

**Draft Initial Environmental Examination (IEE) Report**

Project Number: Tranche-4 Savings {August -2015}

**Islamic** **Republic of Pakistan: Power Distribution**

**Enhancement Investment Program (Multi-Tranche Financing**

**Facility)**

**Tranche-4: The Construction of New 132KV Punjab Government Employees Housing Society (PGEHS) Grid Station along with associated Transmission Line**

**Prepared by:**

**Multan Electric Power Company (MEPCO)**

**Government of Pakistan**

The Initial Environmental Examination Report is a document of the borrower. The views expressed herein do not necessarily represent those of ADB’s Board of Directors, Management, or staff, and may be preliminary in nature.

*Power Distribution Enhancement Multi-Tranche Financing Facility Tranche-4 MEPCO New 132KV Punjab Government Employees Housing Society (PGEHS) Grid Station and 132KV associated Transmission Line.*

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**ABBREVIATIONS**

|  |  |  |
| --- | --- | --- |
| ADB |  | Asian Development Bank |
| COI |  | Corridor of Influence |
| CSP |  | Country Strategy Program |
| DoF |  | Department of Forests |
| DFO |  | Divisional Forest Officer |
| DGS |  | Distribution grid substation |
| DIZ |  | Direct Impact Zone |
| EA |  | Environmental Assessment |
| EARF |  | Environment Assessment Review Framework |
| EIA |  | Environment Impact Assessment |
| EMP |  | Environmental Management Plan |
| GDP | ` | Gross Domestic Product |
| GOP |  | Government of Pakistan |
| GIS |  | Gas Insulated Switchgear |
| LARP |  | Land Acquisition and Resettlement Plan |
| MEPCO |  | Multan Electric Power Company |
| PGEHS SP |  | Punjab Government Employees Housing Society (PGEHS) 132kV |
|  |  | grid station and associated transmission line subproject |
| LARP |  | Land Acquisition and Resettlement Plan |
| Leq |  | equivalent sound pressure level |
| MPL |  | maximum permissible level |
| NEQS |  | National Environmental Quality Standards |
| NGO |  | Non-Governmental Organization |
| PC |  | public consultation |
| PEPA |  | Punjab Environmental Protection Agency |
| PEP Act |  | Punjab Environment Protection Act 1997 (as regulated and |
|  |  | amended) |
| PPMS |  | Subproject Performance Monitoring System |
| REA |  | Rapid Environmental Assessment |
| SIA |  | Social Impact Assessment |
| S-P or SP |  | Subproject |
| SR |  | Sensitive Receiver |
| TOR |  | Terms of Reference |
| TL or T/L |  | Transmission Line |

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1. **INTRODUCTION**
2. **Overview**
3. This document is the Initial Environmental Examination for the Tranche-4 new 132KV Punjab Government Employees Housing Society (PGEHS) grid station (DGS) and 132KV feeding transmission line proposed by the Multan Electric Power Company (MEPCO) under the Asian Development Bank (ADB) subproject, Power Distribution and Enhancement Multi-tranche Finance Facility (PDEMFF).
4. Government of Pakistan (GoP) has requested ADB to provide the PDEMFF to facilitate investments in power distribution and development of networks of eight independent distribution companies (DISCOs) that distribute power to end user consumers. The funding from ADB is released in stages (tranches). The Power Distribution Enhancement (PDE) Investment Program is part of the GoP long term energy security strategy. The proposed ADB intervention will finance new investments in PDE and assist capacity building of sector related agencies. The investment program will cover necessary PDE development activities in secondary transmission / distribution networks of eight DISCOs. The PDEMFF activities include extension (additional transformers) and augmentation (replacement of transformers with higher capacity) distribution line extensions, new and replacement distribution lines, additional substations, transformer protection and other non-network activities such as automatic meter reading, construction equipment and computerized accounting. New distribution lines to and from various network facilities and some of the above activities will also be included in the later tranches. The proposed PDEMFF facility has been designed to address both investment and institutional aspects in the electrical power sector.
5. This Initial Environmental Examination (IEE) presents the results and conclusions of environmental assessment for the Punjab Government Employees Housing Society (PGEHS) subproject proposed by MEPCO and are submitted by Pakistan Electric Power Company (PEPCO) on behalf of MEPCO. PEPCO has been nominated by Ministry of Water and Power (MOWP) to act as the Executing Agency (EA) with each DISCO being the Implementing Agency (IA) for work in its own area. PEPCO’s role in the processing and implementation of the investment program is that of a coordinator of such activities as preparation of PC-1s and Periodic Financing Requests (PFRs), monitoring implementation activities; that includes submission of environmental assessments for all subprojects in all tranches of the PDEMFF under ADB operating procedures. An IEE has been carried out to fulfill the requirements of ADB Safeguards Policy Statement 2009.

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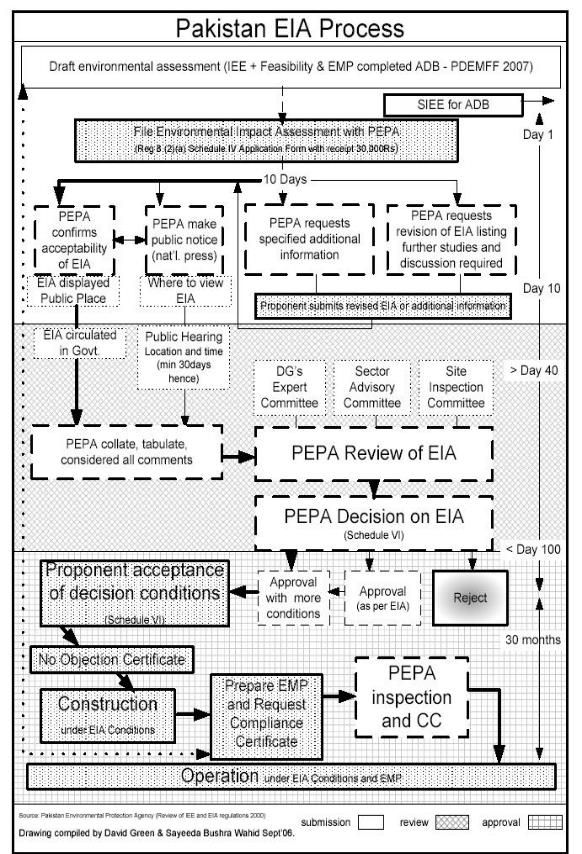
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4. The environmental assessment requirements of the GoP for grid stations and power distribution subprojects are different to those of ADB. Under GoP regulations, the Punjab Environmental Protection Agency Review of Initial Environmental Examination and Environmental Impact Assessment Regulations (2000) categorize development subprojects into two schedules according to their potential environmental impact. The proponents of subprojects that have reasonably foreseeable impacts are required to submit an IEE for their respective subprojects (Schedule I). The proponents of subprojects that have more adverse environmental impacts (Schedule II) are required to submit an environmental impact assessment (EIA). Distribution lines and substations are included under energy subprojects and IEE is required for sub transmission / distribution lines of 11kV and less and large distribution subprojects (Schedule-I). EIA is required by GoP for all subprojects involving sub transmission / distribution lines of 11kV and above and for DGS substations (Schedule II).

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5. Clarification has been sought from Pakistan EPA on the requirements for environmental assessment for certain energy subprojects and for sub transmission / distribution lines. A Framework of Environmental Assessment (FEA) on power extensions and augmentation subprojects was prepared by consultants and submitted to the Pakistan EPA, after hearings with provincial EPAs. In response to the FEA submitted by NTDC to the Pakistan EPA it has been clarified that all proponents must follow section 12 of the Punjab Environmental Protection Act for all subprojects. Pakistan EPA has also assumed that all proponents will consult with the relevant provincial EPAs (PEPA) and follow their advice. In 2006 Punjab EPA requested disclosure of the scope and extent of each subproject in order that the Director General of PEPA can determine if additional land is required and the need for IEE or EIA. A review of the need for EIA/IEE for submission to GoP is therefore required by the relevant environmental protection agency, in this case the Punjab Environmental Protection Agency.

1. **Scope of the IEE Study and Personnel**
2. The Study Area included the identification of irrigation facilities, water supply, habitable structures, schools, health facilities, hospitals, religious places and sites of heritage or archaeological importance and critical areas (if any) within 100m of the DGS boundary. The works are generally envisaged to involve construction of the DGS, construction of the bases, foundation pads and towers to support the distribution line will be carried out also under the same subproject by MEPCO and supervised by the Punjab Government Employees Housing Society (PGEHS) management.
3. The field studies were undertaken by the subproject’s environment team with experience of environmental assessment for power subprojects in Pakistan. Mr. Syed Asif Riaz and Mr. M. Arif conducted preliminary scoping, survey and assessment activities, coordinated the field sampling and analysis, and were also responsible to supervise collation of information and co-ordinate the various public consultation activities.
4. A scoping and field reconnaissance was conducted on the subproject site, during which a Rapid Environmental Assessment was carried out to establish the potential impacts and categorization of subproject activities. The methodology of the IEE study was then elaborated in order to address all interests. Subsequently primary and secondary baseline environmental data was collected from possible sources, and the intensity and likely location of impacts were identified with relation the sensitive receivers; based on the work expected to be carried out. The significance of impacts

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from construction of the DGS and transmission line was then assessed and, for those impacts requiring mitigation, measures were proposed to reduce impacts to within acceptable limits.

9. Public consultations (PC) were carried out in August 2015, in line with ADB guidelines. Under ADB requirements the environmental assessment process must also include meaningful public consultation during the completion of the draft IEE. In this IEE the PC process included verbal disclosure of the sub-subproject works as a vehicle for discussion. Consultations were conducted with local families and communities around the Punjab Government Employees Housing Society (PGEHS) SP site, along transmission line route, and staff of the subproject management.

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1. **POLICY AND STATUARY REQUIREMENTS IN PAKISTAN**

10. Direct legislation on environmental protection is contained in several statutes, namely the Punjab Environmental Protection Act (1997) the Forest Act (1927) the Punjab Wildlife Act (1974). In addition the Land Acquisition Act (1894) also provides powers in respect of land acquisition for public purposes. There are also several other items of legislation and regulations which have an indirect bearing on the subproject or general environmental measures.

1. **Statutory Framework**
2. Before the 18th Amendment in Constitution of Pakistan, Environment was Federal subject with the Concurrent list. Punjab Environment Protection Act, 1997 received the assent of the President on 3 December 1997, and was published in the Gazette of Pakistan, Extraordinary, dated 6 December 1997.
3. This Act was originally in the Federal ambit, however, the subject on which this law was enacted devolved to the provinces by virtue of 18th Amendment in the Constitution, hence it was adapted, with amendments, for the province of the Punjab as the Punjab Environmental Protection (Amendment) Act 2012 (XXXV of 2012).
4. **Punjab Environmental Protection Act, 1997 (Amended 2012)**

13. The Punjab Environmental Protection Act, 1997 is the basic legislative tool empowering the government to frame regulations for the protection of the environment. The act is applicable to a wide range of issues and extends to air, water, soil, marine, and noise pollution, as well as to the handling of hazardous wastes. The key features of the law that have a direct bearing on the proposed subproject relate to the requirement for an initial environmental examination (IEE) and environmental impact assessment (EIA) for development subprojects. Section 12(1) requires that: “No proponent of aproject shall commence construction or operation unless he has filed with the [Provincial Agency] an initial environmental examination or where the project is likely to cause an adverse environmental effect, an environmental impact assessment, and has obtained from the [Provincial Agency] approval in respect thereof. ”

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1. **Punjab Environmental Protection Agency Review of IEE and EIA Regulations, 2000**
2. The Punjab Environmental Protection Act, 1997 (PEP Act) provides for two types of environmental assessments: initial environmental examinations (IEE) and environment impact assessments (EIA). EIAs are carried out for subprojects that have a potentially

‘significant’ environmental impact, whereas IEEs are conducted for relatively smaller subprojects with a relatively less significant impact. The Punjab Environmental Protection Agency Review of IEE and EIA Regulations, 2001 (the ‘Regulations’), prepared by the EPA under the powers conferred upon it by the PEP Act, categorizes subprojects for IEE and EIA. Schedules I and II, attached to the Regulations, list the subprojects that require IEE and EIA, respectively.

1. The Regulations also provide the necessary details on the preparation, submission, and review of IEEs and EIAs. The following is a brief step-wise description of the approval process:
   1. A subproject is categorized as requiring an IEE or EIA using the two schedules attached to the Regulations.
   2. An EIA or IEE is conducted as per the requirement and following the EPA guidelines.
   3. The EIA or IEE is submitted to the concerned provincial EPA if it is located in the provinces or the EPA if it is located in Islamabad and federally administrated areas. The Fee (depending on the cost of the subproject and the type of the report) is submitted along with the document.
   4. The IEE/EIA is also accompanied by an application in the format prescribed in Schedule IV of the Regulations.
   5. The EPA conducts a preliminary scrutiny and replies within 10 days of the submittal of a report, a) confirming completeness, or b) asking for additional information, if needed, or c) returning the report requiring additional studies, if necessary.
   6. The EPA is required to make every effort to complete the IEE and EIA review process within 45 and 90 days, respectively, of the issue of confirmation of completeness.
   7. Then the EPA accords their approval subject to certain conditions:

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* 1. Before commencing construction of the subproject, the proponent is required to submit an undertaking accepting the conditions.
  2. Before commencing operation of the subproject, the proponent is required to obtain from the EPA a written confirmation of compliance with the approval conditions and requirements of the IEE.
  3. An EMP is to be submitted with a request for obtaining confirmation of compliance.
  4. The EPAs are required to issue confirmation of compliance within 15 days of the receipt of request and complete documentation.
  5. The IEE/EIA approval is valid for three years from the date of accord.
  6. A monitoring report is to be submitted to the EPA after completion of construction, followed by annual monitoring reports during operation.

1. Distribution lines and grid substations of 11 kV and above are included under energy subprojects in Schedule II, under which rules EIA is required by GoP. Initial environment examination (IEE) is required for distribution lines less than 11 kV and large distribution subprojects (Schedule I). A review of the need for EIA/ IEE submission is therefore required by the relevant EPA, in this case the Punjab Environment Protection Agency (EPA) as the proposed subproject will be located in Punjab.
2. There are no formal provisions for the environmental assessment of expanding existing distribution lines and grid substations but Punjab EPA have requested disclosure of the scope and extent of each subproject in order that their Director General can determine if additional land is required and the need for statutory environmental assessment1. The details of this subproject will be forwarded to the Punjab EPA, in order to commence the local statutory environmental assessment process.
3. **National Environmental Quality Standards**
4. The National Environmental Quality Standards (NEQS) were first promulgated in 1993 and have been amended in 1995 and 2000. The following standards that are specified in the NEQS may be relevant to the Tranche 3 subprojects:
5. Maximum allowable concentration of pollutants (25 parameters) in municipal and liquid industrial effluents discharged to inland waters, sewage treatment facilities, and the sea (three separate sets of numbers)
6. Maximum allowable concentration of pollutants (2 parameters) in gaseous emissions from vehicle exhaust and noise emission from vehicles.

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1. **Other Relevant Laws**
2. There are a number of other federal and provincial laws that are important in the context of environmental management. The main laws potentially affecting subprojects in this MFF are listed below.
3. The Punjab Wildlife Protection Ordinance, 1972 empowers the government to declare certain areas reserved for the protection of wildlife and control activities within in these areas. It also provides protection to endangered species of wildlife. As no activities are planned in these areas, no provision of this law is applicable to the proposed subproject.
4. The Forestry Act, 1927 empowers the government to declare certain areas reserved forest. As no reserved forest exists in the vicinity of the proposed subproject, this law will not affect to the proposed subproject.
5. The Antiquities Act of 1975 ensures the protection of Pakistan’s cultural resources. The Act defines ‘antiquities’ as ancient products of human activity, historical sites, or sites of anthropological or cultural interest, national monuments, etc. The Act is designed to protect these antiquities from destruction, theft, negligence, unlawful excavation, trade, and export. The law prohibits new construction in the proximity of a protected antiquity and empowers the Government of Pakistan to prohibit excavation in any area that may contain articles of archaeological significance. Under the Act, the subproject proponents are obligated to ensure that no activity is undertaken in the proximity of a protected antiquity, report to the Department of Archaeology, Government of Pakistan, any archaeological discovery made during the course of the subproject.
6. **Structure of Report**

25. This IEE reviews information on existing environmental attributes of the study area. geological, hydrological and ecological features, air quality, noise, water quality, soils, social and economic aspects and cultural resources are included. The report predicts the probable impacts on the environment due to the proposed subproject enhancement and expansion. This IEE also proposes various environmental management measures. Details of all background environmental quality, environmental impact / pollutant generating activities, pollution sources, predicted environmental quality and related aspe cts have been provided in this report. References are presented as footnotes throughout the text. Following this introduction the report follows ADB guidelines and includes:

* Description of the Subproject

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* Description of Environmental and Social Conditions
* Assessment of Environmental Impacts and Mitigation Measures
* Environmental Monitoring Plan
* Public Consultation
* Recommendations and Conclusions

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1. **DESCRIPTION OF THE PROJECT**
2. **Type of Project**

26. The proposed subproject is a distribution grid station (DGS) and transmission line (TL). That is, the construction of new 132KV Punjab Government Employees Housing Society (PGEHS) grid station and construction of double circuit transmission line feed to PGEHS grid station. The new 132KV feeding transmission line will be connected from the nearby 132KV transmission line (Khanewal road grid station – Bosan road grid station). The scope of work includes addition of 2x26 MVA, 132/11 kV power transformers and allied equipment and buildings.

1. **Categorization of the Project**
2. According to ADB's Safeguard Policy Statement (SPS) 2009, categorization is based on the most environmentally sensitive component of a subproject. The aspects of the subproject with potential for significant environmental impacts need to be assessed in detail and this environmental assessment has therefore focused on the significant impacts possible from the construction activities of the subproject.
3. The site for the DGS, as well as the route of the proposed transmission line is located within the boundary of PGEHS jurisdiction, with no settlements and other infrastructure around the site. The Punjab Government Employees Housing Society (PGEHS) SP is categorized as a Category B sub-subproject under ADB requirements and this IEE report is based on that assumption.
4. **Need for the Project**
5. The conditions of the power distribution system in Pakistan are inadequate to meet rapidly growing demand for electrical power. This situation limits national development and economic growth. To cope with the constraints, the existing power distribution infrastructure has to be improved and upgraded. The overall contribution of power infrastructure also requires institutional arrangements and capacity that support strategic management of the sector, and planning and management of investments. Overall the proposed PDEMFF facility has been designed to address both investment and institutional aspects in the electrical power sector.
6. Power demands in the Punjab Government Employees Housing Society (PGEHS) area of MEPCO jurisdiction is estimated to increase rapidly, especially in the summer

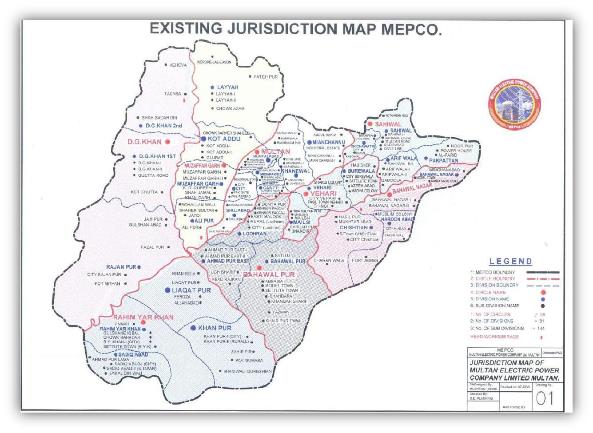
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months, so that the the existing DGS is unable to supply the increasing demands of the domestic, commercial and industrial sectors. Therefore, MEPCO has planned to convert Punjab Government Employees Housing Society (PGEHS) DGS along with 132KV transmission line, at a place of existing Punjab Government Employees Housing Society (PGEHS) DGS. Land for this DGS is already available, so no additional land is needed.

1. **Location and Scale of Project**
2. This IEE has included field reconnaissance of the site and surroundings of the Punjab Government Employees Housing Society (PGEHS) SP and transmission line ROW.
3. The Punjab Government Employees Housing Society (PGEHS) subproject will involve the new 132KV DGS and construction of a 132kV transmission line. The proposed route to the nearest 132kV line appears to be environmentally feasible and technically appropriate and will join the DGS with an existing 132kV transmission line passing from the boundary of proposed grid station site.

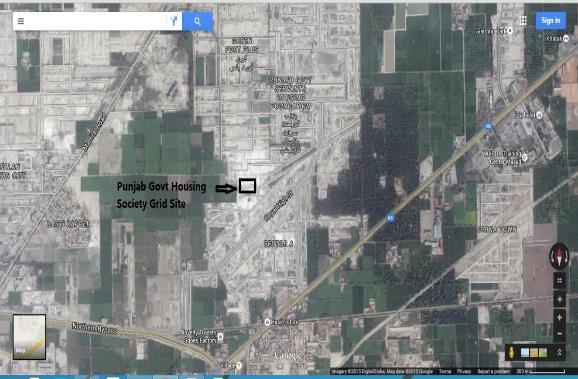


**Figure – 1.1:** Jurisdiction map of MEPCO

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**Figure 1.2:** Google Earth map of Punjab Government Employees Housing Society(PGEHS) Sub Station

1. This IEE has been conducted based on the assumptions available in August 2015 when the preliminary designs for the new 132KV PGEHS grid station and 132KV transmission line were not completed and the overall requirements for installation of the equipment had not been identified. The detailed designs are currently being processed by MEPCO. At this stage, the construction activities under the SP are expected to include the usual localized civil works such as construction of the main yard, including excavation and concreting of foundations for the new transformers, capacitor banks, cable trays and terminal tower (within the DGS compound), installation of the transformers, equipment and fittings, erection of the towers, cabling, construction of the control rooms and installation of allied equipment, and construction of the offices and residences. Impacts from construction of the Punjab Government Employees Housing Society (PGEHS) SP are envisaged to be minor. Since no additional land needs to be acquired for the new DGS and construction of transmission line, the works for the new DGS will be on the land owned by MEPCO and works for the transmission line will also within boundary wall of the new grid station. So, compensation is not involved in this sub-project.
2. The connecting line from Punjab Government Employees Housing Society (PGEHS) SP to the network will involve erection of towers that will be strung with the new

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transmission line. The designs for the Tranche-4 subprojects will be developed under the subproject support component of the MFF. This IEE, however, is based on proposed line route survey. The IEE is, therefore is not based on line design which is final (barring any unforeseen occurrence) and only is changed at implementation stage if so warranted by new developments.

