cultivation as well as for proposed future residential purpose. • The participants showed their concerns about health and safety issues due to the project. 	<ul style="list-style-type: none"> • Cultivation fields and houses have been avoided to the extent possible while selecting the DTL route. If unavoidable, compensation will be paid as detailed in RAP. • A safety plan has been developed in the ESMP for communities along the project. • The DTL design includes safety measures to protect communities from risks such as electrocution.

Date of Meeting	Location	Main Concerns/Issues	Point Discussed/ Addressed
14 Mar 2016	Sultanpura, U/C Sultanpura, District Attock	<ul style="list-style-type: none"> Some part of their cultivated land may be lost due to the project. There was no permanent organization or village committee but for resolutions of their disputes they use <i>Jirga</i> system which was usually headed by their UC Nazim and some other notables and elder of the area. 	<ul style="list-style-type: none"> Cultivation fields and houses have been avoided to the extent possible while selecting the DTL route. If unavoidable, compensation will be paid as detailed in RAP. Liaison will be maintained with the local community during project implementation. Contractor will maximize employing local laborers.
17 Mar 2016	Tanda, U/C Pindi Mihree, District Attock	<ul style="list-style-type: none"> The safety and security during and after the installation of towers were their main concerns. 	<ul style="list-style-type: none"> A safety plan has been developed in the ESMP for communities along the project. The DTL design includes safety measures to protect communities from risks such as electrocution. Contractor will maximize employing local laborers.

Institutional Consultations

Date of Meeting	Department	Feedback	Points Discussed/Addressed
7 Mar 2016	KP EPA	<ul style="list-style-type: none"> The proposed project will have adverse impacts on migratory birds therefore proper arrangement should be done in this regard. Minimum re-settlements should be involved in DTL project Land ownership should properly be documented and addressed. Align the DTL route to minimize the impacts on forest ecosystems Game Reserves and National Parks should be protected Public consultations should be properly done and recorded along the whole DTL 	<ul style="list-style-type: none"> An Avian Risk Assessment has been carried out and appropriate mitigation measures included (such as fixing large, visible spheres on the shield wires of the DTL) in the ESMP to address any potential impacts on migratory and sedentary birds. Cultivation fields and houses have been avoided to the extent possible while selecting the DTL route to minimize the resettlement impacts. Where unavoidable, compensation will be paid as detailed in RAP. A RAP has been prepared to provide details of resettlement

Date of Meeting	Department	Feedback	Points Discussed/Addressed
		<ul style="list-style-type: none"> • Buffer zone must be present to avoid EMF. • Proper health and safety plan should be developed for the proposed project as there would be such type of issues • Job opportunities should be provided to the local communities. 	<p>impacts including land ownership.</p> <ul style="list-style-type: none"> • Forested areas have been avoided to the extent possible while selecting the DTL route. Compensatory tree plantation will be carried out where needed. • Protected areas have been avoided while selecting the DTL route. • Extensive consultations have been carried out as recorded in this Chapter. • The DTL design incorporates requirements of minimum distances from structures, ground, and other objects to minimize EMF effects. • A safety plan has been developed in the ESMP for communities along the project. • The DTL design includes safety measures to protect communities from risks such as electrocution. • Contractor will be required to maximize employing local laborers.
7 Mar 2016	Wildlife Department, KP	<ul style="list-style-type: none"> • Most importantly this route is used by various migratory birds and there are chance for birds collision • Falcon species also use this route for migration and hunt for their food which might be at risk • Towers should be designed to minimize impacts on birds. • From Dasu to Islamabad there are various Game Reserves, Protected Areas, which should be protected through alternate route selection • Proper hotspots should be identified along the DTL for critical natural habitats in order to develop the conservation plan. 	<ul style="list-style-type: none"> • An Avian Risk Assessment has been carried out and appropriate mitigation measures included (such as fixing large, visible spheres on the shield wires of the DTL) in the ESMP to address any potential impacts on migratory and sedentary birds. • Forested areas have been avoided to the extent possible while selecting the DTL route. Compensatory tree plantation will be carried out where needed. • Protected areas have been avoided while selecting the DTL route. • Extensive baseline data has been collected to identify hotspots and critical natural