35. The line design is based on the following parameters



**Permissible Conductor Clearances at 65OC**

|  |  |  |
| --- | --- | --- |
| S. No. | Description | Clearance (m) |
|  |  |  |
| 1 | Cultivated land traversed by vehicles | 6.7 |
|  |  |  |
| 2 | Roads and Streets | 7.9 |
|  |  |  |
| 3 | Communication and Power lines: |  |
|  | Power lines upto 66 KV | 2.7 |
|  | Power lines upto 33KV | 2.7 |
|  |  |  |
| 4 | Highways | 7.9 |
|  |  |  |
| 5 | Railroads | 7.9 |
|  |  |  |
| 6 | Electrified railroad trolley wire | 3.85 |
|  |  |  |
| 7 | River at high flood | 9.1 |
|  |  |  |
| 8 | Places accessible to pedestrians only | 7.9 |
|  |  |  |
| 9 | Building roofs not accessible to people | 5.2 |
|  |  |  |
| 10 | Top of trees (Orchards) | 5 |
|  |  |  |
| 11 | Canals | 9.1 |

1. **Decommissioning and Disposal of Materials**

36. Decommissioning and disposal of discarded material the project will be recycled and reused within the PEPCO system. No waste will be generated that can be classified as hazardous and requiring special disposal.

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1. **DESCRIPTION OF THE ENVIRONMENT**
2. **Project Area**
3. **General Characteristics of Project Area**

37. The new Punjab Government Employees Housing Society 132kV grid station will be constructed on 4 Acres of land in the Punjab Government Employees Housing Society (PGEHS) (on northern bypass road of Multan City) in Multan District. The DGS proposed site is located in an agricultural area. There are no trees in the DGS site that would need to be removed. Land has been donated by Punjab Government Employees Housing Society PGEHS Multan.

1. **Affected Administrative Units**

38. This subproject will remain within the jurisdiction of PGEHS and no tree shall be affected. The area to be affected by the new works for the Punjab Government Employees Housing Society (PGEHS) DGS falls in district Multan. Interviews were conducted with the public near the DGS site and transmission line proposed corridor to obtain their views on the subproject and any perceived impacts.

1. **Physical Resources**
2. **Topography, Geography, Geology, and Soils**

39. . Multan is located in the southeast of Punjab province, the capital; Multan City is 999 km from Karachi. The region surrounding Multan to the west, called the Sindh, is a fertile alluvial tract in the Channab River valley that is irrigated by floodwaters, planted with groves of date palms, and thickly populated. The chief crops are wheat, gram, cotton, sugarcane, and dates. Sheep and cattle are raised for export of wool and hides. East of Multan is the Pat, or Bar, a tract of land considerably higher than the adjoining valley. The principal inhabitants of the region surrounding Multan are Seraiki and Punjabi peoples. There are many historical sites in the area, including Uch, southwest of Multan, an ancient town dating from Indo-Scythian (Yüeh-chih) settlement (c. 128 BC to AD 450). Pop. (1981) City, 180,263; (1981 prelim.) metropolitan area, 695,000.

40. Multan is also an important agricultural training and educational center. Soap making and cotton ginning are important enterprises; cotton, silk, embroidery, carpets, and extraordinarily delicate pottery are produced. Factories producing cottonseed oil and

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cottonseed cake were built in the 1970s. It is an important marketing centre for the surrounding areas and is located on the crossroads between Peshawar, Lahore, Quetta and Karachi. Multan is also known for its distinctly embroidered slippers and shoes and the filigree pottery which is made here.

41. The City is located favorably for commerce, lying at the junction of trade routes from the east, south-east, and south. It is a centre for trade in wheat, cotton, millet, and rice grown in the surrounding region. Dates and mangoes are also grown here. Canals supply water for irrigation. The principal industries are cotton ginning, rice and flour milling, and the hand weaving of textiles. The Biggest and Oldest Ghala Mandi is located in the Ghalla Mandi Multan.

1. **Climate and Hydrology**
2. There is no variation of altitude above sea level in the land along the alignment and the short length of the distribution line means no variation of the climate of the sub-project area. The climate at SP is typical of that of the southern Punjab.
3. East of Multan is Khanewal city. There is little variation of altitude above sea level in the land along the alignment. The small change and short length of the transmission line means no variation between the climates of the project area. The climate at Miranpur is typical of that of the South Punjab.
4. The maximum temperature in summer reaches 42OC. In winter the minimum is 5OC. The mean maximum and minimum temperatures in summer are 39OC and 28OC; and in winter 21OC and 5OC respectively. The summer season starts from April and continues till October. May, June and July are the hottest months. The winter season on the other

hand starts from November and continues till March, December, January and February are the coldest months. The rainy season starts in July and ends in September. Annual rainfall is 71 millimeter. More rains occur in July and August than any other months. Most of the winter rains are received in the months of January, February and March.

1. **Groundwater and Water Supply**

45. Irrigation is largely dependent on the canals, but tube wells have also been sunk in the areas where water is fit for irrigation. The chemical quality of ground water in the district varies in different areas and at different depths. According to KCP Feasibility Study carried out by WAPDA 2003, Potable water is available in a belt along Shuria Canal. Irrigation supplies are perennial and tube wells have been installed to make up the deficiencies. The strata near the DGS and DGL are water bearing and alluvial

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deposits, giving groundwater potential throughout the sub-project area and the water table is about seven to eight meters below the surface. The water table is not seasonal and dug wells do not generally run dry. Groundwater sources exist in the area and there are tube wells within 500 m of the proposed DGL towers. The local population near most of the DGS & DGL is generally reliant on supply from tube wells. Piped water supply is available in 100,569 housing units of Multan. There should be no impact on these sources of water during the construction.

1. **Air Quality**
2. Air quality in the sub-project area appears good based on observation during the study period. Domestic sources of air pollution, such as emissions from wood and kerosene burning stoves as well as small diesel standby generators in some households, are well dissipated. There are no other industrial pollution sources present in the vicinity.
3. The other major source of air pollution is dust arising from construction and other ground or soil disturbance. Near the access roads, when vehicles pass, dust levels will increase. The nearby road is paved but dust levels are elevated when vehicles pass intermittently over the roads based on field observations and may be high enough to obscure vision significantly based on observations.
4. **Noise**

48. Noise from vehicles and other powered mechanical equipment is intermittent. There are also the occasional calls to prayer from the PA systems at the local mosques but there are no significant disturbances to the quiet rural setting. However the construction from the proposed power expansion will use powered mechanical equipment. Subjective observations were made of background noise and also of individual vehicle pass by events. Based on professional experience background daytime noise levels are probably well below 55dB(A) L90.

1. **Ecological Resources**
2. **Wildlife, Fisheries and Aquatic Biology**

49. There are no areas of wildlife significance near the sub-project area. Pig and hog deer are found in woodland near the river and hares are fairly common. Black and gray partridges are also found. Migratory birds use the Indus valley and in cold weather many

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varieties of duck and teal visit the district. The Indus contains a variety of fish. In the winter months when the river recedes, fish are caught in greater quantity.

1. **Terrestrial Habitats, Forests and Protected Species**
2. The sub-project area, which is dry, is dominated by rural suburbs and with various productive fields of monocultures that now dominate the agro-ecosystems present in the sub-project area. Common floral species with rooted vegetation are also present near most of the water bodies of the area.
3. Amongst the trees, Jand *(Prosopis spicigera)* Frash *(Tamarix articutlata)*, Shisham *(Dalbergia sisso)*, Sirin *(Albizia lebbek)* and Kikar *(Accacia arabica)* are most common inthe area.
4. There is wild growth of mesquite bushes, and some Sirin and Kikar trees in the areas near the works, but natural forest cover in the district has been significantly reduced in the past due to clearance for cultivation.
5. There is a protected forest at Lal Suhanra, about 150km north and that is the nearest and largest in the Bahawalpur district. There are also planted trees along canals and roads. The major trees grown in the forest are Shisham (Dalbergia sissoo), Kikar (Acacia arbica) and Eucalyptus. There are many trees along the RoW but these are on private land. In general permission should be sought from the local tree owners for the felling of any trees. Land Acquisition and Resettlement plan (LARP) for the SP will make provision for compensation of local people for the loss of trees, if needed after detailed study. The works must deal with trees that need to be lopped or removed for safety reasons with the necessary permissions.
6. **Protected Areas / National Sanctuaries**

54. In Pakistan there are several areas of land devoted to the preservation of biodiversity through the dedication of national parks and wildlife sanctuaries. One national park Lal Sunhara 50 km from the sub-project site. This provides excellent feeding, breeding and resting habitats to numerous migratory as well as resident birds. The national park is located on one of the major bird migration routes of the world.

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1. **Economic Development**
2. **Agriculture and Industries**

***Cropping Pattern***

55. The main crops in the sub-project area during winter are wheat, gram, barley, oil seeds, Taramira, Sarson and Toria. In summer sugarcane, cotton, Jawar, Bajra and rice are grown.

***Horticulture***

56. The main fruits grown in the area are date, orange and mango.

***Industry***

57. There are nine (9) major Industrial units of cotton ginning and pressing, cotton textiles, a cement factory and vegetable oil factory. Multan is well known for lacquered articles such as wooden/electric lamps, mirror frames, pottery, furniture and several other articles of decoration. There are cotton seed oil factories at 3 km from the new proposed grid station site

***Transportation and Tourism***

1. Multan is linked with the rest of the country by rail and roads. It lies on the National Highway, which connects Karachi with rest of the country. The district headquarters Multan is connected with metalled roads to its entire subsidiary headquarters. The eastern and south-eastern belt of the district is comparatively developed with good road transportation. All major villages are connected with the district headquarters through metaled roads.
2. The district is also served by railway line which runs north-south near the main road of this district. Multan is connected with rest of the country by air.
3. There are many places of interest which attract tourists. Fort Darawar is one attraction that is situated in the middle of desert Cholistan.

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1. **Energy Sources**
2. The distribution lines for electrical power run to a main grid sub-station Multan. The existing 500kV Multan Grid station owned by NTDC and 132 KV grid stations owned by MEPCO transmits power to the load centers.
3. Reserves of fossil fuels the main sources of energy in Pakistan. In the study area there is no source of hydropower and other energy sources are progressively more common further away from the major towns. The biomass sourcing is concentrated on home garden production of fuel wood, the extraction of wood from forests, woodland, crop plantations and agricultural residues. The other significant energy sources in the area are kerosene and LPG. There are numerous petrol stations and LPG dealers in the district.
4. **Social and Cultural Resources**
5. **Population Communities and Employment**
6. The total population of Multan District was 4,033,092 and in the 1998 Census the population showed the district is predominantly (99%) Muslim. The next higher percentage is of Ahmadis with 0.2%, followed by scheduled castes 0.1%. Other minorities like Christians, Hindu (jati) etc. are small in number. The proportion of population of Muslims in rural and urban areas is over 99%. Ahmadis in urban areas are 0.43 per cent and rural areas 0.16 per cent. Christians are more in urban areas as compared to their proportion in rural areas. Siraiki is the predominant language being spoken in the district, representing 80% of the population, followed by Baluchi spoken by 14%, Urdu 3% and Punjabi 1%. Others speak Sindhi, Pashto, Baravi and Dari.
7. Of the total economically active population 75.2 per cent were registered as employed in 1998. Nearly three-quarters (72.6%) were self-employed, 10% were private employees and 6% government employees. Unpaid family helpers were recorded as 10%. The difference in proportions of employed population was significant between the genders in both urban and rural residences.
8. The main occupation of women in rural areas including the sub-project area of Multan district is house-keeping which includes attending to the cattle, extracting butter and Ghee from milk, weaving and sewing of family clothes. In addition women generally help the men on farms with the lighter duties like transplanting of seedlings, threshing and winnowing of grains and sometimes they also help in harvesting. In the cities women are housewives or work as professional’s doctors, nurses, teaching.

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1. **Education and Literacy**

66. The literacy ratio in Multan district increased from 16% in 1981 to 31% in 1998. The literacy ratio for males is 42% and 18% for females. Literacy is much higher in urban areas compared with rural areas for male and female.

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1. **CULTURAL HERITAGE AND COMMUNITY STRUCTURE**

67. There are no officially protected heritage sites or historic, religious or archeologically important sites located in the sub-project works areas. There are no major historic or archaeological features of note but there a few places of worship within about 500 m of the works.

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1. **SCREENING POTENTIAL ENVIRONMENTAL IMPACTS AND MITIGATION MEASURES**
2. **Subproject Location**
3. **Impact Assessment and Mitigation**
4. The subproject will involve construction of new 132KV Punjab Government Employees Housing Society (PGEHS) grid station and 132KV transmission line, implying an expansion of facilities, both outside and within the existing boundaries Punjab Government Employees Housing Society (PGEHS) DGS on land presently occupied by MEPCO. There are no sensitive receivers (SR), including some houses, schools, colleges, factories and there are no sensitive receptors close to the DGS which could possibly be affected by certain activities of the SP works.
5. The location and scale of the works are very important in predicting the environmental impacts. Therefore, it is essential that a proper analysis is carried out during the subproject planning period. This process of impact prediction is the core of the IEE process and it is critical that the recommendations and mitigation measures are carried out according to, and with reference to the conditions on the ground in the affected areas in the spirit of the environmental assessments process. In this section the potential environmental impacts are reviewed. Where impacts are significant enough to exceed accepted environmental standards, mitigation is proposed in order to reduce residual impact to acceptable levels. In this regard, the impact prediction plays a vital role as these predictions are used for developing mitigation measures and any alternative options, if appropriate. When the detailed designs are completed the impacts and mitigation measures will need to be further reviewed to take account of how the contracts are set up and in the light of any fine tuning of the subproject proposals.
6. The environmental management plan has been reviewed based on the assessment and shall be reviewed in due course at subproject inception and through construction in order to provide a feedback on any significant unpredicted impacts. It is based on the analysis of impacts, primarily to document key environmental issues likely to arise from subproject implementation, to prescribe mitigation measures to be integrated in the subproject design, to design monitoring and evaluation schedules to be implemented during subproject construction and operation, and to estimate costs required for implementing subproject mitigation measures. The EMP must be reviewed in the subproject inception by the subproject management and approved before any

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construction activity is initiated, to take account of any subsequent changes and fine tuning of the proposals.

1. **General Approach to Mitigation**
2. Based on professional experience on some projects, contractors have put emphasis on the financial compensation for nuisances. This may be acceptable for some social impacts where evacuation is necessary or where houses have been accidentally damaged, however it is not best international practice to accept payment for environmental impacts. An approach whereby the subproject contractor pays money for nuisances rather than control impacts at source will not be acceptable. This practice should not be allowed and financial compensation shall not be allowed as mitigation for environmental impacts or environmental nuisance.
3. During the preparation for the subproject construction phase the future contractors must be notified and prepared to co-operate with the executing and implementing agencies, subproject management, construction supervising consultants and local population in the mitigation of impacts. Furthermore the contractor must be primed through bidding stages and the contract documentation to implement the EMP in full and be ready to engage or train staff in the management of environmental issues and to audit the effectiveness and review mitigation measures as the subproject proceeds. The effective implementation of the EMP will be audited as part of the loan conditions and the executing agency (MEPCO) must be prepared for this. In this regard the MEPCO must fulfill the requirements of the law and guidance prepared by EPA on the environmental aspects of power subprojects and the recommendations already made for subproject in this IEE and under Pakistan’s PEP Act.
4. The location of the residences, mosques, schools, hospitals and civic, cultural and other heritage sites has been reviewed. Residences or schools are close enough to the subproject on which there could be some potential impacts in the construction stage from disturbance and significant noise and dust. This is because the transmission line is very short and will be within the boundary of DGS; therefore transmission line has not involved any human settlements and structures.
5. Work on the tower sites could cause some generation of air borne dust, but any nuisance from this is likely to be very localized and temporary. Other project activities, e.g. movement of heavy vehicles on unpaved tracks during the works, could generate considerable dust. Water is available in the study area, although surplus water may not always be available to suppress dust at vulnerable locations in the dry season. Therefore

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as a general approach it is recommended that where works are within 15m of any residential sensitive receivers, the contractor should install segregation between the works and the edge of the sensitive receivers. The segregation should be easily erectable 2.5m high tarpaulin sheet and designed to retain dust and provide a temporary visual barrier to the works. Where dust is the major consideration the barrier can take the form of tarpaulins strung between two poles mounted on a concrete base. These can be moved along from tower base to tower base as the work proceeds.

75. Noise from the construction of the towers should not be a major consideration unless very close to schools or hospitals where construction should be avoided at sensitive times. In addition to the physical effect of mitigating dust and noise with barriers installation of such measures should be discussed with the local population and serve as a vehicle for further public consultation at the implementation stage to assist in public relations.

1. **Cultural Heritage, Mosques, Religious Sites and Social Infrastructure**
2. The location of mosques and other cultural and other heritage SR sites has been reviewed. There will be a mosque within the DGS and there are no other mosques or other religious sites close to the DGS site. The new line will also not affect or disturb any such site.
3. The nearest clinic / hospital is more than 50m from the edge of the Subproject or transmission line route, but the nearest school is at 1 km from the DGS adjacent to the subproject, and the nearest houses at about 45m from the DGS. Apart from these features, there will be sufficient buffer distance between the works and any other SRs, so that no significant impacts should be expected. Public consultation should be undertaken at the implementation stage to ensure nuisances are not allowed to escalate for the SRs close to the DGS sites.
4. **Potential Environmental Impacts in Construction**
5. **Encroachment, Landscape and Physical Disfiguration**

78. The extent of the proposed power expansion is moderate and should not extend beyond the power corridor (RoW) created by the subproject. No significant landscape impacts are expected from New 132KV Punjab Government Employees Housing Society (PGEHS) SP.

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1. **Cut and Fill and Waste Disposal**
2. Disposal of surplus materials must also be negotiated through local authority approvals prior to the commencement of construction. The Subproject work should not involve any significant cutting and filling but minor excavations (down to 4m) and piling may be required to create the foundations for the new transformers and for some towers (if required). It is envisaged (depending on the mode of contract) that the surface under the towers will need to be scrabbled to remove unstable materials, or to stockpile topsoil.
3. Mitigation measures must focus on the minimization of impacts. In order to allow the proper functioning of the settlement sites (access to villages) during construction it is recommended that consideration be given to erect temporary hoardings immediately adjacent to the nearest houses and shops if they are within 15m of the power distribution line tower construction.
4. If surplus materials arise from the removal of the existing surfaces from specific areas, these should be used elsewhere on the subproject before additional soil, rock, gravel or sand is brought in. The use of immediately available material will generally minimize the need for additional rock based materials extraction from outside.
5. The subproject detailed designers have so far estimated that no substantial additional materials will be required subject to confirmation at the detailed design stage.
6. At this stage no areas require removal of woodland. However if specimen trees of religious plantations are affected the owners should be given the resources and opportunity to reinstate the woodland long term and a plantation compensation plan should be drawn up to replant the woodland/trees. In the event that the land is not suitable for plantation then other areas should be identified to replace the cut trees and sufficient areas should be identified to allow plantation of trees at a rate of say 3:1. The replacement ratio should allow for a high mortality rate among the newly planted trees in the dry environment or otherwise as based on advice from the forest authority.
7. Contractual clauses should be included to require each contractor to produce a materials management plan (one month before construction commences) to identify all sources of cement and aggregates and to balance cut and fill. The plan should clearly state the methods to be employed prior to and during the extraction of materials and all the mitigation measures to be employed to mitigate nuisances to local residents. Financial compensation shall not be allowed as mitigation for environmental impacts or environmental nuisance. Mitigation measures shall seek to control the impacts at source in the first place. The engineer shall be responsible to update the subproject cut and fill estimates and create Materials Master Plan to facilitate materials exchange between the

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different contract areas along the power line and sub-contractors on the power line and to provide an overall balance for materials and minimize impacts on local resources.

1. **Trees, Ecology and Protected Areas**
2. There are no Reserved or Protected Forests or trees near the DGS site or transmission line alignment and no fruit and wood trees that need to be removed for clearance on 30m RoW of transmission line. The proposed line will require the installation of towers which will be installed on land of PGEHS.
3. If for some unforeseen reason or change of alignment, any trees with religious significance or other trees need to be removed. Trees shall be planted to replace the lost trees with three trees planted to replace every cut tree (3:1) or more as agreed with the authority.
4. A requirement shall be inserted in the contracts that no trees are to be cut on the Punjab Government Employees Housing Society (PGEHS) DGS and transmission line site or outside, without the written permission from the supervising consultant who may permit the removal of trees if unavoidable on safety / technical / engineering grounds after written justification by MEPCO and to the satisfaction of the forest authority and the owner.
5. **Hydrology, Sedimentation and Soil Erosion**

88. The drainage streams en-route of the subproject should not be impeded by the works. The scale of the works does not warrant hydrological monitoring.

1. **Air Pollution from Earthworks and Transport**

89. The material (cement, sand and aggregate) requirement of a typical 132 kV substation (about 150 cu m) and a 132 kV transmission tower (4.8 cu m, or 40 bags of cement per tower) are not large. In transmission line construction sand and aggregate are delivered directly to the tower location from the quarry / source, there is no intermediate or bulk storage of these materials. Similarly construction materials for the substation are stored within the substation site are scheduled as per the work progress (which is staggered as the buildings which require bulk of the construction materials are built in phases over 6 to 12 months period), which means that at any given point in time the amount of construction material stored is not significant. The quantities of construction material required for a typical substation or transmission tower are not so large that they potentially represent a traffic hazard , these requirements are time

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dispersed in case of sub stations and time and space dispersed in case of transmission lines. The contractor will be, however, required to provide a traffic management plan before commencement of work at site. Field observations indicate that ambient air quality is generally acceptable and that emissions from traffic and other powered mechanical equipment in the area are rapidly dispersed. There will be a few items of powered mechanical equipment to be used in the construction of the distribution line works that may give rise gaseous emissions. However these should be well dissipated. The major sources of complaint will likely be any necessary earthworks and local soil compaction.

1. Earthworks will contribute to increasing dust, and the foundation earthworks for the transformers and the line poles will generate dust and the following mitigation measures are needed:
   * Dust suppression facilities (water sprayers / hosepipe) shall be available where earth and cement works are required.
   * Areas of construction (especially where the works are within 50m of the SRs) shall be maintained damp by watering the construction area.
   * Construction materials (sand, gravel, and rocks) and spoil materials will be transported trucks covered with tarpaulins.
   * Storage piles will be at least 30m downwind of the nearest human settlements.
   * All vehicles (e.g., trucks, equipment, and other vehicles that support construction works) shall be well maintained and not emit dark, smoky or other emissions in

excess of the limits described in the NEQS.

1. The need for large stockpiles should be minimized by careful planning of the supply of materials from controlled sources. Stockpiles should not be located within 50m of schools, hospitals or other public amenities such as wells and pumps and should be covered with tarpaulins when not in use and at the end of the working day to enclose dust.
2. **Noise, Vibration and Blasting**

92. It is anticipated that powered mechanical equipment and some local labor with hand tool methods will be used to construct the subproject works. No blasting is anticipated. Powered mechanical equipment can generate significant noise and vibration. The cumulative effects from several machines can be significant. To minimize such impacts, the contractor for subproject should be requested by the construction supervision

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consultants (engineer) to provide evidence and certification that all equipment to be used for construction is fitted with the necessary air pollution and noise dampening devices to meet EPA requirements.