Date of Meeting	Department	Feedback	Points Discussed/Addressed
		<ul style="list-style-type: none"> • Proper consultation/participation should be ensured for the line department for all stages of the proposed project • Risk to the wildlife should be minimized by adopting best practices. 	<ul style="list-style-type: none"> habitats. Appropriate mitigation measures have been included in the ESMP to minimize impacts on such habitats. • Extensive consultations have been carried out as recorded in this Chapter. • Appropriate mitigation measures have been included in the ESMP to minimize impacts on wildlife resources.
8 Mar 2016	Forest Department, KP	<ul style="list-style-type: none"> • DTL will pass through dense forest areas and therefore will need trees cutting and route should be selected on those area where forest cutting will be minimum • Proper inventory should be made for trees along the DTL • Departmental coordination should be ensured to minimize the impacts on forest • NTDC should give a plan for trees cutting if required and must determine the numbers for trees to be cut • Funds should be allocated for plantation in the project area. 	<ul style="list-style-type: none"> • Forested areas have been avoided to the extent possible while selecting the DTL route. Compensatory tree plantation will be carried out where needed. • Contractor will be required to prepare a tree cutting plan that will include among others preparation of a tree inventory. • Liaison with the Department will be maintained for any tree cutting. • Compensatory tree plantation will be carried out in coordination with the Forest Department. Funds have been allocated for this purpose in the ESMP.
15 Mar 2016	National Highway Authority (NHA)	<ul style="list-style-type: none"> • Maximum height should be ensured at Motorway and GT road crossings to ensure safety against electric shocks • Construction spoils should properly be managed to control pollution around NHA roads • Clearing and grabbing of the sites should not damage plants in large quantity • DTL interventions should not create any land disturbance or soil erosion issues, if there are chances than proper mitigations should be proposed • Drains along the road is an important structure, it should 	<ul style="list-style-type: none"> • The DTL design incorporates requirements of minimum distances from structures, ground, roads, and other objects in accordance with international standards. • Contractor will be required to prepare and implement a spoil management plan. • Any damage to road and associated infrastructure such as drains will be minimized. Contractor will be required to repair any such damages. • Contractor will be required to implement erosion control measures where required. • Road crossings will be properly designed and locating

Date of Meeting	Department	Feedback	Points Discussed/Addressed
		<p>not be damaged or blocked from the proposed project interventions</p> <ul style="list-style-type: none"> • Towers should be erected away from the ROW of the roads, to avoid any mishap of tilting and falling of towers • Once the proposed project activities are finished, construction sites around NHA roads should be cleared from debris. 	<p>the tower within road RoW will be avoided to the extent possible.</p> <ul style="list-style-type: none"> • Coordination with NHA will be ensured during any road crossing. • Contractor will be required to carry out complete site/RoW clearance after the completion of construction works.
17 Mar 2016	International Union of Conservation of Nature (IUCN)	<ul style="list-style-type: none"> • The impacts on IUCN critically endangered, endangered, threatened and vulnerable species that are of national or international importance should be thoroughly addressed in the project construction and operation phases. • Vegetation clearing and disturbance of land should be kept to a minimum to keep the natural habitat of the region or area intact. • The presence of wildlife species should be monitored during construction activities. • Project specific waste management plan should be properly implemented. • Permanent habitat fragmentation should be strictly prevented. • All other animal and plant species that can have a direct or indirect impact due to project activities should be preserved. 	<ul style="list-style-type: none"> • Extensive baseline studies have been carried out during the present ESIA and important (Endangered, Threatened, Vulnerable) species have been identified and project's potential impacts on such species assessed. Appropriate mitigation measures have been included in the ESMP to address these impacts. • The DTL route has been selected to avoid critical and important habitat (Palas Valley). • Appropriate mitigation measures have been included in the ESMP to minimize impacts on natural habitats and wildlife resources. • Wildlife monitoring will be carried out during project implementation. • Contractor will be required to prepare and implement waste and pollution management plan in accordance with the guidelines included in the ESMP. • The DTL is not likely to cause any habitat fragmentation.
22 Mar 2016	Ministry of Climate Change	<ul style="list-style-type: none"> • The glaciers in the Upper Indus Basin (UIB) can have a direct impact on this project and other projects on the Indus River in case of a glacial lake outburst, this impact should be 	<ul style="list-style-type: none"> • The DTL has been designed and route has been selected addressing the flood risks. • Estimates have been included in the ESIA for the GHG emissions.

Date of Meeting	Department	Feedback	Points Discussed/Addressed
		<p>kept in mind and proper preventive measures should be in place.</p> <ul style="list-style-type: none"> • Greenhouse gas (GHG) emissions from the project should be estimated, prevented and monitored throughout the project interventions. • Mitigation measures to prevent damage from natural hazards such as landslides and floods should be properly implemented. • Dust emission as a result of land clearing and vehicular emissions should be estimated and proper mitigation measures should be proposed. 	<ul style="list-style-type: none"> • Appropriate mitigation measures have been included to minimize GHG emissions. • The DTL design particularly design of tower foundations addresses risk of land sliding and flooding. • Appropriate mitigation measures have been included in the ESMP to minimize dust emissions.

**Annex 10-3: List of Consultation Participants
Public Disclosure of Draft ESIA-Mansehra, October 29, 2019**

ATTENDANCE SHEET
Stakeholder's Consultative Workshop on Environmental & Social Impact Assessment (ESIA) and Resettlement
Action Plan (RAP) of 765 KV Dasu Transmission Line Project (DTLP) and 765KV Mansehra Grid Station Project
October 29, 2019

Sr. No.	Name	Designation/Occupation	Organization/Address	Email	Contact No.	Signature
1	Rehmat Ghani		Rehmat		0305-4432843	
2	Rahim Allah		Khalid		0341-440390	
3	Muhammad Nozeer					
4	M. Shakeel		Bashra		0305-4431170	
5	Imam Muhammad		Bashra		0305-4431170	
6	SUMAIRA KHAN	Tailor	RAHIDA		0305-4431170	
7	Khawar Shabaz	Business Man	Southern Memon		0305-4431170	
8	Zakia Abbasi	Real Estate			0305-4431170	
9	TARIQ Muhammad	Part A Ctg			0305-4431170	
10	Smadullah	Mali			0301-571223	
11	M. Farooq Khan	SIS			0340-8804988	
12	Shazam Shah	SIS			0305-4431170	
13	Sajjad Malik	Store Keeper			0332-2020829	
14	M. Altaf	SIS			0335-27740	
15	Chahar Mujtaba	Site Incharge	m/s GMR		0312-591903	
16	Taimur Quli	Site Engineer	m/s GMR		0301-5578804	
17	Muqees ur Rehman	SRO-II	Shor-Goth QJli		0301-5141771	
18	BABBAR	Driver	Mansehra		0305-5919590	
19	Karam Muhammad	Electrician	Badhal Mansehra		0311-9281118	

ATTENDANCE SHEET

Stakeholder's Consultative Workshop on Environmental & Social Impact Assessment (ESIA) and Resettlement Action Plan (RAP) of 765 KV Dasu Transmission Line Project (DTLP) and 765KV Manshehra Grid Station Project