**Table-6.1: National Environmental Quality Standards for Noise**

|  |  |  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- | --- | --- |
|  | **S** | **Category of Area/Zone** | **Effective from 1st July,** | | **Effective** | **from 1st** | |
|  | **No.** |  | **2010** |  | **July, 2015** |  |  |
|  |  |  |  |  |  |  |  |
|  |  |  | Limit in dB(A) Leq\* | |  |  |  |
|  |  |  |  |  |  |  |  |
|  |  |  | Day time | Night | Day time | Night time | |
|  |  |  |  | time |  |  |  |
|  |  |  |  |  |  |  |  |
|  | **1.** | Residential are (A) | 65 | 50 | 55 | 45 |  |
|  |  |  |  |  |  |  |  |
|  | **2.** | Commercial area (B) | 70 | 60 | 65 | 55 |  |
|  |  |  |  |  |  |  |  |
|  | **3.** | Industrial area (C) | 80 | 75 | 75 | 65 |  |
|  |  |  |  |  |  |  |  |
|  | **4.** | Silence zone (D) | 55 | 45 | 50 | 45 |  |
|  |  |  |  |  |  |  |  |

Note:

* + Day time hours: 6 .00 am to 10.00 pm
  + Night Time hours: 10.00 pm to 6.00 am
  + Silence zone: Zones which are declared as such by the competent authority. An area comprising not less than 100 meters around hospitals, educational

institutions and courts and courts.

* + Mixed categories of areas may be declared as one of the four above-mentioned categories by the competent authority.
  + dB(A) Leq: time weighted average of the level of sound in decibels on scale A which is relatable to human hearing.

1. Noise will be monitored at a distance of 100m from the boundary wall of any residential unit and should follow the NEQS of 45dB (A).
2. Noise from construction of the power distribution lines and improvements to substations is not covered under any regulations however in order to keep in line with best international practice It is recommended that no construction should be allowed during nighttime (9 PM to 6 AM) Any noisy equipment should be located within DGS or as far from SRs as possible to prevent nuisances to dwellings and other structures from operation. However, if the noise still exceeds NEQS then noise barriers will be installed around the equipment to reduce the effects of the noise.
3. Vibration from construction of piles to support pads may be required for some tower construction and may be a significant impact but this should be short duration. Where

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vibration could become a major consideration (within say 100m of schools, religious premises, hospitals or residences) a building condition survey should take place prior to construction. The physical effect of piling should be assessed prior to construction and measures should be discussed with the local population as well as timing of the works to serve as a vehicle for further public consultation at the implementation stage and to assist in public relations. At nearby schools, the contractor shall discuss with the school principals the agreed time for operating these machines and completely avoid machine use near schools during examination times, if such a need arises.

1. **Sanitation, Solid Waste Disposal and Communicable Diseases**
2. The main issues of concern are uncontrolled or unmanaged disposal of solid and liquid wastes into watercourses and natural drains, improper disposal of storm water and black water and open defecation by construction workers.
3. In order to maintain proper sanitation around construction sites, access to the nearby DGS lavatories should be allowed or provision of temporary toilets should be made. Construction worker camps will not be necessary, based on the scale of the works needed. If for some unforeseen reason a larger workforce is needed any construction camp should not be located in settlement areas or near sensitive water resources and portable lavatories or at least pit latrines should be provided.
4. Wherever water is allowed to accumulate, in temporary drainage facilities, due to improper storm water management, or improper disposal of wastewater generated from the site, it can offer a breeding site for mosquitoes and other insects. Vectors such as mosquitoes may be encountered if open water is allowed to accumulate at the Punjab Government Employees Housing Society (PGEHS)SP site. Temporary and permanent drainage facilities should therefore be designed to facilitate the rapid removal of surface water from all areas and prevent the accumulation of surface water ponds.
5. **Potential Environmental Impacts in Operation**
6. **Air pollution and noise from the enhanced operations**

99. The subproject works will extend the power distribution lines but no houses, mosques or schools will be close to the new transmission line (within boundary wall of DGS) in the operational phase. Nevertheless some houses, a school, a hospital and a hostel are close to the DGS. The DGS will be constructed at PGEHS donated land and the extended level of operation of the facility is not likely to cause any appreciable increase

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in the noise level already generated by the existing equipment. However, it is recommended that an acoustical check be made on the detailed design to determine of any noise barriers are required. There should be no source of atmospheric pollution from the subproject. In the operational phase any nearby industrial facilities with fuel powered mechanical equipment will be the main polluters. All such emissions will be very well dissipated in the open terrain and there will be no cumulative effect from the subproject.

100. Noise impacts from the operation of the DGS equipment should be reviewed at the detailed design stage. The NEQS for noise close to residential areas will be complied with 45 dB(A) Leq (exterior, boundary of DGS).

**6.4.2** **Pollution from Oily Run-Off, Fuel Spills and Dangerous Goods**

101. No significant impacts from oily residues such as transformer oil and lubricants are expected to arise in this subproject. However control measures will be needed for oily residues such as transformer oil and lubricants in the case of accidental or unexpected release. Transformer oil is supplied in drums from an imported source and tap tanks are topped up as necessary on site. There are facilities in some subproject DGS maintenance yards for recycling (dehydrating) oil from breakers. However the areas upon which these recycling facilities are located have no dedicated drainage which can capture run-off. Oily residues and fuel and any contaminated soil residues should be captured at source and refueling and maintenance should take place in dedicated areas away from surface water resources. Contaminated residues and waste oily residues should be disposed at a site agreed with the local authority. No significant impacts from oily residues such as transformer oil and lubricants are expected to arise in this subproject. However control measures will be needed for oily residues such as transformer oil and lubricants in the case of accidental or unexpected release. Transformer oil is supplied in drums from an imported source and tap tanks are topped up as necessary on site. There are facilities in some subproject DGS maintenance yards for recycling (dehydrating) oil from breakers. However the areas upon which these recycling facilities are located have no dedicated drainage which can capture run-off. Contaminated residues and waste oily residues should be disposed at a site agreed with the local authority. DISCOs are served by the Technical Services Group (TSG), TSG prepare a detailed routine maintenance schedule for each piece of hardware. TSG also supervise and monitors the implementation of this schedule by Grid System Operation (GSO) .Transformer oil has a long life (typically over 15 years, which depends upon the level of load the transformer serves).Oil spills are very rare and are preempted by routine maintenance. TSG and GSO have a written down procedure to deal with oil spills. TSG

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ensure that the maintenance schedule of each piece of hardware is adhered to. DISCOs have also established a safety unit, which among other tasks, investigates all accidents. Frequency of accidents, on average is about 1 per DISCO per year (based on last 4 years record) about 60 % of these are non-fatal. Most accidents occur due to staff and supervision negligence. Detailed report of each accident will be prepared.

1. **Enhancement**

102. Environmental enhancements are not a major consideration within the Punjab Government Employees Housing Society (PGEHS) subproject site. However it is noted that it is common practice at many such sites to create some local hard and soft landscaping and successful planting of fruit trees and shrubs has been accomplished in many sites. This practice should be encouraged as far as practicable. Other opportunities for enhancements can be assessed prior to construction and proposed enhancements should be discussed with the local population to serve as a vehicle for further public consultation at the implementation stage and to assist in public relations. Trees removed for construction purposes should be replaced as compensation in line with best practice at ratio of three replaced for one removed however additional trees should be planted as enhancements where there is space in the DGS and along the transmission line.

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1. **INSTITUTIONAL REQUIREMENTS AND ENVIRONMENTAL MANAGEMENT PLAN**
2. In this section, the mitigation measures that are required for the Punjab Government Employees Housing Society (PGEHS) SP Tranche-4 subproject, to reduce residual impact to acceptable levels and achieve the expected outcomes of the project, are discussed. The Environmental Management Plan is based on the type, extent and duration of the identified environmental impacts for the Punjab Government Employees Housing Society (PGEHS) SP Tranche-4 subproject. The EMP has been prepared following best practice and by reference to the ADB Policy Statement 2009.
3. It is important that the recommendations and mitigation measures are carried out according to the spirit of the environmental assessment process and in line with the guidelines. The EMP matrix is presented as Appendix II. The impact prediction has played a vital role in reconfirming typical mitigation measures and in identifying any different approaches based on the feasibility and detailed design assumptions and any alternatives available at this stage.
4. Prior to implementation and construction of the subprojects the EMP shall be amended and reviewed by the MEPCO in due course after detailed designs are complete. Such a review shall be based on reconfirmation and additional information on the assumptions made at this feasibility stage on positioning, alignment, location scale and expected operating conditions of the subprojects. For example, in this case if there are any additional transmission lines or extension of the substation boundaries to be included, the designs may be amended and then the performance and evaluation schedules to be implemented during project construction and operation can be updated and costs estimates can be revised. The IEE and EMP should than be revised on a subproject by subproject basis.
5. The IEE and EMP plan must be reviewed by the project management and approved by the PEPA before any construction activity is initiated. This is also an ADB requirement in order to take account of any sub-sequent changes and fine tuning of the proposals. It is recommended that, before the works contract is worked out in detail and before pre-qualification of contractors, a full extent of the environmental requirements of the project (IEE/EIA and EMP) are included in the bidding documents. Professional experience indicates that past environmental performance of contractors and their awareness of environmentally responsible procurement should also be used as indicator criteria for the prequalification of contractors.

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1. The effective implementation of the EMP will be periodically audited as part of the ADB midterm review of loan conditions and the executing agency must prepare for this at the inception stage.
2. The details of EMP are for the Tranche-4 augmentation sub-projects. The EMP matrix will be different for the more complicated sub-station and line projects that involve impacts to land outside the existing sub-stations and for which separate dedicated IEEs and EMPs have been prepared.
3. The impacts have been classified into those relevant to the design/preparation stage, construction stage and operation and maintenance stage. The matrix provides details of the mitigation measures recommended for each of the identified impacts, time span of the implementation of mitigation measures, an analysis of the associated costs and the responsibility of the institution. The institutional responsibility has been specified for the purpose of the implementation and the supervision. The matrix is supplemented with a monitoring plan for the performance indicators. An estimation of the associated costs for the monitoring is given with the plan. The EMP has been prepared following best practice and the ADB Safeguard Policy Statement 2009.
4. MEPCO has engaged an environmental specialist. It is expected that MEPCO will be prepared to engage more support where necessary especially if full scale EIAs are required for some line and substation subprojects, to guide the subsequent formal assessment and submission process under the PEP Act and monitor compliance with the EMP.
5. The appointed environmental staff members will need a good level of awareness and will be responsible for addressing environmental concerns for sub-projects potentially involving hundreds kilometers of distribution lines and DGS. Whereas some of their work may in future be delegated to consultants they will need more training and resources if they are effectively provide quality control and oversight for the EMP implementation. They will require robust support from senior management staff members and the management consultant if they are to address all environmental concerns for the sub-projects effectively. Specific areas for immediate attention are to appoint environmental specialist(s) have them experienced or trained in EMP auditing, environmentally responsible procurement, air, water and noise pollution management and ecological impact mitigation.
6. In order to achieve good compliance with environmental assessment principles the environmental staff for the project implementation team must be actively involved, prior to the outset of the implementation design stage, to ensure compliance with the statutory obligations under the PEP Act and the Punjab Environmental Protection Act 1997 (Amended 2012). It is also recommended that MEPCO Board

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allow direct reporting to Board level from the in-house Environmental and Social Cells (ESC). If the ESC requires resources for larger sub-projects then environmental specialist consultants could be appointed through the relevant project implementation unit to address all environmental aspects in the detailed design. It is recommended that the project management unit (PMU) should liaise directly with the ESC to address all environmental aspects in the detailed design and contracting stages. The environmental staff specialist will:

* + Work in the PMU with MEPCO to ensure all statutory environmental submissions the Punajb Environmental Protection Act 1997 (Amended 2012) and other environmentally related legislation are thoroughly

implemented;

* + Work in the PMU with MEPCO to ensure all environmental requirements and mitigation measures from the environmental assessment of sub-projects are

included in the contract prequalification and bidding documents;

* + Work with MEPCO to execute any additional IEE and EIA requirements needed due to fine tuning of the sub-projects and that environmental performance targets

are included in the contracts prior to project commencement;

* + Work in the PMU with MEPCO to ensure all environmental requirements and mitigation measures from the IEEs and EIAs and environmental performance

criteria are incorporated in the sub-project contracts or variations and that the EMP is effectively implemented;

* + Work with management (consultants), supervising consultant and contractors to manage and monitor the implementation of the project EMP.
  + Work with management to ensure that the Environmental Assessment Review Framework (EARF) is fully applied, adequately resourced and implemented for

future Tranches of the PDEMFF.

1. Overall implementation of the EMP will become MEPCO’s responsibility. Other parties to be involved in implementing the EMP are as follows:
2. Contractors: responsible for carrying out the contractual obligations, implementing all EMP measures required to mitigate environmental impacts during construction. The Contractors will prepare a Site Specific Environmental Management Plan (SSEMP) for all new grid station projects and have it approved before being given access to the site to begin civil works.
3. Other government agencies: such as regional PEPA, Department of Forests,

Department of Wildlife Services who will be responsible for monitoring the

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implementation of environmental conditions and compliance with statutory requirements in their respective areas and local land use groups at the local level.

1. Considering that other government agencies that need to be involved in implementing the EMP, training or harmonization workshops should be conducted for all ESCs in all DISCOS every six months or twice each year, for the first 2 years (and annually thereafter) to share the monitoring report on the implementation of the EMP in each DISCO and to share lessons learned in the implementation and to achieve a consistent approach decide on remedial actions, if unexpected environmental impacts occur.
2. The monitoring plan is designed and based on the project cycle. During the design stage, the monitoring activities will focus on (i) checking the contractor’s bidding documents, particularly to ensure that all necessary environmental requirements have been included; and (ii) checking that the contract documents’ references to environmental mitigation measures requirements have been incorporated as part of contractor’s assignment and making sure that any advance works are carried out in good time. Where detailed design is required (e.g. for power distribution lines and avoidance of other resources) the inclusion and checking of designs must be carried out. During the construction period, the monitoring activities will focus on ensuring that environmental mitigation measures are implemented, and some performance indicators will be monitored to record the Sub-projects environmental performance and to guide any remedial action to address unexpected impacts. Monitoring activities during project operation will focus on recording environmental performance and proposing remedial actions to address unexpected impacts. The potential to use local community group’s contacts for monitoring should be explored as part of the activities in setting up the Environmental and Social Unit which should have regular meetings with the NGOs as a matter of good practice and to discuss matters of mutual concern.
3. At this stage, due to the modest scale of the new power distribution projects and by generally keeping to non-sensitive and non-critical areas the construction and operational impacts will be manageable. No insurmountable impacts are predicted providing that the EMP is implemented to its full extent and required in the contract documents. However experience suggests that some contractors may not be familiar with this approach or may be reluctant to carry out some measures. In order that the contractors are fully aware of the implications of the EMP and to ensure compliance, it is recommended that environmental measures be costed separately in the tender documentation and that payment milestones are linked to environmental performance, vis a vis the carrying out of the EMP.

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119. The effective implementation of the EMP will be audited as part of the loan conditions and the executing agency must be prepared for this. In this regard the MEPCO (the IA) must be prepared to guide the design engineers and contractors on the environmental aspects.

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1. **PUBLIC CONSULTATION AND INFORMATION DISCLOSURE**
2. **Approach to Public Consultation**
3. The public consultation (PC) process with various stakeholders has been approached so as to involve public and other stakeholders from the earliest stages. Public consultation has taken place during the planning and design and viewpoints of the stakeholders have been taken into account and their concerns and suggestions for possible improvements have been included where appropriate. Much of the PC process to date has revolved around concerns for the mitigation of construction impacts and the possible side effects from the proximity of high voltage power lines and the DGS and its equipment.
4. There is also a requirement for ongoing consultation for land acquisition and resettlement (LARP) and the completion of the Resettlement Plan (RP) is documented separately. It is expected that this process will continue through all stages of the subproject in order to accommodate stakeholders' aspirations and to orient the stakeholders positively towards the project implementation and where possible to harness cooperation over access issues in order to facilitate timely completion.
5. **Public Consultation Process**
6. The public consultation process has commenced in the initial feasibility stages (prior to construction) in order to disclose the project information to the stakeholders and record feedback regarding the proposed project and preferences. The stakeholders involved in the process were the population likely to be impacted along the route of the proposed power lines; the village leaders and school teachers.
7. Prior to the implementation of the consultation, feedback, etc. has been carried out to support this IEE and recorded. The focus of attention has been the population near the proposed transmission line that may be affected by the Subproject New. The level of engagement varied from the stakeholder to stakeholder with some registering no major comment but it is noted that none registered any outright opposition to subproject.
8. The disclosure of the enhancement project in advance and subsequent consultation with stakeholders has advantages in the environmental assessment and mitigation of impacts. Public consultation can also provide a conduit for the improvement of the project implementation to better serve the stakeholders. The environmental assessment process under the Punjab Environmental Protection Act only requires the disclosure to the public after the statutory IEE / EIA has been accepted by the relevant EPA to be in strict adherence to the rules. In this IEE the consultation process was performed to satisfy the ADB requirements. MEPCO will disclose this IEE and EMP to all the stakeholders before the commencement of the subproject. The IEE report will be made available to the stakeholders at the site, in accordance with the legislations. In addition, the executive summary of the IEE will be translated into Urdu language, and made available to the affected communities (and also kept at the project sites). This will ensure that the local communities are aware of the project, its key impacts, the mitigation measures and the implementation mechanism. In addition, IEE will also be disclosed through the MEPCO’s official website
9. The environmental assessment process under the Punjab Environmental Protection Act only requires the disclosure to the public after the statutory IEE / EIA has

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been accepted by the relevant EPA to be in strict adherence to the rules. In this IEE the consultation process was performed to satisfy the ADB requirements.

1. **Disclosure**

MEPCO will disclose this IEE and EMP to all the stakeholders before the commencement of the subproject. The IEE report will be made available to the stakeholders at the site, in accordance with the legislations. In addition, the executive summary of the IEE will be translated into Urdu language, and made available to the affected communities (and also kept at the project sites). This will ensure that the local communities are aware of the project, its key impacts, the mitigation measures and the implementation mechanism. In addition, IEE will also be disclosed through the MEPCO’s official website.

1. **Results of Public Consultation**
2. The consultations identified some potential environmental and social impacts and perceptions of the affected communities. MEPCO will make sure that the crop compensation amounts are assessed justly and paid to the affected, at least fifteen days prior to temporary use of land before starting the civil works. The community generally supports the new 132KV PGEHS grid station along with 132kV associated transmission line. The local poor people predominantly requested for unskilled and semi-skilled jobs on priority basis with the contractors during implementation of the project. Land for grid station is donated by PGEHS. There is no resettlement and compensation involved in this subproject. However, compensation will be paid to the concerned parties / owners of land under the towers and where the loss of some trees and for damage to crops is expected.
3. On the basis of the consultations so far, it appears that the project will have no insurmountable environmental and social impacts but MEPCO will have to make sure that compensation and assistance amounts are assessed justly and that skilled and unskilled employment should be preferentially given to the AP as far as is reasonably practicable.
4. **Grievance Redress Mechanism**

128. In order to receive and facilitate the resolution of affected peoples’ concerns, complaints, and grievances about the project’s environmental performance an Environmental Grievance Redress Mechanism (GRM) will be established the project. The mechanism will be used for addressing any complaints that arise during the

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implementation of projects. In addition, the GRM will include a proactive component whereby at the commencement of construction of each project (prior to mobilization) the community will be formally advised of project implementation details by Environment Specialist of DISCO, Environment Specialist of SMEC, the design and supervision consultant (DSC) and Environmental Specialist of the contractor (designs, scheduled activities, access constraints etc.) so that all necessary project information is communicated effectively to the community and their immediate concerns can be addressed. This proactive approach with communities will be pursued throughout the implementation of each project.

129. The GRM will address affected people's concerns and complaints proactively and promptly, using an understandable and transparent process that is gender responsive, culturally appropriate, and readily accessible to all segments of the affected people at no costs and without retribution. The mechanism will not impede access to the Country’s judicial or administrative remedies.

1. **Redress Committee, Focal Points, Complaints Reporting, Recording and Monitoring**
2. The Grievance Redress Mechanism, which will be established at each project level is described below:
3. EA will facilitate the establishment of a Grievance Redress Committee (GRC) and Grievance Focal Points (GFPs) at project location prior to the Contractor’s mobilization to site. The functions of the GRC and GFPs are to address concerns and grievances of the local communities and affected parties as necessary.
4. The GRC will comprise representatives from local authorities, affected parties, and other well-reputed persons as mutually agreed with the local authorities and affected persons. It will also comprise the Contractor’s Environmental Specialist, SMEC’s

Environmental Specialist and PIU Safeguards/Environmental specialist. The role of the GRC is to address the Project related grievances of the affected parties that are unable to be resolved satisfactorily through the initial stages of the Grievance Redress Mechanism (GRM).

1. The IA (MEPCO) will assist affected communities/villages identify local representatives to act as Grievance Focal Points (GFP) for each community/village.
2. GFPs are designated personnel from within the community who will be responsible for i) acting as community representatives in formal meetings between the project team (contractor, DSC, PIU) and the local community he/she represents and ii)

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communicating community members’ grievances and concerns to the contractor during project implementation. The number of GFPs to be identified for each project will depend on the number and distribution of affected communities.

1. A pre-mobilization public consultation meeting will be convened by the IA Environment Specialist and attended by GFPs, contractor, DSC, PIU representative and other interested parties (e.g. District level representatives, NGOs). The objectives of the meeting will be as follows:
   1. Introduction of key personnel of each stakeholder including roles and responsibilities,
   2. Presentation of project information of immediate concern to the communities by the contractor (timing and location of specific construction activities, design issues, access constraints etc.) This will include a brief summary of the EMP – its purpose and implementation arrangements;
   3. Establishment and clarification of the GRM to be implemented during project implementation including routine (proactive) public relations activities proposed by the project team (contractor, DSC, PIU) to ensure communities are continually advised of project progress and associated constraints throughout project implementation;
   4. Identification of members of the Grievance Redress Committee (GRC)
   5. Elicit and address the immediate concerns of the community based on information provided above
2. Following the pre-mobilization public consultation meeting, environmental complaints associated with the construction activity will be routinely handled through the GRM as explained below and shown on Figure 8.1:
   1. Individuals will lodge their environmental complaint/grievance with their respective community’s nominated GFP.
   2. The GFP will bring the individual’s complaint to the attention of the Contractor.
   3. The Contractor will record the complaint in the onsite Environmental Complaints Register (ECR) in the presence of the GFP.
   4. The GFP will discuss the complaint with the Contractor and have it resolved;
   5. If the Contractor does not resolve the complaint within one week, then the GFP will bring the complaint to the attention of the DSC’s Environmental Specialist. The DSC’s Environment Specialist will then be responsible for coordinating with the Contractor in solving the issue.

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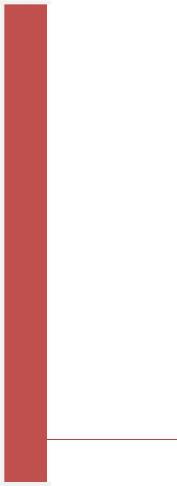
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1. If the Complaint is not resolved within 2 weeks the GFP will present the complaint to the Grievance Redress Committee (GRC).
2. The GRC will have to resolve the complaint within a period of 2 weeks and the resolved complaint will have to be communicated back to the community. The Contractor will then record the complaint as resolved and closed in the Environmental Complaints Register.
3. Should the complaint not be resolved through the GRC, the issue will be adjudicated through local legal processes.
4. In parallel to the ECR placed with the Contractor, each GFP will maintain a record of the complaints received and will follow up on their rapid resolution.
5. EA will also keep track of the status of all complaints through the Monthly Environmental Monitoring Report submitted by the Contractor to the DSC and will ensure that they are resolved in a timely manner.