October 29, 2019

Sr. No.	Name	Designation/Occupation	Organization/Address	Email	Contact No.	Signature
20	Mr. TANVEER IQBAL	SSO-I			0344-52098	
21	Mr. OMAR KHURRUM				0344-52098	
22	Mr. Farooq				0344-52098	
23	Mr. Zahoor				0344-52098	
24	Mr. Farooq				0344-52098	
25	Mr. Anderson Khan				0344-52098	
26	Mr. Hassan				0344-52098	
27	Mr. Siraj				0344-52098	
28	Mr. Zorak Khan				0344-52098	
29	Mr. Hassan Bhatt				0344-52098	
30	Mr. Ibrahim Atiq				0344-52098	
31	Mr. Sheryad Khan				0344-52098	
32	Mr. Omar					
33	Mr. Arshad Hussain					
34	Mr. Safer Amanat					
35	Mr. Khalid ul Rehman					
36	Mr. Qaiser Zaman					
37	Mr. Zafer					
38	Mr. Perwaiz					

ATTENDANCE SHEET
Stakeholder's Consultative Workshop on Environmental & Social Impact Assessment (ESIA) and Resettlement
Action Plan (RAP) of 765 KV Dasu Transmission Line Project (DTLP) and 765KV Manselara Gnd Station Project
October 29, 2019

Sr. No.	Name	Designation/Occupation	Organization/Address	Email	Contact No.	Signature
39	Umar Khurshid				0312-416871	
40	Tamir Khalid				0311-1074702	
41	Omair Hussain				031-4633211	
42	Salman Saeed				0300-1013121	
43	Zoed Khassam	Assistant Prof	Education Dept	zkhassam@gmail.com	0314-553477	
44	Ahmad Hassan	Asstt.	---		0324-853977	
45	M. Nooraman	Student	Chemistry	nooraman@gmail.com	0300-575534	
46	Shahzeb	Student	Chemistry	shahzebshahzeb@gmail.com	0335-785797	
47	Sahajid Ahmad	Project manager	NTDC	sahajid1882@gmail.com		
48	Imran Ali Khan	senior GIS Engineer	NTDC	imranahid@gmail.com	0335-780490	
49	Feroz Ahmad	Asst. Manager	NTDC	esec-ahf@gmail.com	0335-780490	
50	Muhammad Atif Raza	Dy. Manager (S&E)	NTDC	---	0335-780490	
51	Abdulkhann Raza	Env. Specialist (Geology)	GOPIA/FHC	raza.ks@gmail.com	0328-85312	
52						
53						
73						
74						
75						
76						

Public Disclosure of Draft ESIA-Besham, October 30, 2019

ATTENDANCE SHEET

Stakeholder's Consultative Workshop on Environmental & Social Impact Assessment (ESIA) and Resettlement Action Plan (RAP) of 765 KV Dasu Transmission Line Project (DTLP) and 765KV Manshehra Grid Station Project

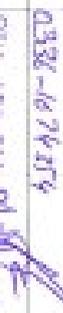
October 29, 2019

Sr. No.	Name	Designation/Occupation	Organization/Address	Email	Contact No.	Signature
1	Rohmad Ghani		Beshamud		0315-4628061	
2	Rohimullah		Khadai		991-14143191	
3	Muhammad Nazeer					
4	M. Shakeel		Bardha		0300-0191190	
5	Tom Muhammad		Bardha		0300-0191190	
6	Tunaid Hussaini	TECHNICAL MASTER	PAIDARA		0310-1571946	
7	Khuram shahzad	Business Man	Saman Miana		0314-8832199	
8	Zahid akhbari	Real Estate			03155841732	
9	TARIQ Muhammad	Prof. A. CG			03164641359	
10	SmaulBak	M.D.S			03014571293	
11	M. Farooq Khan	S.I.S			03108004988	
12	Sharoon Shah	S.I.S			03105441502	
13	Sajjad Malik	Store keeper			03122020059	
14	M. Altaf	S.I.S			03660577140	
15	Chahoon mugtaba	Site incharge.	m/s GMR		0312-5914107	
16	Taimur Qazi	Site Engineer	m/s GMR		0361-1578024	
17	Muqees ur-Rahman	S.S.O-II	Shor Gadh QJH		0581-5141771	
18	BBBR	Driver	Manshehra		03155919538	
19	Karam Muhammad	Electrician	Pathal Manshehra		03119281118	

ATTENDANCE SHEET

Stakeholder's Consultative Workshop on Environmental & Social Impact Assessment (ESIA) and Resettlement Action Plan (RAP) of 765 KV Dasu Transmission Line Project (DTLP) and 765KV Manshehra Grid Station Project

October 29, 2019

Sr. No.	Name	Designation/Occupation	Organization/Address	Email	Contact No.	Signature
20	M. TAJUDDIN	SSO-I			834-5024	
21	M. OMAR KHAN				034-5024	
22	M. Razaq				0345-5024	
23	M. Razaq				0345-5024	
24	M. Razaq				0345-5024	
25	M. Anderson Khan				0345-5024	
26	M. Hassan				0345-5024	
27	M. Siraj				0345-5024	
28	M. Zurek Khan				0345-5024	
29	M. Hassan Bhatti				0345-5024	
30	M. Ibrahim Akhbar				0345-5024	
31	M. Shahzad Khan				0345-5024	
32	M. Omar					
33	M. Arshad Hussain					
34	M. Saifur Ahmanat					
35	M. Khalid U. Rahman					
36	M. Qaiser Zaman					
37	M. Zafer					
38	M. Pervez					

ATTENDANCE SHEET

Stakeholder's Consultative Workshop on Environmental & Social Impact Assessment (ESIA) and Resettlement Action Plan (RAP) of 785 KV Dasu Transmission Line Project (DTLP) and 785KV Manehra Grid Station Project
October 29, 2019

Sr. No.	Name	Designation/Occupation	Organization/Address	Email	Contact No.	Signature
39	Umar Khayyat				0311-918871	
40	Tamir Khalid				0331-1196702	
41	Omar Hussain				033-4633211	
42	Salman Saeed				0302-4013120	
43	Zaid Hassan	Assistant Prof	Education Dept	zaid.hassan@university.edu	0300-520077	
44	Arif Hussain	ASST.			0334-853532	
45	M. Nawaz	Student			0300-9304401	
46	Shahzad	Student	Chemistry	shahzadshahzad@university.edu	0300-5273338	
47	Shahid Ahmad	Quality Manager	NTDC	shahid.ahmad@ntdc.gov.pk	0333-240199	
48	Imran Ali Khan	Asst. Manager	NTDC	imran.ali.khan@ntdc.gov.pk	0335-240199	
49	Fawad Ahmad	Asst. Manager	NTDC	fawad.ahmad@ntdc.gov.pk	0335-240199	
50	Muhammad Arif Raza	Dy. Manager (SEE)	NTDC	arif.raza@ntdc.gov.pk	0335-240199	
51	Abdulhameed Raza	Exec. Asst. (Training)	GOPA/PHC	rahman.rahman@ntdc.gov.pk	0302-853532	
52						
53						
73						
74						
75						
76						

Attendance Sheet

DTLP Stakeholder's Workshop and Public Consultation

Sr. No.	Name	Designation	Organization	Signature
1.	Mr. Rana Wajahat	GM GSC	NTDC	
2.	Mr. Zafar Abbas	Joint Secretary	NTDC, MoW	
3.	Mr. Muhammad Afzal Khan	Chief Engineer/PD	PMU DTLP, NTDC	
4.	Mr. Manzoor Ahmad	PD EHV-1	NTDC, Islamabad	
5.	Mr. Zafar Iqbal Niaz	Manager	NTDC, Islamabad	
6.	Mr. Javed	Chief Engineer, GSO	NTDC, Islamabad	
7.	Mr. Khalid Mehmood	Manager ESIC	NTDC	
8.	Mr. Muhammad Atif Raza	Deputy Manager (S&E)	PMU DTLP, NTDC	
9.	Mr. Muhammad In'am Roshmani	Deputy Manager ESIC	NTDC	
10.	Mr. Muhammad Shahid Saleem	Asst. Manager ESIC	NTDC	
11.	Mr. Fawad Ahmed	Asst. Manager (Social)	PMU DTLP, NTDC	
12.	Ms. Misbah Ammanat	Asst. Manager (Environment)	PMU DTLP, NTDC	
13.	Ms. Farhana Masher	Gender/Social Expert	WAPDA Lahore	
14.	Mr. Abdul Zahid Durrani	GM, DHPP	WAPDA, Lahore	