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| *Grievance Redress Mechanism* |

**Figure 8.1: Grievance Redress Mechanism**



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|  |  |  | **Affected Person through GFP** | | | |  |  |  |  |  |
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|  |  |  |  | Contractor |  |  |  |  | Redressed |  |  |
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|  |  |  |  | Not Redressed |  |  |  |  |  |  |  |
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|  | Resolve with Implementation (DSC) Consultant | | | | | |  |  | Redressed |  |  |
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|  |  |  |  | Not Redressed |  |  |  |  |  |  |  |
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|  |  | Appeal to Grievance Redress Committee | | | | |  |  | Redressed |  |  |
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|  |  |  |  | Not Redressed |  |  |  |  |  |  |  |
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|  |  |  | Resolve through Local Legal | | |  |  |  |  |  |  |
|  |  |  |  | Process | |  |  |  |  |  |  |
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1. **CONCLUSIONS**
2. **Findings and Recommendations**
3. This study was carried out at the planning stage of the project. Primary and secondary data were used to assess the environmental impacts. The potential environmental impacts were assessed in a comprehensive manner. The report has provided a picture of all potential environmental impacts associated with the Project, and recommended suitable mitigation measures.
4. There are some further considerations for the planning stages such as obtaining clearance for the project under the Punjab Environmental Protection Act-1997 (Amended 2012) but environmental impacts from the power enhancements will mostly take place during the construction stage. There are also some noise impacts and waste management issues for the operational stage that must be addressed in the detailed design and through environmentally responsible procurement. At the detailed design stage the number of and exact locations for transmission tower enhancements may change subject to detailed surveys but the impacts are likely to be broadly similar at most locations and impacts have been reviewed in the environmental impact section of this IEE report.
5. There are a number of key actions required in the detailed design phase. Prior to construction the MEPCO must receive clearance certification from the Punjab EPD and MEPCO must complete an EMP that will be accepted by the Punjab EPD and agreed by the contractor prior to signing the contract. The information provided in this report can form the basis of any further submission to Punjab EPD as required in future.
6. New Land is acquired and no resettlement is involved. However, damages to crops and trees will be compensated to the AP’s and concerned parties, if needed. A social impact assessment and resettlement action plan (LARP)/Due Diligence Report (DDR) has been completed in tandem with this IEE for the whole subproject. The study has:
   1. *Examined and assessed the overall social and poverty profile of the project area on the basis of the primary and secondary data sources and preparation of a socio-economic profile of the project districts.*
   2. *Prepared a social and poverty analysis, taking into account socio-economic and poverty status of the project area of influence, including the nature, extent and*

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*Power Distribution Enhancement Multi-Tranche Financing Facility Tranche-4 MEPCO New 132KV Punjab Government Employees Housing Society (PGEHS) Grid Station and 132KV associated Transmission Line.*

***Initial Environmental Examination***

*determinants of poverty in the project area including assessment. In addition, estimation of the likely socioeconomic and poverty reduction impacts of the project should be included.*

* 1. *Held consultations with relevant officials from the government and other relevant officials, including consultation with affected communities to assess responses to the project and ascertain the nature and scope of local participation in project planning and implementation.*
  2. *Identified, analyzed and, where appropriate, quantified the potential resettlement impacts (minimal) of the proposed Project on the area and the population.*

1. Baseline environmental monitoring activities should be carried out during project detailed design stage to establish the baseline of parameters for checking during the construction stage. The monitoring schedule recommends monitoring on two occasions at the site location. The results should be integrated with the contract documentation to establish performance action thresholds, pollution limits and contingency plans for the contractor’s performance.
2. During the commissioning phase noise monitoring should ensure that statutory requirements have been achieved. Monitoring activities during project operation will focus on periodic recording environmental performance and proposing remedial actions to address any unexpected impacts.
3. **Summary and Conclusions**
4. The new 132KV Punjab Government Employees Housing Society (PGEHS) DGS along with associated 132kV transmission line is a feasible and sustainable option from the power transmission, engineering, environmental, and socioeconomic points of view. Implementation of the EMP is required and the environmental impacts associated with the subproject need to be properly mitigated, and the existing institutional arrangements are available. Additional human and financial resources will be required by MEPCO to complete the designs and incorporate the recommendations effectively and efficiently in the contract documents, linked to payment milestones. The proposed mitigation and management plans are practicable but require additional resources.
5. This IEE, including the EMP, should be used as a basis for an environmental compliance program and be included as an Appendix to the contract. The EMP shall be reviewed at the detailed design stage. In addition, any subsequent conditions issued by PEPA as part of the environmental clearance should also be included in the

environmental compliance program. Therefore, continued monitoring of the

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*Power Distribution Enhancement Multi-Tranche Financing Facility Tranche-4 MEPCO New 132KV Punjab Government Employees Housing Society (PGEHS) Grid Station and 132KV associated Transmission Line.*

***Initial Environmental Examination***

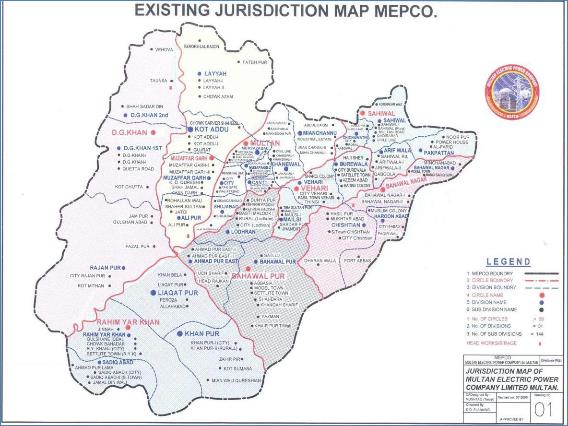
implementation of mitigation measures, the implementation of the environmental conditions for work and environmental clearance, and monitoring of the environmental impact related to the operation of the subproject should be properly carried out and reported at least twice per year as part of the project performance report.

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*Power Distribution Enhancement Multi-Tranche Financing Facility Tranche-4 MEPCO New 132KV Punjab Government Employees Housing Society (PGEHS) Grid Station and 132KV associated Transmission Line.*

***Initial Environmental Examination***

**APPENDIX – I: LOCATION MAPS OF PROPOSED SUB STATION**



Jurisdiction Map



Google Earth Map of Punjab Government Employees Housing Society (PGEHS) Sub Station Site

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*Power Distribution Enhancement Multi-Tranche Financing Facility Tranche-4 MEPCO New 132KV Punjab Government Employees Housing Society (PGEHS) Grid Station and 132KV associated Transmission Line*

|  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- |
|  |  |  |  |  |  |  |  |  |  |  |  |  |  | ***Initial Environmental Examination*** | | | | | | | |  |
|  |  |  |  |  |  |  | **APPENDIX - II :** | **ENVIRONMENTAL MANAGEMENT PLAN – MATRIX** | | | | | | |  |  |  |  |  |  |  |  |
|  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |
|  | **Environmental** |  |  | ***Objectives*** |  |  | **Mitigation Measures recommended** | |  |  | **Timing to implement** |  |  | **Locations to implement MM** |  |  | ***Resp Imp MM*** |  |  | **Resp mon** | |  |
|  | **concern** |  |  |  |  |  |  | **MM** |  |  |  |  |  |  | **MM** | |  |
|  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |
|  | ***DESIGN STAGE*** |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |
|  |  |  |  |  |  |  |  |  |  |  | *Before the* |  |  |  |  |  |  |  |  |  |  |  |
|  |  |  |  | *To minimize damage to* |  |  | *1. Ensure that minimal flora is damaged* | |  |  | *commencement of* |  |  | *Flora and Fauna sensitive* |  |  | *CONSULTAN* |  |  |  |  |  |
|  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |
|  | ***1. Flora and Fauna*** |  |  |  |  |  |  | *construction* |  |  |  |  |  |  | *ES MEPCO* |  |  |
|  |  |  | *flora and fauna* |  |  | *2. Ensure that fauna especially bird nesting’s are not damaged* | |  |  |  |  | *locations* |  |  | *T* |  |  |  |  |
|  |  |  |  |  |  |  |  | *activities/during* |  |  |  |  |  |  |  |  |  |
|  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |
|  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |
|  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |
|  |  |  |  |  |  |  |  |  |  |  | *design stage* |  |  |  |  |  |  |  |  |  |  |  |
|  |  |  |  |  |  |  |  |  |  |  | *Before the* |  |  | *If lines or substation are* |  |  | *ES MEPCO* |  |  |  |  |  |
|  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |
|  |  |  |  | *To minimize hydrological* |  |  | *1. Hydrological flow in areas where it is sensitive, such as water courses or* | |  |  | *commencement of* |  |  |  |  | *with the* |  |  |  |  |  |
|  | ***2. Hydrological*** |  |  |  |  |  |  |  |  | *relocated near water courses,* |  |  |  |  |  |  |  |
|  |  |  | *and drainage impacts* |  |  | *bridges and culverts.* |  |  |  | *construction* |  |  |  |  | *CONSULTAN* |  |  | *ES MEPCO* |  |  |
|  | ***Impacts*** |  |  |  |  |  |  |  |  |  | *culverts or bridges in the* |  |  |  |  |  |  |
|  |  |  | *during constructions.* |  |  | *2. Design of adequate major and minor culverts facilities will be completed* | |  |  | *activities/during* |  |  |  |  | *T (Design* |  |  |  |  |  |
|  |  |  |  |  |  |  |  |  |  | *design stage reports* |  |  |  |  |  |  |  |
|  |  |  |  |  |  |  |  |  |  |  | *design stage* |  |  |  |  | *Consultant)* |  |  |  |  |  |
|  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |
|  |  |  |  |  |  |  | 1. Conduct detailed acoustic assessment for all residential, school, (other | |  |  | 1. During detailed |  |  |  |  |  |  |  |  |  |  |  |
|  |  |  |  |  |  |  |  |  | design stage. No later |  |  |  |  |  |  |  |  |  |  |  |
|  |  |  |  |  |  |  | sensitive structures) within 50m of DGS and line. | |  |  |  |  |  |  |  | *ES MEPCO* |  |  |  |  |  |
|  |  |  |  | Ensure cumulative noise |  |  |  |  | than pre-qualification |  |  | Noise sensitive locations |  |  |  |  | ES MEPCO |  |  |
|  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |
|  |  |  |  |  |  | 2. If noise at sensitive receiver exceeds the permissible limit, the | |  |  |  |  |  |  | *with the* |  |  |  |  |
|  | **3. Noise barriers** |  |  | impacts are acceptable |  |  |  |  | or tender |  |  | identified in the IEE/EIA/EMP |  |  |  |  | and |  |  |
|  |  |  |  |  | construction activities should be mitigated, monitored and controlled. | |  |  |  |  |  |  | *CONSULTAN* |  |  |  |  |
|  |  |  | in construction and |  |  |  |  | negotiations. |  |  | or as required / approved by |  |  |  |  | CONSULT |  |  |
|  |  |  |  |  |  | 3. If noise at sensitive receiver exceeds the permissible limit, the design to | |  |  |  |  |  |  | *T (Design* |  |  |  |  |
|  |  |  |  | operational phase. |  |  |  |  | 2. Include acoustic |  |  | PEPA. |  |  |  |  | ANT |  |  |
|  |  |  |  |  |  | include acoustic mitigation (noise barrier or relocation of noisy equipment) | |  |  |  |  |  |  | *Consultant)* |  |  |  |  |
|  |  |  |  |  |  |  |  |  | specification in the |  |  |  |  |  |  |  |  |  |  |
|  |  |  |  |  |  |  | and monitoring. |  |  |  |  |  |  |  |  |  |  |  |  |  |  |
|  |  |  |  |  |  |  |  |  |  | contract. |  |  |  |  |  |  |  |  |  |  |  |
|  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |
|  |  |  |  | Ensure adequate |  |  | 1. Create waste management policy and plan to identify sufficient locations | |  |  |  |  |  |  |  |  |  |  |  |  |  |  |
|  |  |  |  |  |  | for, storage and reuse of transformers and recycling of breaker oils and | |  |  | 1.Prior to detailed |  |  |  |  |  | *ES MEPCO* |  |  |  |  |  |
|  |  |  |  | disposal options for all |  |  |  |  |  |  | MEPCO ESU. Locations |  |  |  |  | *ES MEPCO* |  |  |
|  |  |  |  |  |  | disposal of transformer oil, residually contaminated soils and scrap metal | |  |  | design stage no later |  |  |  |  | *with the* |  |  |  |  |
|  | **4. Waste disposal** |  |  | waste including |  |  |  |  |  |  | approved by EPA and |  |  |  |  | *with the* |  |  |
|  |  |  |  |  | “cradle to grave”. |  |  |  | than pre-qualification |  |  |  |  | *CONSULTAN* |  |  |  |  |
|  |  |  | transformer oil, |  |  |  |  |  |  |  | MEPCO and local waste |  |  |  |  | *CONSULT* |  |  |
|  |  |  |  |  |  | 2. Include in contracts for unit rates for re-measurement for disposal. | |  |  | or tender negotiations |  |  |  |  | *T (Design* |  |  |  |  |
|  |  |  |  | residually contaminated |  |  |  |  |  |  | disposal authorities. |  |  |  |  | *ANT* |  |  |
|  |  |  |  |  |  | 3. Designate disposal sites in the contract and cost unit disposal rates | |  |  | 2. Include in contract. |  |  |  |  | *Consultant)* |  |  |  |  |
|  |  |  |  | soils, scrap metal. |  |  |  |  |  |  |  |  |  |  |  |  |  |  |
|  |  |  |  |  |  | accordingly. |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |
|  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |
|  | **5. Temporary** |  |  | Include mitigation in |  |  | 1. Identify locations where drainage or irrigation crossing RoW may be | |  |  | During designing |  |  | Locations based on drainage |  |  | *ES MEPCO* |  |  | *ES MEPCO* |  |  |
|  |  |  |  |  |  |  |  |  |  |  |  |  |  |
|  |  |  | preliminary designs for |  |  |  |  | stage no later than |  |  |  |  | *with the* |  |  | *with the* |  |  |
|  | **drainage and** |  |  |  |  | affected by works. |  |  |  |  |  | or irrigation crossing RoW |  |  |  |  |  |  |
|  |  |  | erosion control and |  |  |  |  |  | pre-qualification or |  |  |  |  | *CONSULTAN* |  |  | *CONSULT* |  |  |
|  | **erosion control** |  |  |  |  | 2. Include protection works in contract as a payment milestone(s). | |  |  |  |  | near DGS. |  |  |  |  |  |  |
|  |  |  | temporary drainage. |  |  |  |  | tender negotiations. |  |  |  |  | *T* |  |  | *ANT* |  |  |
|  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |
|  |  |  |  |  |  |  | *1.* Include EMP Matrix in tender documentation and make contractors | |  |  | 1. During tender |  |  |  |  |  |  |  |  |  |  |  |
|  |  |  |  |  |  |  |  |  | preparation. |  |  |  |  |  |  |  |  |  |  |  |
|  |  |  |  | Ensure requirements |  |  | responsible to implement mitigation measures by reference to | |  |  |  |  |  |  |  |  |  |  |  |  |  |
|  |  |  |  |  |  |  |  | 2. No later than pre- |  |  |  |  |  |  |  |  |  |  |  |
|  |  |  |  | and recommendations of |  |  | EIA/IEE in contract. |  |  |  |  |  | Noise sensitive locations |  |  | *ES MEPCO* |  |  | *ES MEPCO* |  |  |
|  |  |  |  |  |  |  |  |  | qualification or |  |  |  |  |  |  |  |  |
|  | **6. Contract clauses** |  |  | environmental |  |  | *2.* Include preparation of EMP review and method statement WM plan, | |  |  |  |  | identified in the IEE/EIA/EMP |  |  | *with the* |  |  | *with the* |  |  |
|  |  |  |  |  |  |  | tender |  |  |  |  |  |  |  |  |
|  |  |  | assessment are |  |  | TD and EC Plan in contract as a payment milestone(s). | |  |  |  |  | or as required / approved by |  |  | *CONSULTAN* |  |  | *CONSULT* |  |  |
|  |  |  |  |  |  |  |  | negotiations |  |  |  |  |  |  |  |  |
|  |  |  |  | included in the |  |  | *3.* Require e*nvironmental accident checklist and a list of controlled* | |  |  |  |  | PEPA. |  |  | *T* |  |  | *ANT* |  |  |
|  |  |  |  |  |  |  |  | 3. In bidding |  |  |  |  |  |  |  |  |
|  |  |  |  | contracts. |  |  | *chemicals / substances to be included in the contractor’s work* | |  |  |  |  |  |  |  |  |  |  |  |  |  |
|  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |
|  |  |  |  |  |  |  |  | documents as |  |  |  |  |  |  |  |  |  |  |  |
|  |  |  |  |  |  |  | *method statement and tender documentation.* | |  |  |  |  |  |  |  |  |  |  |  |  |  |
|  |  |  |  |  |  |  |  |  | evaluation criteria. |  |  |  |  |  |  |  |  |  |  |  |
|  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |
|  | ***CONSTRUCTION*** |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |
|  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |
|  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |
|  | ***STAGE*** |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |
|  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |
|  |  |  |  | *To ensure the proper* |  |  | *1. Consideration of weather conditions when particular construction* | |  |  | *Prepare a thorough* |  |  | *1. Locations of each* |  |  |  |  |  |  |  |  |
| ***1.*** | ***Hydrology And*** |  |  | *implementation of any* |  |  | *activities are undertaken.* |  |  |  | *drainage* |  |  | *construction activity to be* |  |  |  |  |  | *CONSULT* |  |  |
|  | ***Drainage*** |  |  | *requirements mentioned* |  |  | *2. Limitations on excavation depths in use of recharge areas for material* | |  |  | *management plan to* |  |  | *listed by the CSC engineer.* |  |  | *ES Contractor* |  |  | *ANT and* |  |  |
|  | ***Aspects*** |  |  | *in EPA conditions of* |  |  | *exploitation or spoil disposal.* |  |  |  | *be approved by CSC* |  |  | *2. Special locations are* |  |  |  |  |  | *ES MEPCO* |  |  |
|  |  |  |  | *approval letter in relation* |  |  | *3. Use of landscaping as an integrated component of construction activity* | |  |  | *one month prior to a* |  |  | *identified on the site by the* |  |  |  |  |  |  |  |  |

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*Power Distribution Enhancement Multi-Tranche Financing Facility Tranche-4 MEPCO New 132KV Punjab Government Employees Housing Society (PGEHS) Grid Station and 132KV associated Transmission Line*