Atif ①

Sr. No.	Name	Designation	Organization	Signature
15.	<i>Mr. Shahid Hussain</i>	<i>for signature</i> Deputy-Director (Social and Environment)	DHPP, WAPDA	
16.	Sher Afzal	Assistant Manager (Social)	IESCO, Islamabad	
17.	Mr. Ahsan Kiyani	Director (EIA)	Pak-EPA, Islamabad	-
18.	Syed Faisal Maqsood	District Officer Environment	EPO, Punjab, Rawalpindi	-
19.	Mr. Hussain Ahmed	Director	EPA EPE, Peshawar	
20.	Dr. Asim Mahmood	Environment Specialist	ECO, Lahore	-
21.	Dr. Saamia Salf	Environment Specialist	ECO, Lahore	-
22.	Mr. Abdul Aleem Ch	Ex DG Wildlife, member scientific committee	WWF Pakistan, Lahore	
23.	Mr. Ayaz Araf	Environment Specialist	Consultant, Islamabad	
24.	Mr. Ali Nawaz	Biologist	Consultant, Islamabad	
25.	Mr. Mirza Zahid Baig	Bird Specialist	Consultant, Islamabad	
26.	Mr. Shaukat Ali	Social Expert	Consultant, Lahore	
27.	Ms. Samira Nozeer	Environmentalist	Consultant, Lahore	
28.	Mr. Jae Heun Park	Team Leader/Project Manager	KEPCO, Lahore	
29.	Mr. Malik Munawar	Design Expert	KEPCO, Lahore	-
30.	Mr. Umair Loeq	Engineer (Survey)	KEPCO, Lahore	

AS4

②

Environmental and Social Impact Assessment
Dasu Transmission Line Project

Sr. No.	Name	Designation	Organization	Signature
31.	Dr. Rab Nawaz	Professor Environmental Sciences	University of Lahore	
32.	Ms. Fozia Khan	Director, Environment Wing	CDA, Islamabad	
33.	Mr. Muhammas Naeem	Sociologist	National Institute of Health, Islamabad	
34.	Mr. Ummed Khalid	Conservator (Wildlife)	MoCC, Islamabad	-
35.	Mr. Syed Asif Gillani	Environment Specialist	Urban Unit, Lahore	
36.	Mr. Wassam Ullah Khokhar	HSE Engineer	Lahore	
37.	Mr. Muzaffar Iqbal	Social Expert	NTDC/ADB, Lahore	
38.	Mr. Muhammad Mansur Khan	Ex. Deputy Director	IUCN, Islamabad	-
39.	Mr. Muzaffar Abbas	District Officer	Directorate Social Welfare	
40.	Mr. Qaiser Imran	Environment Specialist	Health Department Lahore	
41.	Mr. Tahir Raza	CEO	Services Engineering Consultant,	
42.	Mr. Ahmad Imran Aslam	Environment Specialist	World Bank, Islamabad	-
43.	Miss Salma Omer	Social Specialist	World Bank, Islamabad	
44.	Mr. Venkata Nikola	Environment Expert	Independent Review Consultant, World Bank	
45.	Mr. James Monday	Environment Expert	World Bank, Islamabad	-
46.	Mr. Wassam Ahmad/ Salwan Shukab Ahmad	Chairman	Pakistan Wildlife Foundation	-