***Initial Environmental Examination***

|  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- |
|  | **Environmental** | |  | ***Objectives*** |  |  | **Mitigation Measures recommended** |  |  | **Timing to implement** |  |  | **Locations to implement MM** |  |  | ***Resp Imp MM*** | |  | **Resp mon** | |  |
|  | **concern** | |  |  |  |  |  | **MM** |  |  |  |  |  | **MM** | |  |
|  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |
|  |  |  |  | *to Hydrology of the* |  |  | *as an erosion control measure.* |  |  | *commencement of* |  |  | *contractor to minimize* |  |  |  |  |  |  |  |  |
|  |  |  |  | *project.* |  |  | *4. Minimizing the removal of vegetative cover as much as possible and* |  |  | *construction* |  |  | *disturbances.* |  |  |  |  |  |  |  |  |
|  |  |  |  |  |  |  | *providing for its restoration where construction sites have been cleared of* |  |  |  |  |  | *3. A list of locations of* |  |  |  |  |  |  |  |  |
|  |  |  |  |  |  |  | *such areas.* |  |  | *Proper timetable* |  |  | *irrigation channels / drains to* |  |  |  |  |  |  |  |  |
|  |  |  |  |  |  |  |  |  |  | *prepared in* |  |  | *be compiled and included in* |  |  |  |  |  |  |  |  |
|  |  |  |  |  |  |  |  |  |  | *consideration with the* |  |  | *the contract.* |  |  |  |  |  |  |  |  |
|  |  |  |  |  |  |  |  |  |  | *climatic conditions of* |  |  |  |  |  |  |  |  |  |  |  |
|  |  |  |  |  |  |  |  |  |  | *the area, the different* |  |  |  |  |  |  |  |  |  |  |  |
|  |  |  |  |  |  |  |  |  |  | *construction activities* |  |  |  |  |  |  |  |  |  |  |  |
|  |  |  |  |  |  |  |  |  |  | *mentioned here to be* |  |  |  |  |  |  |  |  |  |  |  |
|  |  |  |  |  |  |  |  |  |  | *guided.* |  |  |  |  |  |  |  |  |  |  |  |
|  |  |  |  |  |  |  |  |  |  | *Induction course for* |  |  |  |  |  |  |  |  |  |  |  |
|  |  |  |  |  |  |  |  |  |  | *all site agents and* |  |  |  |  |  |  |  |  |  |  |  |
|  |  |  |  |  |  |  | *1. MEPCO ESU environmental specialist to monitor and progress all* |  |  | *above including all* |  |  |  |  |  |  |  |  |  |  |  |
|  |  |  |  | *To ensure that the CSC* |  |  | *environmental statutory and recommended obligations.* |  |  | *relevant MEPCO staff* |  |  |  |  |  |  |  |  |  |  |  |
|  |  |  |  |  |  |  |  |  | */ new project staff* |  |  |  |  |  |  |  |  |  |  |  |
|  |  |  |  | *contractor and workers* |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |
|  |  |  |  |  |  | *2 Conduct special briefing for managers and / or on-site training for the* |  |  | *before* |  |  | *All staff members in all* |  |  | *MEPCO ES,* |  |  |  |  |  |
|  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |
|  |  |  |  | *understand and have* |  |  |  |  |  |  |  |  |  |  | *ES MEPCO* |  |  |
|  | ***2. Orientation for*** |  |  |  |  | *contractors and workers on the environmental requirement of the project.* |  |  | *commencement of* |  |  | *categories. Monthly induction* |  |  | *Contractor* |  |  |  |  |
|  |  |  | *the capacity to ensure* |  |  |  |  |  |  |  |  |  |  | *with the* |  |  |
|  | ***Contractor, and*** |  |  |  |  | *Record attendance and achievement test for contractors site agents.* |  |  | *work.* |  |  | *and six month refresher* |  |  | *and* |  |  |  |  |
|  |  |  | *the environmental* |  |  |  |  |  |  |  |  |  |  | *CONSULT* |  |  |
|  | ***Workers*** |  |  |  |  |  |  |  |  |  |  | *course as necessary until* |  |  | *CONSULTAN* |  |  |  |  |
|  |  |  | *requirements and* |  |  |  |  |  |  |  |  |  |  |  |  | *ANT .* |  |  |
|  |  |  |  |  |  | *3. Agreement on critical areas to be considered and necessary mitigation* |  |  | *At early stages of* |  |  | *contractor complies.* |  |  | *T* |  |  |  |  |
|  |  |  |  | *implementation of* |  |  |  |  |  |  |  |  |  |  |  |  |  |
|  |  |  |  |  |  | *measures, among all parties who are involved in project activities.* |  |  | *construction for all* |  |  |  |  |  |  |  |  |  |  |  |
|  |  |  |  | *mitigation measures.* |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |
|  |  |  |  |  |  |  |  |  | *construction* |  |  |  |  |  |  |  |  |  |  |  |
|  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |
|  |  |  |  |  |  |  | *4. Continuous progress review and refresher sessions to be followed.* |  |  | *employees as far as* |  |  |  |  |  |  |  |  |  |  |  |
|  |  |  |  |  |  |  |  |  |  | *reasonably* |  |  |  |  |  |  |  |  |  |  |  |
|  |  |  |  |  |  |  |  |  |  | *practicable.* |  |  |  |  |  |  |  |  |  |  |  |
|  |  |  |  |  |  |  | *Compile temporary drainage management plan one month before* |  |  |  |  |  |  |  |  |  |  |  |  |  |  |
|  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |
|  |  |  |  |  |  |  | *commencement of works.* |  |  |  |  |  |  |  |  |  |  |  |  |  |  |
|  |  |  |  |  |  |  | *1. Proper installation of temporary drainage and erosion control before* |  |  |  |  |  |  |  |  |  |  |  |  |  |  |
|  |  |  |  |  |  |  | *works within 50m of water bodies.* |  |  |  |  |  |  |  |  |  |  |  |  |  |  |
|  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |
|  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |
|  |  |  |  | *To prevent adverse* |  |  | *2. Proper maintenance and management construction of TD and EC* |  |  |  |  |  |  |  |  | *1.ES* |  |  |  |  |  |
|  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |
|  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |
|  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |
|  |  |  |  |  |  | *measures, including training of operators and other workers to avoid* |  |  |  |  |  |  |  |  |  |  |  |  |  |
|  |  |  |  | *water quality impacts* |  |  |  |  |  |  |  |  |  |  | *Contractor* |  |  |  |  |  |
|  |  |  |  |  |  | *pollution of water bodies by the considerate operation of construction* |  |  |  |  |  |  |  |  |  |  |  |  |  |
|  |  |  |  | *due to negligence and* |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |
|  |  |  |  |  |  | *machinery and equipment.* |  |  |  |  |  |  |  |  |  |  |  |  |  |  |
|  |  |  |  | *ensure unavoidable* |  |  |  |  |  |  |  |  |  |  | *2. Contractor* |  |  |  |  |  |
|  |  |  |  |  |  | *3. Storage of lubricants, fuels and other hydrocarbons in self-contained* |  |  |  |  |  |  |  |  |  |  |  |  |  |
|  | ***3. Water quality*** |  |  | *impacts are managed* |  |  |  |  |  |  |  |  |  |  | *has to check* |  |  |  |  |  |
|  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |
|  |  |  | *effectively. Ensure* |  |  | *dedicated enclosures >50m away from water bodies.* |  |  |  |  |  | *1. 50m from water bodies 2.* |  |  | *water quality* |  |  |  |  |  |
|  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |
|  |  |  |  | *adverse impacts on* |  |  | *4. Proper disposal of solid waste from construction activities.* |  |  |  |  |  |  |  | *and report to* |  |  | *CONSULT* |  |  |
|  |  |  |  |  |  |  |  | *1 month prior to* |  |  | *Relevant locations to be* |  |  |  |  |  |  |
|  |  |  |  | *water quality caused by* |  |  | *5. Cover the construction material and spoil stockpiles with a suitable* |  |  |  |  |  |  | *MEPCO.* |  |  | *ANT and* |  |  |
|  |  |  |  |  |  |  |  | *construction.* |  |  | *determined in the detailed* |  |  |  |  |  |  |
|  |  |  |  | *construction activities* |  |  | *material to reduce material loss and sedimentation and avoid stockpiling* |  |  |  |  |  |  |  |  |  | *ES MEPCO* |  |  |
|  |  |  |  |  |  |  |  |  |  |  | *project design.* |  |  |  |  |  |  |  |
|  |  |  |  | *are minimized.* |  |  | *near to water bodies.* |  |  |  |  |  |  |  |  |  |  | *review* |  |  |
|  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |
|  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |
|  |  |  |  |  |  |  | *6. Topsoil stripped material shall not be stored where natural drainage will* |  |  |  |  |  |  |  |  |  |  |  | *results* |  |  |
|  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |
|  |  |  |  |  |  |  | *be disrupted.* |  |  |  |  |  |  |  |  |  |  |  |  |  |  |
|  |  |  |  |  |  |  | *7. Borrow sites (if required) should not be close to sources of drinking* |  |  |  |  |  |  |  |  |  |  |  |  |  |  |
|  |  |  |  |  |  |  | *water.* |  |  |  |  |  |  |  |  |  |  |  |  |  |  |
|  |  |  |  | *To minimize dust* |  |  | *CONTROL ALL DUSTY MATERIALS AT SOURCE.* |  |  |  |  |  | *1.Construction sites within* |  |  | *Contractor* |  |  | *MEPCO ES* |  |  |
|  | ***4. Air quality*** |  |  | *effectively and avoid* |  |  | *1. All heavy equipment and machinery shall be fitted in full compliance with* |  |  | *During all* |  |  | *100m of sensitive receivers.* |  |  | *should* |  |  | */* |  |  |
|  |  |  |  |  |  |  |  |  |  |  |  |  |
|  |  |  | *complaints due to the* |  |  | *the national and local regulations.(Relevant regulations are in the Motor* |  |  | *construction.* |  |  | *2. A list of locations to be* |  |  | *maintain* |  |  | *CONSULT* |  |  |
|  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |
|  |  |  |  | *airborne particulate* |  |  | *vehicles fitness rules and Road Act).* |  |  |  |  |  | *included in contract and other* |  |  | *acceptable* |  |  | *ANT* |  |  |

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*Power Distribution Enhancement Multi-Tranche Financing Facility Tranche-4 MEPCO New 132KV Punjab Government Employees Housing Society (PGEHS) Grid Station and 132KV associated Transmission Line*

***Initial Environmental Examination***

|  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- |
|  | **Environmental** | |  | ***Objectives*** |  |  | **Mitigation Measures recommended** | |  |  | **Timing to implement** | |  | **Locations to implement MM** |  |  | ***Resp Imp MM*** |  |  | **Resp mon** | |  |
|  | **concern** | |  |  |  |  |  | **MM** | |  |  |  |  |  | **MM** | |  |
|  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |
|  |  |  |  | *matter released to the* |  |  | *2.* | *Stockpiled soil and sand shall be slightly wetted before loading,* |  |  |  |  |  | *sensitive areas identified by* |  |  | *standard.* |  |  |  |  |  |
|  |  |  |  | *atmosphere.* |  |  | *particularly in windy conditions.* | |  |  |  |  |  | *the CSC along the ROW* |  |  |  |  |  |  |  |  |
|  |  |  |  |  |  |  | *3.* | *Fuel-efficient and well-maintained haulage trucks shall be employed to* |  |  |  |  |  | *during works.* |  |  | *CONSULTAN* |  |  |  |  |  |
|  |  |  |  |  |  |  | *minimize exhaust emissions.* | |  |  |  |  |  |  |  |  | *T to supervise* |  |  |  |  |  |
|  |  |  |  |  |  |  | *4.* | *Vehicles transporting soil, sand and other construction materials shall be* |  |  |  |  |  |  |  |  | *activities.* |  |  |  |  |  |
|  |  |  |  |  |  |  | *covered. Limitations to speeds of such vehicles necessary. Transport* | |  |  |  |  |  |  |  |  |  |  |  |  |  |  |
|  |  |  |  |  |  |  | *through densely populated area should be avoided.* | |  |  |  |  |  |  |  |  |  |  |  |  |  |  |
|  |  |  |  |  |  |  | *5.* | *To plan to minimize the dust within the vicinity of orchards and fruit* |  |  |  |  |  |  |  |  |  |  |  |  |  |  |
|  |  |  |  |  |  |  | *farms.* | |  |  |  |  |  |  |  |  |  |  |  |  |  |  |
|  |  |  |  |  |  |  | *6.* | *Spraying of bare areas with water.* |  |  |  |  |  |  |  |  |  |  |  |  |  |  |
|  |  |  |  |  |  |  | *7.* | *Concrete plants. to be controlled in line with statutory requirements* |  |  |  |  |  |  |  |  |  |  |  |  |  |  |
|  |  |  |  |  |  |  | *should not be close to sensitive receptors.* | |  |  |  |  |  |  |  |  |  |  |  |  |  |  |
|  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  | *Contractor* |  |  |  |  |  |
|  |  |  |  |  |  |  | *1.* | *Review requirements for piling and use of powered mechanical* |  |  |  |  |  | *1.Construction sites within* |  |  | *should* |  |  |  |  |  |
|  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |
|  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |
|  |  |  |  |  |  |  | *equipment within 100m of SRs.* | |  |  |  |  |  |  |  | *maintain the* |  |  |  |  |  |
|  |  |  |  |  |  |  |  |  |  |  |  | *100m of sensitive receivers.* |  |  |  |  |  |  |  |
|  |  |  |  |  |  |  | *2.* | *Review conditions of buildings and conduct public consultation with SRs* |  |  |  |  |  |  |  | *acceptable* |  |  |  |  |  |
|  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |
|  |  |  |  | *To minimize ground* |  |  | *to establish less sensitive time for works involving piling and schedule* | |  |  | *1 month prior to* |  |  | *2. A list of locations to be* |  |  | *standards* |  |  | *MEPCO ES* |  |  |
|  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |
|  | ***5. Ground Vibration*** |  |  | *vibrations during* |  |  | *works accordingly.* | |  |  |  |  |  |  |  |  |  |  |  |
|  |  |  |  |  |  |  | *construction.* |  |  | *included in contract and other* |  |  |  |  |  | */ SMEC ES* |  |  |
|  |  |  |  | *construction.* |  |  | *3.* | *Non-percussive piling methods to be used wherever practicable.* |  |  |  |  |  |  |  |  |  |  |  |
|  |  |  |  |  |  |  |  |  |  |  | *sensitive areas identified by* |  |  |  |  |  |  |  |  |
|  |  |  |  |  |  |  | *4.* | *Percussive piling shall be conducted in daylight hours.* |  |  |  |  |  |  |  | *CONSULTAN* |  |  |  |  |  |
|  |  |  |  |  |  |  |  |  |  |  |  | *the CSC along the ROW* |  |  |  |  |  |  |  |
|  |  |  |  |  |  |  | *5.* | *Hammer- type percussive pile driving operations shall not be allowed at* |  |  |  |  |  |  |  | *T to supervise* |  |  |  |  |  |
|  |  |  |  |  |  |  |  |  |  |  |  | *during works.* |  |  |  |  |  |  |  |
|  |  |  |  |  |  |  | *night time.* | |  |  |  |  |  |  |  | *relevant* |  |  |  |  |  |
|  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |
|  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  | *activities.* |  |  |  |  |  |
|  |  |  |  |  |  |  | *1.* | *Review requirements for use of powered mechanical equipment within* |  |  |  |  |  |  |  |  |  |  |  |  |  |  |
|  |  |  |  |  |  |  | *100m of SRs.* | |  |  |  |  |  |  |  |  | *Contractor* |  |  |  |  |  |
|  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |
|  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |
|  |  |  |  |  |  |  | *2.* | *Conduct public consultation with SRs to establish less sensitive time for* |  |  |  |  |  |  |  |  |  |  |  |  |  |
|  |  |  |  |  |  |  |  |  |  |  |  |  |  |  | *should* |  |  |  |  |  |
|  |  |  |  |  |  |  | *works and schedule works accordingly.* | |  |  |  |  |  | *1.Construction sites within* |  |  |  |  |  |  |  |
|  |  |  |  |  |  |  |  |  |  |  |  |  |  | *maintain the* |  |  |  |  |  |
|  |  |  |  |  |  |  | *3.* | *All heavy equipment and machinery shall be fitted in full compliance with* |  |  |  |  |  | *100m of sensitive receivers.* |  |  |  |  |  |  |  |
|  |  |  |  |  |  |  |  |  |  |  |  |  |  | *acceptable* |  |  |  |  |  |
|  |  |  |  |  |  |  | *the national and local regulations and with effective silencing apparatus to* | |  |  |  |  |  |  |  |  |  |  |  |  |  |
|  |  |  |  | *To minimize noise* |  |  |  |  |  |  |  |  |  |  | *standards* |  |  |  |  |  |
|  |  |  |  |  |  | *minimize noise.* | |  |  | *1 month prior to* |  |  | *2. A list of locations to be* |  |  |  |  | *MEPCO ES* |  |  |
|  | ***6. Noise*** |  |  | *increases during* |  |  |  |  |  |  |  |  |  |  |  |  |  |
|  |  |  |  |  | *4.* | *Heavy equipment shall be operated only in daylight hours.* |  |  | *construction.* |  |  | *included in contract and other* |  |  |  |  |  | */ SMEC* |  |  |
|  |  |  |  | *construction.* |  |  |  |  |  |  |  |  |  |  |  |  |  |
|  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |
|  |  |  |  |  |  | *5.* | *Construction equipment, which generates excessive noise, shall be* |  |  |  |  |  | *sensitive areas identified by* |  |  | *CONSULTAN* |  |  |  |  |  |
|  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |
|  |  |  |  |  |  |  | *enclosed or fitted with effective silencing apparatus to minimize noise.* | |  |  |  |  |  | *the CSC along the ROW* |  |  |  |  |  |  |  |
|  |  |  |  |  |  |  |  |  |  |  |  |  |  | *T to supervise* |  |  |  |  |  |
|  |  |  |  |  |  |  | *7. Well-maintained haulage trucks will be used with speed controls.* | |  |  |  |  |  | *during works.* |  |  |  |  |  |  |  |
|  |  |  |  |  |  |  |  |  |  |  |  |  |  | *relevant* |  |  |  |  |  |
|  |  |  |  |  |  |  | *8.* | *Contractor shall take adequate measures to minimize noise nuisance in* |  |  |  |  |  |  |  |  |  |  |  |  |  |
|  |  |  |  |  |  |  |  |  |  |  |  |  |  |  | *activities.* |  |  |  |  |  |
|  |  |  |  |  |  |  | *the vicinity of construction sites by way of adopting available acoustic* | |  |  |  |  |  |  |  |  |  |  |  |  |  |
|  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |
|  |  |  |  |  |  |  | *methods.* | |  |  |  |  |  |  |  |  |  |  |  |  |  |  |
|  |  |  |  | *Prevent adverse water* |  |  | *SCHEDULE WORKS IN SENSITIVE AREAS (e.g. NEAR RIVERS) FOR* | |  |  | *1 month prior to* |  |  | *1. Locations based on history* |  |  |  |  |  |  |  |  |
|  |  |  |  | *quality impacts due to* |  |  | *DRY SEASON* | |  |  |  |  | *of flooding problems* |  |  |  |  |  |  |  |  |
|  |  |  |  |  |  |  |  | *construction because* |  |  |  |  |  |  |  |  |  |  |
|  |  |  |  | *negligence and ensure* |  |  | *1.* | *In the short-term, temporary drainage and erosion control plan to be* |  |  |  |  | *indicated by local authorities*. |  |  |  |  |  |  |  |  |
|  |  |  |  |  |  |  |  | *the area can be* |  |  |  |  |  |  |  |  |  |  |
|  |  |  |  | *unavoidable impacts are* |  |  | *presented with tender. Temporary drainage and erosion control plan one* | |  |  |  |  |  |  |  |  |  |  |  |  |  |
|  |  |  |  |  |  |  |  | *subject to unseasonal* |  |  |  |  |  |  |  |  |  |  |  |
|  |  |  |  | *managed effectively.* |  |  | *month before commencement of works to protect all areas susceptible to* | |  |  |  |  | *2. A list of sensitive areas* |  |  | *ES Contractor* |  |  |  |  |  |
|  |  |  |  |  |  |  |  | *heavy rain Plan* |  |  |  |  |  |  | *MEPCO ES* |  |  |
|  | ***7. Soil Erosion /*** |  |  |  |  |  | *erosion. (Permanent drainage works shall be in the final design).* | |  |  |  |  | *during construction to be* |  |  | *and* |  |  |  |  |
|  |  |  |  |  |  |  |  | *before and during* |  |  |  |  |  |  | */* |  |  |
|  | ***Surface Run-off*** |  |  | *To minimize soil erosion* |  |  | *2.* | *Installation of TD and EC before works construction within 50m of water* |  |  |  |  | *prepared by the detail design* |  |  | *CONSULTAN* |  |  |  |  |
|  |  |  |  |  |  |  | *construction (cut and* |  |  |  |  |  |  | *SMEC ES* |  |  |
|  |  |  |  | *due to the construction* |  |  | *bodies.* | |  |  |  |  | *consultant in consideration* |  |  | *T* |  |  |  |  |
|  |  |  |  |  |  |  |  | *fill, land reclamation* |  |  |  |  |  |  |  |  |  |
|  |  |  |  | *activities of towers,* |  |  | *3.* | *Clearing of green surface cover to be minimized during site preparation.* |  |  |  |  | *with the cut and fill, land* |  |  |  |  |  |  |  |  |
|  |  |  |  |  |  |  |  | *etc.) while considering* |  |  |  |  |  |  |  |  |  |  |
|  |  |  |  | *stringing of conductors* |  |  | *5.* | *Meaningful water quality monitoring up and downstream at any tower site* |  |  |  |  | *reclamation, borrow areas* |  |  |  |  |  |  |  |  |
|  |  |  |  |  |  |  |  | *the climatic* |  |  |  |  |  |  |  |  |  |  |
|  |  |  |  | *and creation of access* |  |  | *during construction within a river or stream bed. Rapid reporting and* | |  |  |  |  | *etc.* |  |  |  |  |  |  |  |  |
|  |  |  |  |  |  |  |  | *conditions.* |  |  |  |  |  |  |  |  |  |  |
|  |  |  |  | *tracks for project* |  |  | *feedback to CSC.* | |  |  |  |  |  |  |  |  |  |  |  |  |  |
|  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |

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*Power Distribution Enhancement Multi-Tranche Financing Facility Tranche-4 MEPCO New 132KV Punjab Government Employees Housing Society (PGEHS) Grid Station and 132KV associated Transmission Line*