A-1 ③

Sr. No.	Name	Designation	Organization	Signature
47.	Mr. Ziaullah Azmat	Chief Conservator of forests	Forest Department	—
48.	Dr. Muhammad Zaman	Chairperson Sociology Department	Quaid-e-Azam University	—
49.	Prof. Dr. Muhammad Nawaz Chaudhry	Professor	CEES, Punjab University Lahore	<i>Muhammad Nawaz</i>
50.	Prof. Dr. Abdul Qadir	Professor	CEES, Punjab University Lahore	<i>Abdul Qadir</i>
51.	Prof. Dr. Muhammad Inan Khan	Chairman Environmental Sciences Department	International Islamic University	<i>Prof. Dr. Muhammad Inan Khan</i>
52.	Rana Muhammad Sarwar	Social Expert	NTDC/ADB	<i>Rana Muhammad Sarwar</i>
53.	Mr. Husnain Kazmi	Project Director	PLAN Pakistan, Islamabad office	—
54.	Dr. Fahad Saeed	Head of Environment and Climate Change Unit	SDPI	—
55.	Mr. Abdul Shakoor	Environmentalist	Islamabad	—
56.	Mr. Nawadish Ali	Advocate	Islamabad	—
57.	Mr. Muhammad Amir	Sociologist	Global Waste Management, Lahore	<i>Amir</i>
58.	Mr. Maqsood Ahmad	Social Expert	WB	<i>Maqsood Ahmad</i>
59.	Dr. Muhammad Ashraf Bodla	Environmentalist	MMP	<i>Dr. Muhammad Ashraf Bodla</i>
60.	Mr. Farhan Musawwar	Electrical Engineer	KEPCO	<i>Farhan Musawwar</i>
61.	Muhammad Ali	Electrical Engineer	EDMSSC	<i>Muhammad Ali</i>
62.	Mr. Noor ul Huda	C. E. O Enmasa	Enmasa.	<i>Noor ul Huda</i>

Ali

④

Sr. No.	Name	Designation	Organization	Signature
63.	AFZAL HAYAT KHAN	social facilitator	KEPCO	
64.	Hadia Aslam Rindil	Coordinator	IDC	
65.	Shahid Mushtaq Meir	Director	WAPDA	
66.	M Talha Javadi	Deputy Director (Env)	Dasu EPP, WAPDA	
67.	Mr. Rehman Masood	GM NTDC	NTDC (work shop)	
68.	Haseem Raza	Environmentalist	SSPL	
69.	Zaffer Ali Bhatti	Environment specialist	IDC Lahore	
70.	Mehnaz Nig	Environmentalist	Student	
71.	Hania Chughtai	Development Student	Student	
72.	Fahim Rizvi			
73.	Jahanzaib Khan	Student		Jahanzaib

Deputy Manager (S & E)
PMU-DTLP, NTDC, Lahore

Dated: October 4, 2016

Sr. No.	Name	Designation	Organization	Signature
74.68	Umair Asif			Umair
75.68	Ali Abdullah	Environmentalist	PPI	
76.68	Malik Basim	Stakeholder	Malik Basim	
77.68	Abid Hussain	Stakeholder		
78.68	Rana Jaffar Ahmad	Reporter/producer	P-TV	
79.68	Samina Sultan	AM	NTDC, Lahore	
80.68	Kamran-ul-Hassan	Asst. PRO	NTDC, Islamabad	
81.68	Asif Bilal	consultant	Pakistan consultant	
82.68				
83.68				
84.68				

Deputy Manager (S & E)
PMU-DTLP, NTDC, Lahore

Dated: October 6, 2016

⑥

Annex 10.4: Consultation Photos

Disclosure of Draft ESIA, Besham, October 30, 2019

Environmental and Social Impact Assessment
Dasu Transmission Line Project



Environmental and Social Impact Assessment
Dasu Transmission Line Project



Environmental and Social Impact Assessment
Dasu Transmission Line Project





Stakeholder's Consultative Workshop ESIA and RAP - At Mansehra, 29-10-2019





Environmental and Social Impact Assessment



Community Consultations-July 2019