***Initial Environmental Examination***

|  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- |
|  | **Environmental** | |  | ***Objectives*** |  |  | **Mitigation Measures recommended** |  |  | **Timing to implement** | |  | **Locations to implement MM** |  |  | ***Resp Imp MM*** | |  | **Resp mon** | |  |
|  | **concern** | |  |  |  |  |  | **MM** | |  |  |  |  | **MM** | |  |
|  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |
|  |  |  |  | *vehicles.* |  |  | *5. Back-fill should be compacted properly in accordance with MEPCO* |  |  |  |  |  | *3. Locations of all rivers,* |  |  |  |  |  |  |  |  |
|  |  |  |  |  |  |  | *design standards and graded to original contours where possible.* |  |  |  |  |  | *streams, culverts, irrigation* |  |  |  |  |  |  |  |  |
|  |  |  |  |  |  |  | *6. Cut areas should be treated against flow acceleration while filled areas* |  |  |  |  |  | *channels, roads and roads.* |  |  |  |  |  |  |  |  |
|  |  |  |  |  |  |  | *should be carefully designed to avoid improper drainage.* |  |  |  |  |  |  |  |  |  |  |  |  |  |  |
|  |  |  |  |  |  |  | *7. Stockpiles should not be formed within such distances behind excavated* |  |  |  |  |  |  |  |  |  |  |  |  |  |  |
|  |  |  |  |  |  |  | *or natural slopes that would reduce the stability of the slopes or cause* |  |  |  |  |  |  |  |  |  |  |  |  |  |  |
|  |  |  |  |  |  |  | *slippage.* |  |  |  |  |  |  |  |  |  |  |  |  |  |  |
|  |  |  |  |  |  |  | *8. Measures shall be taken to prevent ponds of surface water and scouring* |  |  |  |  |  |  |  |  |  |  |  |  |  |  |
|  |  |  |  |  |  |  | *of slopes. Newly eroded channels shall be backfilled and restored to natural* |  |  |  |  |  |  |  |  |  |  |  |  |  |  |
|  |  |  |  |  |  |  | *contours.* |  |  |  |  |  |  |  |  |  |  |  |  |  |  |
|  |  |  |  |  |  |  | *9. Contractor should arrange to monitor and adjust working and adopt* |  |  |  |  |  |  |  |  |  |  |  |  |  |  |
|  |  |  |  |  |  |  | *suitable measures to minimize soil erosion during the construction period.* |  |  |  |  |  |  |  |  |  |  |  |  |  |  |
|  |  |  |  |  |  |  | *Contractor’s TD and EC plan should be endorsed and monitored but CSC* |  |  |  |  |  |  |  |  |  |  |  |  |  |  |
|  |  |  |  |  |  |  | *after consulting with concerned. authorities.* |  |  |  |  |  |  |  |  |  |  |  |  |  |  |
|  |  |  |  |  |  |  | *10. Replanting trees to be done before the site is vacated and handed back* |  |  |  |  |  |  |  |  |  |  |  |  |  |  |
|  |  |  |  |  |  |  | *to MEPCO with appropriate trees (other vegetation cover as appropriate) to* |  |  |  |  |  |  |  |  |  |  |  |  |  |  |
|  |  |  |  |  |  |  | *ensure interception of rainwater and the deceleration of surface run-off.* |  |  |  |  |  |  |  |  |  |  |  |  |  |  |
|  |  |  |  |  |  |  | *(consider also for future trances if civil works)* |  |  |  |  |  |  |  |  |  |  |  |  |  |  |
|  |  |  |  | *To minimize disruption* |  |  | *1. Use only EPA licensed sites for raw materials in order to minimize* |  |  |  |  |  | *1. List of borrow areas to be* |  |  |  |  |  |  |  |  |
|  |  |  |  | *and contamination of the* |  |  | *adverse environmental impacts.* |  |  |  |  |  | *prepared with tender stage* |  |  |  |  |  |  |  |  |
|  |  |  |  | *surroundings,* |  |  | *2. Measures to be taken in line with any EPA license conditions,* |  |  |  |  |  | *contractor’s method* |  |  |  |  |  |  |  |  |
|  | ***8. Exploitation,*** |  |  | *minimize and or avoid* |  |  | *recommendations and approval to be applied to the subproject activities* |  |  |  |  |  | *statement and updated one* |  |  |  |  |  |  |  |  |
|  | ***Handling,*** |  |  | *adverse environ-mental* |  |  | *using the licensed source including:* |  |  | *month prior to starting* |  |  | *month prior to construction.* |  |  | *ES Contractor* |  |  |  |  |  |
|  | ***Transportation and*** |  |  | *impacts arising out of* |  |  | (i) *Conditions that apply for selecting sites for material exploitation.* |  |  |  |  | *2.List of routes of transport of* |  |  | *and SMEC to* |  |  | *MEPCO ES* |  |  |
|  |  |  |  |  |  |  | *of works. Update* |  |  |  |  |  |  |  |  |
|  | ***Storage of*** |  |  | *construction material* |  |  | (ii) *Conditions that apply to timing and use of roads for material transport.* |  |  |  |  | *construction material is to be* |  |  | *agree format* |  |  | */ SMEC ES* |  |  |
|  |  |  |  |  |  |  | *monthly.* |  |  |  |  |  |  |  |  |
|  | ***Construction*** |  |  | *exploitation, handling,* |  |  | (iii) *Conditions that apply for maintenance of vehicles used in material* |  |  |  |  | *prepared for the contract and* |  |  | *of reporting* |  |  |  |  |  |
|  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |
|  | ***materials*** |  |  | *transportation and* |  |  | *transport or construction.* |  |  |  |  |  | *agreed one month prior to* |  |  |  |  |  |  |  |  |
|  |  |  |  | *storage by using* |  |  | (iv) *Conditions that apply for selection of sites for material storage.* |  |  |  |  |  | *construction.* |  |  |  |  |  |  |  |  |
|  |  |  |  | *sources that comply with* |  |  | (v) *Conditions that apply for aggregate production.* |  |  |  |  |  | *3. Map of locations of storage* |  |  |  |  |  |  |  |  |
|  |  |  |  | *EPA license conditions* |  |  | (vi) *Conditions that apply for handling hazardous or dangerous materials* |  |  |  |  |  | *is prepared by the contractor.* |  |  |  |  |  |  |  |  |
|  |  |  |  |  |  |  | *such as oil, lubricants and toxic chemicals.* |  |  |  |  |  |  |  |  |  |  |  |  |  |  |
|  |  |  |  |  |  |  | *1. Waste management plan to be submitted to the CSC and approved by* |  |  |  |  |  | *1.Dumping:* |  |  |  |  |  |  |  |  |
|  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |
|  |  |  |  |  |  |  | *MEPCO ESU one month prior to starting of works. WMP shall estimate the* |  |  |  |  |  |  |  | *1.Contractor* |  |  |  |  |  |
|  |  |  |  |  |  |  |  |  | *One month prior to* |  |  | *A list of temporary* |  |  |  |  |  |  |  |
|  |  |  |  |  |  |  | *amounts and types of construction and decommissioning waste to be* |  |  |  |  |  |  | *2. SMEC ES* |  |  |  |  |  |
|  |  |  |  |  |  |  |  |  | *starting of works.* |  |  | *stockpiling areas and more* |  |  |  |  |  |  |  |
|  |  |  |  |  |  |  | *generated by the project.* |  |  |  |  |  |  | *and MEPCO* |  |  |  |  |  |
|  |  |  |  |  |  |  |  |  | *Update monthly* |  |  | *permanent dumping areas to* |  |  |  |  |  |  |  |
|  |  |  |  |  |  |  | *2. Investigate ways and means of reusing/recycling decommissioned* |  |  |  |  |  |  | *ESU should* |  |  |  |  |  |
|  |  |  |  |  |  |  |  |  |  |  |  | *be prepared at the contract* |  |  |  |  |  |  |  |
|  |  |  |  |  |  |  | *material from the project within PEPCO without any residual environmental* |  |  |  |  |  |  |  | *supervise and* |  |  |  |  |  |
|  |  |  |  |  |  |  |  |  |  |  |  | *stage for agreement* |  |  |  |  |  |  |  |
|  |  |  |  |  |  |  | *impact.* |  |  |  |  |  |  |  | *take action to* |  |  |  |  |  |
|  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |
|  |  |  |  | *Minimize the impacts* |  |  | *3 Identifying potential safe disposal sites close to the project, or those* |  |  |  |  |  |  |  |  | *ensure that* |  |  | *MEPCO/* |  |  |
|  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |
|  | ***9.Decommision and*** |  |  |  |  | *designated sites in the contract.* |  |  |  |  |  |  |  |  | *contractor’s* |  |  |  |  |
|  |  |  | *from the disposal of* |  |  |  |  |  |  |  |  |  |  |  |  | *CONSULT* |  |  |
|  | ***Waste Management*** |  |  |  |  | *4 Investigating the environmental conditions of the disposal sites and* |  |  |  |  |  |  |  |  | *complete* |  |  |  |  |
|  |  |  | *construction waste.* |  |  |  |  |  |  |  |  |  |  |  |  | *ANT* |  |  |
|  |  |  |  |  |  | *recommendation of most suitable and safest sites.* |  |  |  |  |  |  |  |  | *relevant* |  |  |  |  |
|  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |
|  |  |  |  |  |  |  | *5. Piling up of loose material should be done in segregated areas to arrest* |  |  |  |  |  | *A list of temporary stockpiling* |  |  | *activities* |  |  |  |  |  |
|  |  |  |  |  |  |  | *washing out of soil. Debris shall not be left where it may be carried by water* |  |  |  |  |  |  |  | *according to* |  |  |  |  |  |
|  |  |  |  |  |  |  |  |  |  |  |  | *areas and more permanent* |  |  |  |  |  |  |  |
|  |  |  |  |  |  |  | *to downstream flood plains, dams, lagoons or other water bodies.* |  |  |  |  |  |  |  | *EIA / IEE /* |  |  |  |  |  |
|  |  |  |  |  |  |  |  |  | *One month prior to* |  |  | *dumping areas to be* |  |  |  |  |  |  |  |
|  |  |  |  |  |  |  | *6. Used oil and lubricants shall be recovered and reused or removed from* |  |  |  |  |  |  | *EMP* |  |  |  |  |  |
|  |  |  |  |  |  |  |  |  | *starting of works.* |  |  | *prepared at the contract* |  |  |  |  |  |  |  |
|  |  |  |  |  |  |  | *the site in full compliance with the national and local regulations.* |  |  |  |  |  |  | *requirement &* |  |  |  |  |  |
|  |  |  |  |  |  |  |  |  | *Update monthly* |  |  | *stage for agreement (in W M* |  |  |  |  |  |  |  |
|  |  |  |  |  |  |  | *7. Oily wastes must not be burned. Disposal location to be agreed with local* |  |  |  |  |  |  | *NEQS.* |  |  |  |  |  |
|  |  |  |  |  |  |  |  |  |  |  |  | *Plan)* |  |  |  |  |  |  |  |
|  |  |  |  |  |  |  | *authorities/EPA.* |  |  |  |  |  |  |  |  |  |  |  |  |  |
|  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |
|  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |

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*Power Distribution Enhancement Multi-Tranche Financing Facility Tranche-4 MEPCO New 132KV Punjab Government Employees Housing Society (PGEHS) Grid Station and 132KV associated Transmission Line*

***Initial Environmental Examination***

|  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- |
|  | **Environmental** | |  | ***Objectives*** | |  | **Mitigation Measures recommended** | |  |  | **Timing to implement** | |  | **Locations to implement MM** | |  | ***Resp Imp MM*** | |  | **Resp mon** | |  |
|  | **concern** | |  |  |  |  | **MM** | |  |  |  | **MM** | |  |
|  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |
|  |  |  |  |  |  |  | *8. Waste breaker insulating oil to be recycled, reconditioned, or reused at* | |  |  |  |  |  |  |  |  |  |  |  |  |  |  |
|  |  |  |  |  |  |  | *DISCO’s facility.* | |  |  |  |  |  |  |  |  |  |  |  |  |  |  |
|  |  |  |  |  |  |  | *9. Machinery should be properly maintained to minimize oil spill during the* | |  |  |  |  |  |  |  |  |  |  |  |  |  |  |
|  |  |  |  |  |  |  | *construction.* | |  |  |  |  |  |  |  |  |  |  |  |  |  |  |
|  |  |  |  |  |  |  | *10. Machinery should be maintained in a dedicated area over drip trays to* | |  |  |  |  |  |  |  |  |  |  |  |  |  |  |
|  |  |  |  |  |  |  | *avoid soil contamination from residual oil spill during maintenance.* | |  |  |  |  |  |  |  |  |  |  |  |  |  |  |
|  |  |  |  |  |  |  | *11 Solid wastes should be disposed at an approved solid waste facility and* | |  |  |  |  |  |  |  |  |  |  |  |  |  |  |
|  |  |  |  |  |  |  | *not by open burning which is illegal and contrary to good environmental* | |  |  |  |  |  |  |  |  |  |  |  |  |  |  |
|  |  |  |  |  |  |  | *practice.* | |  |  |  |  |  |  |  |  |  |  |  |  |  |  |
|  |  |  |  |  |  |  | *1. Identify location of work camps in consultation with local authorities. The* | |  |  |  |  |  |  |  |  |  |  |  |  |  |  |
|  |  |  |  |  |  |  | *location shall be subject to approval by the MEPCO. If possible, camps* | |  |  |  |  |  |  |  |  |  |  |  |  |  |  |
|  |  |  |  |  |  |  | *shall not be located near settlements or near drinking water supply intakes.* | |  |  |  |  |  |  |  |  |  |  |  |  |  |  |
|  |  |  |  |  |  |  | *2. Cutting of trees shall not be permitted and removal of vegetation shall be* | |  |  |  |  |  |  |  |  |  |  |  |  |  |  |
|  |  |  |  |  |  |  | *minimized.* | |  |  |  |  |  |  |  |  |  |  |  |  |  |  |
|  |  |  |  |  |  |  | *3. Water and sanitary facilities (at least pit latrines) shall be provided for* | |  |  |  |  |  |  |  |  |  |  |  |  |  |  |
|  |  |  |  |  |  |  | *employees. Worker camp and latrine sites to be backfilled and marked* | |  |  |  |  |  |  |  |  |  |  |  |  |  |  |
|  |  |  |  |  |  |  | *upon vacation of the sites.* | |  |  |  |  |  |  |  |  |  |  |  |  |  |  |
|  |  |  |  |  |  |  | *4. Solid waste and sewage shall be managed according to the national and* | |  |  |  |  |  |  |  |  |  |  |  |  |  |  |
|  | ***10.*** |  |  | *To ensure that the* |  |  | *local regulations. As a rule, solid waste must not be dumped, buried or* | |  |  |  |  |  |  |  |  |  |  |  |  |  |  |
|  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |
|  |  |  | *operation of work camps* |  |  | *burned at or near the project site, but shall be disposed of to the nearest* | |  |  |  |  |  |  |  |  |  |  |  |  |  |  |
|  | ***Work Camp*** |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |
|  |  |  | *does not adversely* |  |  | *sanitary landfill or site having complied with the necessary permits of local* | |  |  | *UPDATE Once a* |  |  | *Location Map is prepared by* |  |  |  |  |  | *MEPCO* |  |  |
|  | ***Operation and*** |  |  |  |  |  |  |  |  |  |  | *Contractor* |  |  |  |  |
|  |  |  | *affect the surrounding* |  |  | *authority permission.* | |  |  | *month* |  |  | *the Contractor.* |  |  |  |  | *ESU / CSC* |  |  |
|  | ***Location*** |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |
|  |  |  |  |  |  |  |  |  |  |  |  |  |  |
|  |  |  | *environment and* |  |  | *5. The Contractor shall organize and maintain a waste separation,* | |  |  |  |  |  |  |  |  |  |  |  |  |  |  |
|  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |
|  | ***(if required)*** |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |
|  |  |  | *residents in the area.* |  |  | *collection and transport system.* | |  |  |  |  |  |  |  |  |  |  |  |  |  |  |
|  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |
|  |  |  |  |  |  |  | *6. The Contractor shall document that all liquid and solid hazardous and* | |  |  |  |  |  |  |  |  |  |  |  |  |  |  |
|  |  |  |  |  |  |  | *non-hazardous waste are separated, collected and disposed of according* | |  |  |  |  |  |  |  |  |  |  |  |  |  |  |
|  |  |  |  |  |  |  | *to the given requirements and regulations.* | |  |  |  |  |  |  |  |  |  |  |  |  |  |  |
|  |  |  |  |  |  |  | *7. At the conclusion of the project, all debris and waste shall be removed.* | |  |  |  |  |  |  |  |  |  |  |  |  |  |  |
|  |  |  |  |  |  |  | *All temporary structures, including office buildings, shelters and toilets shall* | |  |  |  |  |  |  |  |  |  |  |  |  |  |  |
|  |  |  |  |  |  |  | *be removed.* | |  |  |  |  |  |  |  |  |  |  |  |  |  |  |
|  |  |  |  |  |  |  | *8 Exposed areas shall be planted with suitable vegetation.* | |  |  |  |  |  |  |  |  |  |  |  |  |  |  |
|  |  |  |  |  |  |  | *9.MEPCO and Construction Supervising Consultant shall inspect and report* | |  |  |  |  |  |  |  |  |  |  |  |  |  |  |
|  |  |  |  |  |  |  | *that the camp has been vacated and restored to pre-project conditions.* | |  |  |  |  |  |  |  |  |  |  |  |  |  |  |
|  |  |  |  |  |  |  | *1.* | *Tree location and condition survey to be completed one month before* |  |  |  |  |  |  |  |  |  |  |  |  |  |  |
|  |  |  |  |  |  |  | *tender.* | |  |  |  |  |  |  |  |  |  |  |  |  |  |  |
|  |  |  |  |  |  |  | *2.* | *The route for the distribution line should be selected so as to prevent* |  |  |  |  |  |  |  |  |  |  |  |  |  |  |
|  |  |  |  |  |  |  | *the loss or damage to any orchard trees or other trees. Use of higher* | |  |  |  |  |  |  |  |  |  |  |  |  |  |  |
|  |  |  |  |  |  |  | *towers to be preferred to avoid trees cutting.* | |  |  |  |  |  | Tree survey to be completed |  |  |  |  |  |  |  |  |
|  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |
|  | ***11. Loss of Trees*** |  |  | *To avoid negative* |  |  | *3. Clearing of green surface vegetation cover for construction, borrow of* | |  |  | *Route design and site* |  |  | one month before tender at |  |  |  |  |  |  |  |  |
|  | ***and Vegetation*** |  |  | *impacts due to removing* |  |  | *soil for development, cutting trees and other important vegetation during* | |  |  | *identification (1 & 2)* |  |  | relevant *Locations with a Map* |  |  |  |  |  |  |  |  |
|  | ***Cover of the Areas*** |  |  | *of landmark, sentinel* |  |  | *construction should be minimized by careful alignment. Written technical* | |  |  | *during design stage* |  |  | *to be compiled prior to tender* |  |  | *SMEC ES and* |  |  | *MEPCO ES* |  |  |
|  | ***for Towers and*** |  |  | *and specimen trees as* |  |  | *Justification for tree felling included in tree survey.* | |  |  | *and other matters* |  |  | *by the design consultant /* |  |  | *ES Contractor* |  |  | */ SMEC ES* |  |  |
|  | ***Temporary Work-*** |  |  | *well as green vegetation* |  |  | *4. At completion all debris and waste shall be removed and not burned.* | |  |  | *during construction of* |  |  | *MEPCO ESU during detailed* |  |  |  |  |  |  |  |  |
|  | ***space*** |  |  | *and surface cover.* |  |  | *5. The contractor’s staff and labour will be strictly directed not to damage* | |  |  | *relevant activities* |  |  | *design and CSC to update as* |  |  |  |  |  |  |  |  |
|  |  |  |  |  |  |  | *any vegetation such as trees or bushes outside immediate work areas.* | |  |  |  |  |  | *necessary.* |  |  |  |  |  |  |  |  |
|  |  |  |  |  |  |  | *Trees shall not be cut for fuel or works timber.* | |  |  |  |  |  |  |  |  |  |  |  |  |  |  |
|  |  |  |  |  |  |  | *6.* | *Land holders will be paid compensation for their standing trees in* |  |  |  |  |  |  |  |  |  |  |  |  |  |  |
|  |  |  |  |  |  |  | *accordance with prevailing market rates (LARP). The land holders will be* | |  |  |  |  |  |  |  |  |  |  |  |  |  |  |
|  |  |  |  |  |  |  | *allowed to salvage the wood of the affected trees.* | |  |  |  |  |  |  |  |  |  |  |  |  |  |  |

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*Power Distribution Enhancement Multi-Tranche Financing Facility Tranche-4 MEPCO New 132KV Punjab Government Employees Housing Society (PGEHS) Grid Station and 132KV associated Transmission Line*

***Initial Environmental Examination***

|  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- |
|  | **Environmental** | |  | ***Objectives*** | |  | **Mitigation Measures recommended** | |  |  | **Timing to implement** | |  | **Locations to implement MM** | |  | ***Resp Imp MM*** | |  | **Resp mon** | |  |
|  | **concern** | |  |  |  |  | **MM** | |  |  |  | **MM** | |  |
|  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |
|  |  |  |  |  |  |  | *7.* | *The contractor will plant three (3) suitable new trees outside the 30* |  |  |  |  |  |  |  |  |  |  |  |  |  |  |
|  |  |  |  |  |  |  | *meter corridor of the transmission line in lieu of one (1) tree removed.* | |  |  |  |  |  |  |  |  |  |  |  |  |  |  |
|  |  |  |  |  |  |  | *8.* | *Landscaping and road verges to be re-installed on completion.* |  |  |  |  |  |  |  |  |  |  |  |  |  |  |
|  |  |  |  |  |  |  | *9.* | *Compensatory planting of trees/shrubs/ornamental plants (at a rate of* |  |  |  |  |  |  |  |  |  |  |  |  |  |  |
|  |  |  |  |  |  |  | *3:1) in line with best international practice.* | |  |  |  |  |  |  |  |  |  |  |  |  |  |  |
|  |  |  |  |  |  |  | *10. After work completion all temporary structures, including office* | |  |  |  |  |  |  |  |  |  |  |  |  |  |  |
|  |  |  |  |  |  |  | *buildings, shelters and toilets shall be removed.* | |  |  |  |  |  |  |  |  |  |  |  |  |  |  |
|  |  |  |  |  |  |  | *1. Providing induction safety training for all staff adequate warning signs* | |  |  |  |  |  |  |  |  |  |  |  |  |  |  |
|  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |
|  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  | *ES* |  |  |
|  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |
|  | ***12. Safety*** |  |  |  |  |  | *in health and safety matters, and require the workers to use the provided* | |  |  | *Prior to* |  |  |  |  |  |  |  |  |
|  |  |  | *To ensure safety of* |  |  |  |  |  |  | *Location to be identified by* |  |  |  |  |  | *MEPCO/* |  |  |
|  | ***Precautions for the*** |  |  |  |  | *safety equipment.* | |  |  | *commencement and* |  |  |  |  | *ES Contractor* |  |  |  |  |
|  |  |  | *workers* |  |  |  |  |  |  | *the CSC with contractor.* |  |  |  |  | *CONSULT* |  |  |
|  | ***Workers*** |  |  |  |  |  |  |  |  | *during construction* |  |  |  |  |  |  |  |  |  |
|  |  |  |  |  |  | *2. Providing workers with skull guard or hard hat and hard toe shoes.* | |  |  |  |  |  |  |  |  |  |  | *ANT* |  |  |
|  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |
|  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |
|  |  |  |  | *Minimize disturbance of* |  |  |  |  |  |  |  |  |  | *The most important locations* |  |  |  |  |  |  |  |  |
|  |  |  |  | *vehicular traffic and* |  |  |  |  |  |  |  |  |  | *to be identified and listed.* |  |  |  |  |  |  |  |  |
|  |  |  |  |  | *1.* | | *Submit temporary haul and access routes plan one month prior to* |  |  | *Prior to and* |  |  |  |  |  |  |  |  |  |
|  | ***13.*** |  |  | *pedestrians during* |  |  |  |  |  | *Relevant plans of the* |  |  |  |  |  | *MEPCO* |  |  |
|  |  |  |  | *start of works.* | | |  |  | *throughout the* |  |  |  |  | *ES Contractor* |  |  |  |  |
|  | ***Traffic Condition*** |  |  | *haulage of construction* |  |  |  |  |  | *Contractor on traffic* |  |  |  |  | *ESU / CSC* |  |  |
|  |  |  |  | *2.* | | *Routes in vicinity of schools and hospitals to be avoided.* |  |  | *construction.* |  |  |  |  |  |  |  |  |  |
|  |  |  |  | *materials and* |  |  |  |  |  | *arrangements to be made* |  |  |  |  |  |  |  |  |
|  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |
|  |  |  |  | *equipment.* |  |  |  |  |  |  |  |  |  | *available.* |  |  |  |  |  |  |  |  |
|  |  |  |  |  |  |  | *1. Potential for spread of vector borne and communicable diseases from* | |  |  |  |  |  |  |  |  |  |  |  |  |  |  |
|  |  |  |  | *To ensure minimum* |  |  | *labour camps shall be avoided (worker awareness orientation and* | |  |  |  |  |  |  |  |  |  |  |  |  |  |  |
|  |  |  |  |  |  | *appropriate sanitation should be maintained).* | |  |  | *Complaints of public* |  |  |  |  |  |  |  |  |  |  |  |
|  |  |  |  | *impacts from* |  |  |  |  |  |  |  |  |  | *ES Contractor* |  |  |  |  |  |
|  | ***14.Social Impacts*** |  |  |  |  | *2. Complaints of the people on construction nuisance / damage close to* | |  |  | *to be solved as soon* |  |  | *All subprojects all tranches* |  |  |  |  | *ES MEPCO* |  |  |
|  |  |  | *construction labour* |  |  |  |  |  |  |  |  | *ES MEPCO* |  |  |  |  |
|  |  |  |  |  |  | *ROW to be considered and responded to promptly.* | |  |  | *as possible* |  |  |  |  |  |  |  |  |  |  |
|  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |
|  |  |  |  | *force. on public health.* |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |
|  |  |  |  |  |  | *3. Contractor should make alternative arrangements to avoid local* | |  |  |  |  |  |  |  |  |  |  |  |  |  |  |
|  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |
|  |  |  |  |  |  |  | *community impacts.* | |  |  |  |  |  |  |  |  |  |  |  |  |  |  |
|  |  |  |  | *To ensure that MEPCO* |  |  | *Capacity building activities were taken by Environmental Officer in Tranche* | |  |  | *Initiate* |  |  | *Awareness training for all* |  |  |  |  |  |  |  |  |
|  | ***15. Institutional*** |  |  |  |  |  |  |  |  | *management and senior staff* |  |  |  |  |  |  |  |  |
|  |  |  | *officials are trained to* |  |  | *1. Environmental Management Unit (EMU) was setup with in MEPCO under* | |  |  | *preconstruction and* |  |  |  |  |  |  |  | *MEPCO &* |  |  |
|  | ***Strengthening and*** |  |  |  |  |  |  |  |  | *in MEPCO at senior engineer* |  |  | *MEPCO ESU* |  |  |  |  |
|  |  |  | *understand and to* |  |  | *Director Operations in Tranche 1. Development of strengthening plan for* | |  |  | *continue beyond* |  |  |  |  |  |  | *ADB* |  |  |
|  | ***Capacity Building*** |  |  |  |  |  |  |  |  | *and above in PMU and* |  |  |  |  |  |  |  |
|  |  |  | *appreciate EMP* |  |  | *the EMU should be taken up with resources.* | |  |  | *project completion.* |  |  |  |  |  |  |  |  |  |  |
|  |  |  |  |  |  |  |  |  |  | *related units.* |  |  |  |  |  |  |  |  |
|  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |
|  | ***OPERATIONAL*** |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |
|  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |
|  | ***STAGE*** |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |
|  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |
|  | ***1. Air Quality*** |  |  | *Minimize air quality* |  |  | *No significant Impacts Tranche 1.Monitor designs and plans for all future* | |  |  | *Operational phase* |  |  | *all subprojects in future* |  |  | *ES MEPCO* |  |  | *MEPCO* |  |  |
|  |  |  |  |  |  |  |  |  |  |  |
|  |  |  | *impacts* |  |  | *tranches.* | |  |  |  |  | *Tranches* |  |  |  |  |  | *ESU* |  |  |
|  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |
|  | ***2.Noise*** |  |  | *Minimize noise impacts* |  |  | *No significant Impacts Tranche 1. Acoustic designs checking and plan for* | |  |  | *Operational phase* |  |  | *all subprojects in future* |  |  | *ES MEPCO* |  |  | *MEPCO* |  |  |
|  |  |  |  |  |  |  |  |  |  |
|  |  |  |  |  |  | *all future tranches.* | |  |  |  |  |  | *Tranches* |  |  |  |  |  | *ESU* |  |  |
|  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |
|  | ***3. Waste disposal*** |  |  | *Minimize improper* |  |  | *Continue waste management arrangements in operational phase of all* | |  |  | *Operational phase* |  |  | *all subprojects in future* |  |  | *ES MEPCO* |  |  | *MEPCO* |  |  |
|  |  |  |  |  |  |  |  |  |  |
|  |  |  | *waste disposal* |  |  | *subprojects and MEPCO activities.* | |  |  |  |  |  | *Tranches* |  |  |  |  |  | *ESU* |  |  |
|  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |
|  | ***3. Compensatory*** |  |  | *Maintain survival of* |  |  | *Employ landscaping contractor to monitor, water and feed replacement* | |  |  | *Operational phase* |  |  | *all subprojects in future* |  |  | *ES MEPCO* |  |  | *MEPCO* |  |  |
|  | ***tree planting*** |  |  | *trees planted* |  |  | *saplings and replace dead specimens as necessary.* | |  |  |  |  |  | *Tranches* |  |  |  |  |  | *ESU* |  |  |
|  | ***4.Landslides and*** |  |  | *Avoid landslips and loss* |  |  | *No significant Impacts in Tranche 1. Review designs checking and plan for* | |  |  | *Operational phase* |  |  | *all subprojects in future* |  |  | *ES MEPCO* |  |  | *MEPCO* |  |  |
|  | ***soil erosion*** |  |  | *of productive land* |  |  | *all future tranches.* | |  |  |  |  |  | *Tranches* |  |  |  |  |  | *ESU* |  |  |
|  | ***5. Water quality*** |  |  | *Minimize water quality* |  |  | *No significant Impacts in Tranche 1. Review designs checking and plan for* | |  |  | *Operational phase* |  |  | *all subprojects in future* |  |  | *ES MEPCO* |  |  | *MEPCO* |  |  |
|  |  |  |  |  |  |  |  |  |  |
|  |  |  | *impacts* |  |  | *all future tranches.* | |  |  |  |  |  | *tranches* |  |  |  |  |  | *ESU* |  |  |
|  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |
|  |  |  |  | *Monitor impacts from* |  |  |  |  |  |  | *Operational phase* |  |  |  |  |  | *ES MEPCO* |  |  | *MEPCO* |  |  |
|  | ***6 Crops and*** |  |  | *maintaining tree* |  |  | *Track growth of large trees under the conductors.* | |  |  |  |  |  | *all subprojects in future* |  |  |  |  |  | *ESU* |  |  |
|  | ***vegetation*** |  |  | *clearance under* |  |  |  |  |  |  |  | *tranches* |  |  |  |  |  |  |  |  |
|  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |
|  |  |  |  | *transmission lines* |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |
|  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |



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*Power Distribution Enhancement Multi-Tranche Financing Facility Tranche-4 MEPCO New 132KV Punjab Government Employees Housing Society (PGEHS) Grid Station and 132KV associated Transmission Line*

***Initial Environmental Examination***

|  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- |
|  | **Environmental** | |  | ***Objectives*** |  |  | **Mitigation Measures recommended** | |  | **Timing to implement** |  |  | **Locations to implement MM** | |  | ***Resp Imp MM*** | |  | **Resp mon** |  |
|  | **concern** | |  |  |  |  | **MM** |  |  |  |  | **MM** |  |
|  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |
|  |  |  |  | *Ensure no* |  |  |  |  |  | *Operational phase* |  |  |  |  |  |  |  |  | *MEPCO* |  |
|  |  |  |  | *encroachments /* |  |  | *Necessary signboards with limits of height clearances to be placed all along* |  |  |  |  |  |  |  |  |  |  |  | *ESU* |  |
|  | ***7. Social safety*** |  |  | *construction under the* |  |  | *the line.* |  |  |  |  |  | *all subprojects in future* |  |  | *ES MEPCO* |  |  |  |  |
|  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |
|  | ***Impacts*** |  |  | *transmission line. No* |  |  | *Identify and prevent any illegal encroachments under the transmission* |  |  |  |  |  | *tranches* |  |  |  |  |  |  |
|  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |
|  |  |  |  | *violation of clearance* |  |  | *lines..* |  |  |  |  |  |  |  |  |  |  |  |  |  |
|  |  |  |  | *spaces.* |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |

*LARP = Land acquisition and resettlement plan. AP = Affected Persons. LAC = Local Authority Council. TD = Temporary drainage. EC = Erosion control. WM = waste management. CSC = Construction supervision consultant or equivalent. TL = Transmission line. GSS = Grid substation NEQS = National Environmental Quality Standards.*

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*Power Distribution Enhancement Multi-Tranche Financing Facility Tranche-4 MEPCO New 132KV Punjab Government Employees Housing Society (PGEHS) Grid Station and 132KV associated Transmission Line*

|  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- |
|  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  | ***Initial Environmental Examination*** | | |  |
|  |  |  |  | **APPENDIX – III:** | | | | **MONITORING PLAN FOR PERFORMANCE INDICATORS** | | | | | | | | | | | | | |  |  |  |  |  |  |
|  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |
|  | **Environmental** |  |  | **Performance indicator** |  |  | **Frequency to** |  |  |  | **Timing to check** |  |  | **Locations to** |  |  | **Responsible** |  |  | **Cost of** | |  |  | **Resp PI** |  | **Cost of** |  |
|  | **concern** |  |  | **(PI)** |  |  | **monitor** |  |  |  | **PI** |  |  | **implement PI** |  |  | **to implement** |  |  | **Implementatio** | |  |  | **supervision** |  | **Supervision** |  |
|  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  | **PI** |  |  | **n** | |  |  |  |  |  |  |
|  | ***DESIGN and PRE-*** |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |
|  | ***CONSTRUCTION*** |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |
|  | ***STAGE*** |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |
|  | **1. Review of** |  |  | Environmental |  |  | During detailed |  |  |  | By completion of |  |  | All project |  |  | Contractor |  |  | Initially |  |  |  | DISCO’S, |  | ESIC cell staff cost |  |
|  | **EMAP** |  |  | Management Action Plan |  |  | design (later monthly | |  |  | detailed design. |  |  | alignment |  |  |  |  |  | DISCO’S Cell / |  |  |  | ESIC cell / |  |  |  |
|  |  |  |  |  | by Contractor to |  |  |  |  |  |  |  |  |  |  | later Contractor |  |  |  | ADB\* |  |  |  |
|  |  |  |  | (EMAP) is reviewed |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |
|  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |
|  |  |  |  |  |  | cover any unidentified | |  |  |  |  |  |  |  |  |  |  |  | cost |  |  |  |  |  |  |  |
|  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |
|  |  |  |  |  |  |  | impacts) |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |
|  | **2. Social Impacts** |  |  | Inventory of losses, |  |  | *Completed prior to* | |  |  | Before removal of |  |  | APs according |  |  | DISCO’S Cell |  |  | DISCO’S Cell |  |  |  | DISCO’S |  | ESIC cell staff cost |  |
|  | **and** |  |  | Property acquisition, |  |  | *commencement of* | |  |  | houses and |  |  | to RP & LAFC. |  |  |  |  |  | staff cost |  |  |  | /ADB\* |  |  |  |
|  | **Resettlement** |  |  | compensation and |  |  | *construction* |  |  |  | structures. |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |
|  |  |  |  | resettlement completed to |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |
|  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |
|  |  |  |  | RP requirements. |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |
|  | **3. Project** |  |  | Design changes notified |  |  | During detailed |  |  |  | Completion of |  |  | All project |  |  | Contractor |  |  | Contractor cost |  |  |  | DISCO’S & |  | ESIC cell staff cost |  |
|  | **disclosure** |  |  |  |  |  | design by Contractor | |  |  | detailed design. |  |  | alignment. |  |  |  |  |  |  |  |  |  | ESIC cell / |  |  |  |
|  |  |  |  |  |  |  | to cover any access | |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  | ADB\* |  |  |  |
|  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |
|  |  |  |  |  |  |  | roads and alignment | |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |
|  |  |  |  |  |  |  | changes, additional | |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |
|  |  |  |  |  |  |  | Villages. |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |
|  | **4.** |  |  | Contract follows ADB |  |  | Once, before |  |  |  | Before Contract is |  |  | Method |  |  | DISCO’S |  |  | Contractor cost |  |  |  | DISCO’S |  | DISCO’S Cell staff |  |
|  | **Environmentall** |  |  | Guidelines on ERP. |  |  | Contract is signed. | |  |  | signed. |  |  | Statements |  |  | Project Cell. |  |  |  |  |  |  | ESIC cell / |  | cost |  |
|  | **y Responsible** |  |  | Performance bond. |  |  |  |  |  |  |  |  |  | include |  |  |  |  |  |  |  |  |  | ADB\*. |  |  |  |
|  | **Procurement.** |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |
|  |  |  | Deposited |  |  |  |  |  |  |  |  |  | resources for |  |  |  |  |  |  |  |  |  |  |  |  |  |
|  | **(ERP)** |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |
|  |  |  | Contractual clauses |  |  |  |  |  |  |  |  |  | mitigation |  |  |  |  |  |  |  |  |  |  |  |  |  |
|  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |
|  |  |  |  |  |  |  |  |  |  |  |  |  | measures. |  |  |  |  |  |  |  |  |  |  |  |  |  |
|  |  |  |  | include implementation of |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |
|  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |
|  |  |  |  | environmental mitigation |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |
|  |  |  |  | measures tied to a |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |
|  |  |  |  | *performance bond*. |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |
|  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  | |  |  |  |  |  |  |
|  | **5. Waste disposal** |  |  | Disposal options for all |  |  | Monthly or as |  |  |  | 1.Prior to detailed |  |  | Locations |  |  | DISCO’S cell |  |  | ESIC cell |  |  |  | ESIC cell |  | DISCO’S |  |
|  |  |  |  | waste transformer oil, |  |  | required in waste | |  |  | design stage no |  |  | approved by |  |  | with the design |  |  |  |  |  |  |  |  |  |  |
|  |  |  |  | residually contaminated |  |  | management plan to | |  |  | later than pre- |  |  | local waste |  |  | consultant. |  |  |  |  |  |  |  |  |  |  |
|  |  |  |  | soils, scrap metal agreed |  |  | identify sufficient | |  |  | qualification or |  |  | disposal |  |  |  |  |  |  |  |  |  |  |  |  |  |
|  |  |  |  | with DISCO’S and local |  |  | locations for, storage | |  |  | tender negotiations |  |  | authorities. |  |  |  |  |  |  |  |  |  |  |  |  |  |
|  |  |  |  | authority.. |  |  | and reuse of |  |  |  | 2. Include in |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |
|  |  |  |  |  |  |  | transformers and | |  |  | contract. |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |
|  |  |  |  |  |  |  | recycling of breaker | |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |
|  |  |  |  |  |  |  | oils and disposal of | |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |
|  |  |  |  |  |  |  | transformer oil, |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |

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*Power Distribution Enhancement Multi-Tranche Financing Facility Tranche-4 MEPCO New 132KV Punjab Government Employees Housing Society (PGEHS) Grid Station and 132KV associated Transmission Line*

***Initial Environmental Examination***

|  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- |
|  | **Environmental** | |  | **Performance indicator** | |  | **Frequency to** |  |  | **Timing to check** | |  | **Locations to** | | **Responsible** | **Cost of** | | |  | **Resp PI** | | **Cost of** |  |
|  | **concern** | |  | **(PI)** | |  | **monitor** |  |  | **PI** | |  | **implement PI** | | **to implement** | **Implementatio** | | |  | **supervision** | | **Supervision** |  |
|  |  |  |  |  |  |  |  |  |  |  |  |  |  |  | **PI** | **n** | | |  |  |  |  |  |
|  |  |  |  |  |  |  | residually |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |
|  |  |  |  |  |  |  | contaminated soils |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |
|  |  |  |  |  |  |  | and scrap metal |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |
|  |  |  |  |  |  |  | “cradle to grave”. |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |
|  |  |  |  |  |  |  | 2. Include in contracts |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |
|  |  |  |  |  |  |  | for unit rates for re- |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |
|  |  |  |  |  |  |  | measurement for |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |
|  |  |  |  |  |  |  | disposal. |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |
|  |  |  |  |  |  |  | 3. After agreement |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |
|  |  |  |  |  |  |  | with local authority, |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |
|  |  |  |  |  |  |  | designate disposal |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |
|  |  |  |  |  |  |  | sites in the contract |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |
|  |  |  |  |  |  |  | and cost unit disposal |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |
|  |  |  |  |  |  |  | rates accordingly. |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |
|  | **6. Noise and air** |  |  | Design changes included |  |  | During detailed |  |  | Completion of |  |  | As defined in |  | DISCO’S Cell / | Contractor cost |  |  |  | DISCO’S / |  | DISCO’S Cell staff |  |
|  | **quality** |  |  | in EIA (supplementary) & |  |  | design by Contractor. |  |  | detailed design. |  |  | EIA |  | Contractor |  |  |  |  | /ADB\* |  | cost |  |
|  | **mitigation in** |  |  | EMAP approved by |  |  |  |  |  |  |  |  | (supplementar |  |  |  |  |  |  |  |  |  |  |
|  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |
|  | **design.** |  |  | MOEST. |  |  |  |  |  |  |  |  | y) & EMAP. |  |  |  |  |  |  |  |  |  |  |
|  | **7. Hydrological** |  |  | Temporary Drainage |  |  | During detailed |  |  | One month before |  |  | Considered |  | Contractor | Contractor cost |  |  |  | DISCO’S / |  | DISCO’S Cell staff |  |
|  | **Impacts** |  |  | Management plan. |  |  | design by Contractor |  |  | commencement of |  |  | locations to be |  |  |  |  |  |  | and |  | cost |  |
|  |  |  |  |  |  |  | and monthly to cover |  |  | construction |  |  | as identified in |  |  |  |  |  |  | DISCO’S |  |  |  |
|  |  |  |  |  |  |  | any unidentified |  |  |  |  |  | the Detailed |  |  |  |  |  |  | Project Cell. |  |  |  |
|  |  |  |  |  |  |  | impacts |  |  |  |  |  | Drainage |  |  |  |  |  |  |  |  |  |  |
|  |  |  |  |  |  |  |  |  |  |  |  |  | Report. |  |  |  |  |  |  |  |  |  |  |
|  | **9. Temporary** |  |  | Erosion Control and |  |  | During detailed |  |  | One month before |  |  | All stream and |  | Contractor. | Contractor cost |  |  |  | DISCO’S / |  | DISCO’S Cell staff |  |
|  | **drainage and** |  |  | Temporary Drainage |  |  | design updated by |  |  | construction |  |  | river crossings |  |  |  |  |  |  | and |  | cost |  |
|  | **erosion control** |  |  | completed. |  |  | Contractor monthly to |  |  | commences. |  |  | and where |  |  |  |  |  |  | DISCO’S |  |  |  |
|  |  |  |  |  |  |  | cover any unidentified |  |  |  |  |  | slopes indicate |  |  |  |  |  |  | Project Cell. |  |  |  |
|  |  |  |  |  |  |  | impacts. |  |  |  |  |  | erosion will be |  |  |  |  |  |  |  |  |  |  |
|  |  |  |  |  |  |  |  |  |  |  |  |  | a problem. |  |  |  |  |  |  |  |  |  |  |
|  | **10. Planning** |  |  | Use of land agreed with |  |  | During detailed |  |  | One month before |  |  | Locations |  | Contractor | Contractor cost |  |  |  | DISCO’S / |  | DISCO’S Cell staff |  |
|  | **construction** |  |  | surrounding residents & |  |  | design updated by |  |  | construction |  |  | agreed |  | DISCO’S Cell |  |  |  |  | and |  | cost |  |
|  | **camps** |  |  | Villages. |  |  | Contractor monthly to |  |  | commences. |  |  | DISCO’S cell |  | facilitates. |  |  |  |  | DISCO’S |  |  |  |
|  |  |  |  |  |  |  | cover any unidentified |  |  |  |  |  | in consultation |  |  |  |  |  |  | Project Cell. |  |  |  |
|  |  |  |  |  |  |  | impacts. |  |  |  |  |  | with |  |  |  |  |  |  |  |  |  |  |
|  |  |  |  |  |  |  |  |  |  |  |  |  | community and |  |  |  |  |  |  |  |  |  |  |
|  |  |  |  |  |  |  |  |  |  |  |  |  | the Contractor. |  |  |  |  |  |  |  |  |  |  |
|  | **13.Traffic** |  |  | Temporary Pedestrian |  |  | During detailed |  |  | One month before |  |  | Locations |  | Contractor | Contractor cost |  |  |  | DISCO’S / |  | DISCO’S Cell staff |  |
|  | **Condition** |  |  | and Traffic Management |  |  | design updated by |  |  | construction |  |  | agreed with |  |  |  |  |  |  | and |  | cost |  |
|  |  |  |  |  |  |  | commences. |  |  | DISCO’S cell |  |  |  |  |  |  | DISCO’S |  |  |  |
|  |  |  |  | Plan agreed. |  |  | Contractor monthly to |  |  |  |  |  |  |  |  |  |  |  |  |  |
|  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |
|  |  |  |  |  |  |  |  |  |  |  | in consultation |  |  |  |  |  |  | Project Cell. |  |  |  |
|  |  |  |  |  |  |  | cover any unidentified |  |  |  |  |  |  |  |  |  |  |  |  |  |  |
|  |  |  |  |  |  |  | impacts. |  |  |  |  |  | with |  |  |  |  |  |  |  |  |  |  |
|  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |

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*Power Distribution Enhancement Multi-Tranche Financing Facility Tranche-4 MEPCO New 132KV Punjab Government Employees Housing Society (PGEHS) Grid Station and 132KV associated Transmission Line*

***Initial Environmental Examination***

|  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- |
|  | **Environmental** | |  | **Performance indicator** | |  | **Frequency to** | |  | **Timing to check** | |  | **Locations to** |  |  | **Responsible** | | **Cost of** | | |  | **Resp PI** | |  | **Cost of** | |  |
|  | **concern** | |  | **(PI)** | |  | **monitor** | |  | **PI** | |  | **implement PI** |  |  | **to implement** | | **Implementatio** | | |  | **supervision** | |  | **Supervision** | |  |
|  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  | **PI** | | **n** | | |  |  |  |  |  |  |  |
|  |  |  |  |  |  |  |  |  |  |  |  |  | community and |  |  |  |  |  |  |  |  |  |  |  |  |  |  |
|  |  |  |  |  |  |  |  |  |  |  |  |  | the Contractor. |  |  |  |  |  |  |  |  |  |  |  |  |  |  |
|  | **15. Institutional** |  | 1. | Strengthening plan |  |  | 1. Once, |  |  | 1. As soon as |  |  | Throughout the |  |  | DISCO’S |  | DISCO’S Cell |  |  |  | DISCO’S / |  |  | /ADB cost of IES & |  |  |
|  | **strengthening and** |  |  | agreed for DISCO’S cell. |  |  | 2. Once |  |  | practicable |  |  | project |  |  | Project Cell. |  | staff cost |  |  |  | and /ADB\*. |  |  | support for 1 month |  |  |
|  | **capacity building** |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  | ***US$25,000*** |  |  |
|  |  | 2. | International environment |  |  | 3. Ongoing |  |  | 2, 3, 4. No later |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |
|  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |
|  |  |  |  | specialist (IES) |  |  |  |  | than one month |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |
|  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |
|  |  |  |  |  |  | 4. Ongoing |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |
|  |  |  |  |  |  |  |  |  | before Contract |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |
|  |  |  | 3. | Increase staffing of |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |
|  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |
|  |  |  |  |  |  |  |  | award. |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |
|  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |
|  |  |  |  | DISCO’S Cell. |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |
|  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |
|  |  |  | 4 | . Train DISCO’S Cell |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |
|  |  |  |  | officials. |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |
|  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |
|  | ***CONSTRUCTION*** |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |
|  | ***STAGE*** |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |
|  | **1.Orientation for** |  |  | 1. Contractor agreed to |  |  | 1. Once |  |  | 1. Before contract |  |  | All BOT staff |  |  | Contractor with |  | Contractor cost |  |  |  | DISCO’S |  |  | DISCO’S Cell staff |  |  |
|  | **Contractor, and** |  |  | provide training to |  |  | 2. Ongoing |  |  | is signed |  |  | members in all |  |  | IES assistance |  |  |  |  |  | and |  |  | cost |  |  |
|  | **Workers** |  |  | professional staff and |  |  | 3. Ongoing |  |  | 2. Before |  |  | categories. |  |  | and record |  |  |  |  |  | DISCO’S to |  |  |  |  |  |
|  |  |  |  | workers. |  |  |  |  |  | construction areas |  |  | monthly |  |  | details. |  |  |  |  |  | observe and |  |  |  |  |  |
|  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |
|  |  |  |  | 2. Special briefing and |  |  |  |  |  | are opened up |  |  | induction and |  |  |  |  |  |  |  |  | record |  |  |  |  |  |
|  |  |  |  | training for Contractor |  |  |  |  |  | 3. Every six |  |  | six month |  |  |  |  |  |  |  |  | success |  |  |  |  |  |
|  |  |  |  | completed. |  |  |  |  |  | months |  |  | refresher |  |  |  |  |  |  |  |  |  |  |  |  |  |  |
|  |  |  |  | 3. Periodic progress |  |  |  |  |  |  |  |  | course |  |  |  |  |  |  |  |  |  |  |  |  |  |  |
|  |  |  |  | review sessions. |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |
|  | **2. Plans to control** |  | 1. | Drainage Management |  |  | Deliverable in final |  |  | One month before |  |  | All of DISCO’S |  |  | Contractor |  | Contractor cost |  |  |  | DISCO’S |  |  | DISCO’S Cell staff |  |  |
|  | **environmental** |  | plan | |  |  | form to DISCO’S cell |  |  | construction |  |  | alignment. |  |  |  |  |  |  |  |  | Project Cell. |  |  | cost |  |  |
|  | **impacts** |  | 2. | Temp. Pedestrian & |  |  | one month before |  |  | commences. |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |
|  |  |  |  | Traffic Management plan, |  |  | construction |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |
|  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |
|  |  |  | 3. | Erosion Control & Temp. |  |  | commences for any |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |
|  |  |  |  | Drainage plan |  |  | given stretch. |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |
|  |  |  | 4. | Materials Management |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |
|  |  |  | plan, | |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |
|  |  |  | 5. Waste Management | |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |
|  |  |  | plan; | |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |
|  |  |  | 6. | Noise and Dust Control |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |
|  |  |  | plan, | |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |
|  |  |  | 7. | Safety Plan |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |
|  |  |  | 8. | Agreed schedule of costs |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |
|  |  |  | for environmental | |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |
|  |  |  |  | mitigation.*{N.B. Forest* |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |
|  |  |  |  | *Clearance and* |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |
|  |  |  |  | *Compensatory Planting* |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |
|  |  |  | *plan is prepared by* | |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |



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*Power Distribution Enhancement Multi-Tranche Financing Facility Tranche-4 MEPCO New 132KV Punjab Government Employees Housing Society (PGEHS) Grid Station and 132KV associated Transmission Line*

***Initial Environmental Examination***

|  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- |
|  | **Environmental** | |  | **Performance indicator** |  |  | **Frequency to** | |  | **Timing to check** | |  | **Locations to** | | **Responsible** | **Cost of** | | |  | **Resp PI** | |  | **Cost of** | |  |
|  | **concern** | |  | **(PI)** |  |  | **monitor** | |  | **PI** | |  | **implement PI** | | **to implement** | **Implementatio** | | |  | **supervision** | |  | **Supervision** | |  |
|  |  |  |  |  |  |  |  |  |  |  |  |  |  |  | **PI** | **n** | | |  |  |  |  |  |  |  |
|  |  |  |  | *DISCO’S cell}* |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |
|  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |
|  | **5. Water quality** |  |  | Meaningful water quality |  |  | Once (line item when |  |  | During detailed |  |  | Locations to be |  | Independent | Contractor cost |  |  |  | DISCO’S / |  |  | DISCO’S Cell staff |  |  |
|  |  |  |  | monitoring up and |  |  | opening up |  |  | design by |  |  | provided with |  | experienced |  |  |  |  | DISCO’S |  |  | cost |  |  |
|  |  |  |  | downstream during |  |  | construction near |  |  | Contractor and |  |  | the detailed |  | laboratory. |  |  |  |  | Cell. |  |  |  |  |  |
|  |  |  |  | construction within 100m |  |  | water bodies). |  |  | update to cover |  |  | designs |  |  |  |  |  |  |  |  |  |  |  |  |
|  |  |  |  | of rivers. Rapid reporting |  |  |  |  |  | any unidentified |  |  | including all |  |  |  |  |  |  |  |  |  |  |  |  |
|  |  |  |  | and feedback by |  |  |  |  |  | impacts. |  |  | bridges during |  |  |  |  |  |  |  |  |  |  |  |  |
|  |  |  |  | DISCO’S. |  |  |  |  |  |  |  |  | construction |  |  |  |  |  |  |  |  |  |  |  |  |
|  |  |  |  |  |  |  |  |  |  |  |  |  | within 100m of |  |  |  |  |  |  |  |  |  |  |  |  |
|  |  |  |  |  |  |  |  |  |  |  |  |  | rivers |  |  |  |  |  |  |  |  |  |  |  |  |
|  | **6. Water** |  |  | 1. Availability of water |  |  | 1. Monthly |  |  | Prior to submission |  |  | All local water |  | Contractor | Contractor cost |  |  |  | DISCO’S |  |  | DISCO’S Cell staff |  |  |
|  | **Resources** |  |  | acceptable to community. |  |  | 2. Monthly |  |  | of progress |  |  | supply |  |  |  |  |  |  | and |  |  | cost |  |  |
|  |  |  |  | No complaints. |  |  |  |  |  | reports. |  |  | resources and |  |  |  |  |  |  | DISCO’S |  |  |  |  |  |
|  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |
|  |  |  |  | 2. Guidelines established |  |  |  |  |  |  |  |  | rivers. |  |  |  |  |  |  | Cell |  |  |  |  |  |
|  |  |  |  | to minimize the water |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |
|  |  |  |  | wastage during |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |
|  |  |  |  | construction operations |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |
|  |  |  |  | and at worker camps. |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |
|  | **8. Spoil disposal** |  |  | 1. Use of land agreed with |  |  | Monthly (line item |  |  | Prior to |  |  | All DISCO’S |  | Contractor | Contractor cost |  |  |  | DISCO’S |  |  | DISCO’S Cell staff |  |  |
|  | **and construction** |  |  | surrounding residents & |  |  | when opening up |  |  | construction. |  |  | alignment. |  |  |  |  |  |  | and |  |  | cost |  |  |
|  | **waste disposal** |  |  | Villages. |  |  | construction). |  |  | Update monthly. |  |  |  |  |  |  |  |  |  | DISCO’S |  |  |  |  |  |
|  |  |  |  | 2. Waste Management |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  | Cell |  |  |  |  |  |
|  |  |  |  | Plan implemented. |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |
|  |  |  |  | 3 No open burning |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |
|  | **10. Noise** |  |  | Noise mitigation measures |  |  | Monthly (line item |  |  | Maximum |  |  | All DISCO’S |  | Contractor | Contractor cost |  |  |  | DISCO’S / |  |  | DISCO’S Cell staff |  |  |
|  |  |  |  | implemented in line with |  |  | when opening up |  |  | allowable noise |  |  | alignment. |  | should |  |  |  |  | DISCO’S |  |  | cost |  |  |
|  |  |  |  | guidelines for noise |  |  | construction). |  |  | levels are |  |  |  |  | maintain the |  |  |  |  | Project Cell |  |  |  |  |  |
|  |  |  |  | reduction from |  |  |  |  |  | 45dB(A)LEQ. |  |  |  |  | accepted |  |  |  |  | will monitor |  |  |  |  |  |
|  |  |  |  | ISO/TR11688-1:1995(E) |  |  |  |  |  |  |  |  |  |  | standards |  |  |  |  | sample |  |  |  |  |  |
|  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  | activities. |  |  |  |  |  |
|  | **11. Air quality** |  |  | Noise and dust control |  |  | Monthly (line item |  |  | Prior to |  |  | All DISCO’S |  | Contractor | Contractor cost |  |  |  | DISCO’S |  |  | DISCO’S Cell staff |  |  |
|  |  |  |  | plan implemented. |  |  | when opening up |  |  | construction. |  |  | alignment. |  |  |  |  |  |  | and |  |  | cost |  |  |
|  |  |  |  |  |  |  | construction). |  |  | Update monthly. |  |  |  |  |  |  |  |  |  | DISCO’S |  |  |  |  |  |
|  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  | Cell |  |  |  |  |  |
|  | **13..Soil** |  |  | Contractors workforce to |  |  | Monthly (line item |  |  | Prior to |  |  | All DISCO’S |  | Contractor | Contractor cost |  |  |  | DISCO’S |  |  | DISCO’S Cell staff |  |  |
|  | **Contamination** |  |  | instructed and train |  |  | when opening up |  |  | construction. |  |  | alignment. |  |  |  |  |  |  | and |  |  | cost |  |  |
|  |  |  |  | handling of chemicals |  |  | construction). |  |  | Update monthly. |  |  |  |  |  |  |  |  |  | DISCO’S |  |  |  |  |  |
|  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |
|  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  | Cell |  |  |  |  |  |
|  | **14. Work Camp** |  |  | 1. Use of land agreed with |  |  | Monthly (line item |  |  | Prior to |  |  | All DISCO’S |  | Contractor | Contractor cost |  |  |  | DISCO’S |  |  | DISCO’S Cell staff |  |  |
|  | **Location and** |  |  | surrounding residents & |  |  | when opening up |  |  | construction. |  |  | alignment. |  |  |  |  |  |  | and |  |  | cost |  |  |
|  | **Operation** |  |  | Villages. |  |  | construction). |  |  | Update monthly. |  |  |  |  |  |  |  |  |  | DISCO’S |  |  |  |  |  |
|  |  |  |  | 2. Waste Management |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  | Cell |  |  |  |  |  |

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*Power Distribution Enhancement Multi-Tranche Financing Facility Tranche-4 MEPCO New 132KV Punjab Government Employees Housing Society (PGEHS) Grid Station and 132KV associated Transmission Line*

***Initial Environmental Examination***

|  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- |
|  | **Environmental** | |  | **Performance indicator** |  |  | **Frequency to** | |  | **Timing to check** | |  | **Locations to** | | **Responsible** | **Cost of** | | |  | **Resp PI** | |  | **Cost of** | |  |
|  | **concern** | |  | **(PI)** |  |  | **monitor** | |  | **PI** | |  | **implement PI** | | **to implement** | **Implementatio** | | |  | **supervision** | |  | **Supervision** | |  |
|  |  |  |  |  |  |  |  |  |  |  |  |  |  |  | **PI** | **n** | | |  |  |  |  |  |  |  |
|  |  |  |  | Plan implemented. |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |
|  |  |  |  | 3 No open burning |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |
|  | **19. Safety** |  |  | Safety Plan submitted |  |  | Once (update |  |  | One month before |  |  | All DISCO’S |  | Contractor. | Contractor cost |  |  |  | *DISCO’S /* |  |  | DISCO’S Cell staff |  |  |
|  | **Precautions for** |  |  |  |  |  | monthly as |  |  | construction and |  |  | alignment. |  |  |  |  |  |  | (ESIC cell to |  |  | cost |  |  |
|  | **Workers** |  |  |  |  |  | necessary) |  |  | update quarterly. |  |  |  |  |  |  |  |  |  | actively |  |  |  |  |  |
|  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  | supervise |  |  |  |  |  |
|  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |
|  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  | and enforce. |  |  |  |  |  |
|  | **20. Social Impacts** |  |  | 1. Local labour is used |  |  | Monthly (line item |  |  | During |  |  | All DISCO’S |  | Contractor | Contractor cost |  |  |  | DISCO’S |  |  | DISCO’S Cell staff |  |  |
|  |  |  |  | and workforce |  |  | when opening up |  |  | construction. |  |  | alignment. |  |  |  |  |  |  | and |  |  | cost |  |  |
|  |  |  |  | 2. Local educated people |  |  | construction). |  |  | Update monthly. |  |  |  |  |  |  |  |  |  | DISCO’S |  |  |  |  |  |
|  |  |  |  | for office work. |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  | Cell |  |  |  |  |  |
|  |  |  |  | 3. Complaints on |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |
|  |  |  |  | construction nuisance |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |
|  |  |  |  | damages close to ROW |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |
|  |  |  |  | are responded to promptly |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |
|  |  |  |  | by the Contractor. |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |
|  |  |  |  | 4. Quarterly meetings with |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |
|  |  |  |  | local VILLAGE for liaison |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |
|  |  |  |  | purposes to monitor |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |
|  |  |  |  | complaints. |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |
|  | **21.** |  |  | Contractor has included |  |  | Once (update |  |  | One month before |  |  | All DISCO’S |  | Contractor. | Contractor cost |  |  |  | *DISCO’S /* |  |  | DISCO’S Cell staff |  |  |
|  | **Enhancements** |  |  | for some enhancements in |  |  | monthly as |  |  | construction and |  |  | alignment. |  |  |  |  |  |  | (DISCO’S |  |  | cost |  |  |
|  |  |  |  | detailed designs Including |  |  | necessary) |  |  | update quarterly. |  |  |  |  |  |  |  |  |  | Cell to |  |  |  |  |  |
|  |  |  |  | planting of trees in |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  | actively |  |  |  |  |  |
|  |  |  |  | addition to bioengineering |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  | supervise |  |  |  |  |  |
|  |  |  |  | such as in median |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  | and enforce. |  |  |  |  |  |
|  | ***OPERATIONAL*** |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  | DISCO’S Cell staff |  |  |
|  | ***STAGE*** |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  | cost |  |  |
|  | ***1. Air Quality*** |  |  | *1. Roadworthiness of* |  |  | *1. Roadworthiness of* |  |  | *During operation.* |  |  | 5 locations on |  | Contractor | Contractor cost |  |  |  | DISCO’S / |  |  | DISCO’S Cell staff |  |  |
|  |  |  |  | *vehicles on DISCO’S.* |  |  | *vehicles on DISCO’S* |  |  |  |  |  | DISCO’S |  |  |  |  |  |  | and ESIC |  |  | cost |  |  |
|  |  |  |  | *2. Monitor NO2 and PM10* |  |  | *Daily during* |  |  |  |  |  | alignment |  |  |  |  |  |  | Cell |  |  |  |  |  |
|  |  |  |  | *as indicators.* |  |  | *operations* |  |  |  |  |  | nearest |  |  |  |  |  |  |  |  |  |  |  |  |
|  |  |  |  |  |  |  | *2. Yearly intervals for* |  |  |  |  |  | settlements. |  |  |  |  |  |  |  |  |  |  |  |  |
|  |  |  |  |  |  |  | *3 years after opening* |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |
|  |  |  |  |  |  |  | *for reassurance.* |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |
|  | **2. crops and** |  |  | 1. Follow up on Tree |  |  | 1) Quarterly |  |  | 1) Throughout |  |  | All DISCO’S |  | Contractor | ESIC Cell |  |  |  | DISCO’S |  |  | MOFSC and |  |  |
|  | **vegetation** |  |  | Clearance and |  |  | 2) Quarterly |  |  | project |  |  | alignment. |  |  |  |  |  |  |  |  |  | DISCO’S Cell staff |  |  |
|  |  |  |  | Compensatory Planting |  |  | 3) Quarterly |  |  | 2) Each of three |  |  |  |  |  |  |  |  |  |  |  |  | cost. |  |  |
|  |  |  |  | Plan. |  |  | 4) Quarterly |  |  | years after initial |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |
|  |  |  |  | 2. Records on survival of |  |  |  |  |  | planting. |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |
|  |  |  |  | planted trees. |  |  |  |  |  | 3) Continuous for |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |
|  |  |  |  | 3. The compensatory |  |  |  |  |  | three years after |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |

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*Power Distribution Enhancement Multi-Tranche Financing Facility Tranche-4 MEPCO New 132KV Punjab Government Employees Housing Society (PGEHS) Grid Station and 132KV associated Transmission Line*

***Initial Environmental Examination***

|  |  |  |  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- | --- | --- | --- |
| **Environmental** | **Performance indicator** | **Frequency to** | **Timing to check** | **Locations to** | **Responsible** | **Cost of** | **Resp PI** | **Cost of** |
| **concern** | **(PI)** | **monitor** | **PI** | **implement PI** | **to implement** | **Implementatio** | **supervision** | **Supervision** |
|  |  |  |  |  | **PI** | **n** |  |  |
|  | planting maintained |  | project completion |  |  |  |  |  |
|  | 4. Audited report by ESIC |  | 4) For four years |  |  |  |  |  |
|  | cell for on-site and off-site |  | after initial |  |  |  |  |  |
|  | compensatory planting*.* |  | clearance of the |  |  |  |  |  |
|  |  |  | forest. |  |  |  |  |  |

Note: LAFC = Land Acquisition Compensation Fixation Committee. DDS=Detailed design stage. Based on EIA/IEE reports to be revised at DDS, RAP, SIA and other engineering considerations may change, EIA=environmental impact Assessment. EMP=, Environmental Management Action Plan = Environmental Management Plan, EPA= Environmental Protection Agency, TD = Temporary drainage. EC = Erosion control. NGO = Non-Government Organization.

ADB \* = ADB checks that processes have been completed and signed off by DISCO’S before moving to construction stage.

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***Initial Environmental Examination***

**APPENDIX – IV: MONITORING PLAN (INSTITUTIONAL ARRANGEMENTS)**

DISCO’S have established the Environmental and Social Impacts Cell (ESIC) manned by two professionals and support staff. The DISCO’S instructional arrangement with respect to social and environmental monitoring and implementation is presented as follows:

**INSTITUTIONAL ARRANGEMENTS**

The institutional arrangements of planning and management of the Power Distribution Enhancement Program (or the ADB-funded Power Distribution Enhancement MFF Project) are described as follows:

**Pakistan Electric Power Company (PEPCO)**

The Project Management Unit (PMU), PEPCO is the focal organization based in Lahore responsible for the Power Distribution Enhancement Program, for keeping liaison with the Government of Pakistan and Asian Development Bank (ADB) on behalf of all the DISCOs, and taking care of disbursement of funds (including ADB loan) and technical assistance through Consultants to, and coordination of the Program planning and management activities of the DISCOs.

**List of Distribution Companies (DISCOs)**

The DISCOs included in the ADB-funded MFF Project (the Program) are:

1. PESCO: Peshawar Electric Supply Company, Peshawar, NWFP;
2. IESCO: Islamabad Electric Supply Company, Islamabad;
3. GEPCO: Gujranwala Electric Power Company, Gujranwala, Punjab;
4. LESCO: Lahore Electric Supply Company, Lahore, Punjab;
5. FESCO: Faisalabad Electric Supply Company, Faisalabad, Punjab;
6. MEPCO: Multan Electric Power Company, Multan, Punjab;
7. QESCO: Quetta Electric Supply Company, Quetta, Baluchistan; and,
8. HESCO: Hyderabad Electric Supply Company, Hyderabad, Sindh.

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***Initial Environmental Examination***

**Technical Assistance (Consultants)**

PMU, PEPCO provides technical assistance to all the eight DISCOs through the consultants, based in Lahore:

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***Initial Environmental Examination***

**Distribution Companies (DISCOs)**

DISCO as the implementing agency (IA) bears the overall responsibility for the preparation, implementation and financing of all tasks set out in this LARP, as well as inter-agency coordination required for the implementation of the Subprojects. As such, it takes care of the preparation/updating and implementation of the LARPs and DDRs, and internal monitoring and evaluation activities.

**Planning & Engineering Directorate**

The **P&E Directorate** is responsible for preparation of PC-1s, for preparation of load forecasts and feeder analysis. The division is responsible for preparation of the Energy Loss Reduction (ELR) work orders. Formerly subproject preparation and keeping liaison with the Government of Pakistan and Asian Development Bank (ADB), as the donor of this MFF Project had also been the responsibility of this division. But lately the activity has been shifted to the Office of Chief Engineer Development.

**Chief Engineer Development**

The former **Projects Division** has now been named as the **Office of ChiefEngineer Development (CE (Dev))**, is responsible for the overall planning,management and coordination of the approved Subprojects. The OCED is currently being assisted by the PPTA Consultants (including the Resettlement Experts responsible for LARP/DDR preparation), in preparing the identified Subprojects in line with the ADB Policies, and obtaining approval from the donor ADB. Its major functions include keeping regular liaison with ADB and relevant departments of the federal, provincial and district governments, preparation, updating and implementation of the LARPs and the related monitoring and evaluation activities.

The OCED contains a specially created cell to take care of the safeguards related activities, namely, the **Environmental and Social Cell (ESC),** headed by a Deputy Manager, and assisted by two Assistant Managers, Environment and Social, respectively. The Assistant Manager Social is responsible for the preparation/updating, implementation and internal monitoring of the Subproject LARPs, with assistance from DISCO LAC and PIC Resettlement Expert.

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***Initial Environmental Examination***

The Scope of Work to be handled by the ESC far exceeds the physical and professional ability and capabilities of the incumbents. To support the ESC, to carry out its responsibilities, a Monitoring Consultant should be hired. A Project Implementation Consultant (IC) should also be hired who will also have social and environmental experts to assist MEPCO in revising and updating the LARP as and when required, and then in implementation of the LARP. The Consultants will be provided full logistic support (including office space and field transport) by the DISCO.

**Project Director (GSC)**

The **Project Director (GSC)** is responsible for implementing the approved Subprojects, including construction/improvement of grid stations and transmission lines. This office is headed by the **Project Director (GSC)**, and it will establish Project Implementation Units (PIUs), comprising Engineers and *Patwaris*, at the respective towns of each Subproject. The PD GSC has an in-house Land Acquisition Collector (LAC) to take care of the land acquisition and resettlement activities.

The DISCO LAC, along with field *Patwaris*, in addition to implementation of the LARP activities, will provide in-field assistance to the Resettlement Experts of ESIC and PIC in updating, revision and internal monitoring of the LARPs. He normally works as an independent entity, but in case of local needs like price updating, grievance redress, etc., may involve the local Union Councils and other leaders at the local levels, and/or the District LACs and Province Board of Revenue for addressing broader level matters and resolving permanent Land Acquisition issues (not applicable to this Subproject). He will be provided technical assistance by the Resettlement Experts included in both ESIC and PIC teams.

**District Government**

The district government have jurisdiction for land administration, valuation and acquisition. At the provincial level these functions rest on the Province Board of Revenue while at the district level they rest on the District Land Acquisition Collector (District LAC). Within LAC office the *Patwari* (land records clerk), carry out specific roles such as titles identification and verification required by the MEPCO LAC.

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*Power Distribution Enhancement Multi-Tranche Financing Facility Tranche-4 MEPCO New 132KV Punjab Government Employees Housing Society (PGEHS) Grid Station and 132KV associated Transmission Line.*

***Initial Environmental Examination***

**Responsibility for Internal and External Monitoring**

Land acquisition and resettlement tasks under the Program will be subjected to both internal and external monitoring. Internal monitoring will be conducted by ESC, assisted by DISCO LAC and PIC Resettlement Expert. The external monitoring responsibilities will be assigned to an External Monitoring Consultant (EMC) to be engaged by PMU, PEPCO according to the Terms of Reference (TOR) that have been approved by ADB.

**Summary of Estimated Costs for EMP**

**Implementation for Tranche-4**

|  |  |  |  |  |  |  |  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- |
|  | **Activities** |  |  | **Description** |  |  | **Estimated Cost** | | | |  |  |
|  |  |  |  |  |  |
|  |  |  |  |  | **Pak. Rs.** |  |  | **US $** |  |  |
|  |  |  |  |  |  |  |  |  |  |  |
| Monitoring activities | | |  | As detailed under EMP | | 8312500 | |  | 87,500 | |  |  |
|  |  |  |  |  | |  |  |  |  |  |  |  |
| Mitigation measures | | |  | As prescribed under EMP and | | 2850000 | |  | 30,000 | |  |  |
|  | IEE | |  |  |  |
|  |  |  |  |  |  |  |  |  |  |  |
| Capacity building | | |  | Training for Staff & | | 2185000 | |  | 23,000 | |  |  |
| Program | | |  | Management | |  |  |  |
|  |  |  |  |  |  |  |  |
| Transport | | |  | 1 dedicated vehicle years | | 1784100 | |  | 18,780 | |  |  |
|  | | |  |  | |  | |  |  | |  |  |
| Contingency | | |  | Contingency | | 722000 | |  | 7,600 | |  |  |
|  | | |  |  |  |  | |  |  | |  |  |
| **Total** | | |  |  |  | **15,853,600** | |  | **1,66,880** | |  |  |
|  |  |  |  |  |  |  |  |  |  |  |  |  |

1 US$ = 95 Pak. Rupees

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*Power Distribution Enhancement Multi-Tranche Financing Facility Tranche-4 MEPCO New 132KV Punjab Government Employees Housing Society (PGEHS) Grid Station and 132KV associated Transmission Line.*

***Initial Environmental Examination***

**APPENDIX – V: PHOTOGRAPHIC PROFILE**



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*Power Distribution Enhancement Multi-Tranche Financing Facility Tranche-4 MEPCO New 132KV Punjab Government Employees Housing Society (PGEHS) Grid Station and 132KV associated Transmission Line.*

***Initial Environmental Examination***



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