Palestinian Energy Authority
Electric Utility Management Project

Construction of KV 161/33 Electricity Substations and Distribution Systems

Ramallah Substation and Distribution System
Environmental and Social Management Plan

April 2013
Ramallah, Palestine
# Table of Contents

1. Introduction ................................................................................................................. 5
   1.1 Background ............................................................................................................. 5
   1.2 Scope of the Study ................................................................................................. 6
   1.3 Project Justification ............................................................................................... 6
   1.4 Assessment Methodology ...................................................................................... 7
   1.5 Summary of Stakeholder Consultation .................................................................. 7

2. Project Description ........................................................................................................ 9
   2.1 Project Objective .................................................................................................... 9
   2.2 Project Alternatives ............................................................................................... 9
   2.3 Project Activities ................................................................................................... 10
   2.4 Project Area ........................................................................................................... 11
      2.4.1 Land for the substation .................................................................................... 11
      2.4.2 Distribution System ....................................................................................... 13
      2.4.3 Baseline Data of the project area .................................................................. 14

3. Environmental Legislative and Regulatory Framework ............................................. 17
   3.1 Legal and Geopolitical Conditions ....................................................................... 17
   3.2 EIA System ........................................................................................................... 17
      3.2.1 Ministry of Environmental Affairs (MEnA) .................................................... 17
      3.2.2 Palestinian Environmental Law ..................................................................... 18
      3.2.3 Palestinian Environmental Assessment Policy ............................................... 19
      3.2.4 Laws and Regulations relating to Community Participation to Project Formulation ........................................................................................................... 21
      3.2.5 Laws and Regulations Relating to Environmental Management ................. 22
   3.3 World Bank Project Categories and Safeguard Policies ....................................... 23

4. Stakeholder Consultation ............................................................................................. 29

5. Potential Impacts and Mitigation Measures ............................................................... 32
   5.1 Introduction ............................................................................................................ 32
Construction of KV 161/33 Electricity Sub-Stations and Distribution System in the West Bank (Ramallah Substation)

5.2 Land use ........................................................................................................................................ 34
5.3 Environmental and Social Impacts ................................................................................................. 34
5.4 Construction Phase ......................................................................................................................... 37
5.5 Operation Phase ............................................................................................................................ 42
  5.5.1 Biophysical Impacts .................................................................................................................. 42
  5.5.2 Socio-economic Impacts .......................................................................................................... 45
  5.5.3 Impact on Land use .................................................................................................................. 46
6. Environmental and Social Management Plan ................................................................................ 47
  6.1 Introduction .................................................................................................................................. 47
  6.2 Institutional Setup .......................................................................................................................... 48
  6.3 Grievance and Redressal System .................................................................................................. 49
  6.4 Monitoring of the ESMP .............................................................................................................. 50
7. Conclusions ...................................................................................................................................... 59
8. Annexes ........................................................................................................................................... 61

Annex I: Legal Documents of the Ramallah Substation land purchase deal .................................... 61
Annex II: The Environmental Approval issued by MEnA .................................................................. 67
Annex IV: Minutes of the Consultation Meeting ................................................................................ 70
Annex V: Summary of Stakeholder Consultation for Ramallah Substation Project ...................... 76
Annex VI: Ramallah Substation - Electricity Distribution System .................................................. 79
Annex VII: Follow-up Consultation with THA Regarding Ramallah Substation ............................ 83
Construction of KV 161/33 Electricity Sub-Stations and Distribution System in the West Bank (Ramallah Substation)

Abbreviations

EDC  Electricity Distribution Companies
EA  Environmental Approval
ESIA  Environmental and Social Impact Assessment
EMF  Electro-Magnetic Fields
EMO  Environmental Management Officer
ESMF  Environmental and Social Management Framework
ESMP  Environmental and Social Management Plan
ESO  Environmental Social Officer
EUMAP  Electric Utility Management Project
GRI  Grievance and Redressal Mechanism
IEC  Israeli Electricity Corporation
ICNIRP  International Commission on Non Ionizing Radiation Protection
JDECO  Jerusalem District Electricity Company
MEnA  Ministry of Environment Affairs
MoA  Ministry of Agriculture
MoF  Ministry of Finance
MoH  Ministry of Health
MoL  Ministry of Labor
MoLG  Ministry of Local Government
MoNE  Ministry of National Economy
MoPWH  Ministry of Public Works and Housing
MoP  Ministry of Planning
MoT  Ministry of Transportation
MoTA  Ministry of Tourism and Antiquities
NGO  Non-Governmental Organization
OP/BP  Operational Policy/Bank Procedures
PA  Palestinian Authority
PCB  Poly-Chlorinated Biphenyl
PEL  Palestinian Environment Law
PEAP  Palestinian Environmental Assessment Policy
PEA  Palestinian Energy Authority
PES  Palestinian Environmental Strategy
PERC  Palestinian Energy Research Council
PWA  Palestinian Water Authority
RoW  Right of Way
SCADA  Supervisory Control And Data Acquisition
THA  Teachers Housing Association
1. Introduction

1.1 Background

The main objective of the Project "Construction of KV 161/33 Electricity Sub-Stations and Distribution Systems in the West Bank" is to rehabilitate and expand the electricity networks in the West Bank in order to improve their reliability and performance. The project entails the construction of four new KV 161/33 electricity substations and related distribution lines in the northern, central, and southern areas of the West Bank. The load supplied from most of the existing connecting points (33 KV, 22 KV and 400 V) with Israeli Electricity Corporation (IEC) will be replaced and supplied from the new reconfigured distribution system served under these new 161/33 KV substations.

The planned modification will reduce the purchase electricity tariff paid to IEC, since the new connection points will be at the higher voltage.

The project forms part of the proposed Electric Utility Management Project (EUMP). The aims of the EUMP are to improve the performance of the Palestinian power sector through development of new KV 161/33 electricity substations and distribution systems and institutional strengthening of the Palestinian Energy Authority (PEA) and the Electricity Distribution Companies (EDC).

PEA requested in February/March of 2009 that four new substation locations in the West Bank (in Nablus, Ramallah, Jenin and Hebron) be considered. The locations of the proposed electricity substation sites were selected, among other sites, as to reflect more optimal proximity to electricity load centers and existing connection points.

The proposed site for the construction of Ramallah substation has been purchased based on a willing-buyer willing-seller sale. Jerusalem District Electricity Company (JDECO) bought the land from the Teachers Housing Association (THA) of Al-Ram. **Annex I** lists the legal documents of the deal. The THA did not object annexing these deal documents.

This environmental and social study is mainly to assess the construction of the Ramallah KV 161/33 electricity substation and distribution system at Qalandia site and surrounding demand centers. The study covers the engineering works for the construction of the new high voltage KV 161/33 substation and the related KV 33 distribution system and is to identify the impacts and the required mitigation measures and present these as Environmental and Social Management Plan (ESMP).
1.2 Scope of the Study

The environmental and social management requires that the substation projects to undergo Environmental and Social Impact Assessment (ESIA) at the planning stages and an Environmental Approval (EA) be obtained from the Ministry of Environment Affairs (MEnA). The EA from the MEnA has recently been obtained based on the Environmental Impact Assessment and Management Plan that has been prepared earlier for the project and has been revised and submitted in December 2012 after replying to the comments of MEnA. A copy of the Environmental Approval is annexed as Annex II.

The scope of the ESIA studies cover:

- The baseline environmental conditions of the area,
- Description of the proposed project,
- Provisions of the relevant environmental laws,
- Public participation and consultation
- Identification and discussion of any adverse social and environmental impacts anticipated from the project, appropriate mitigation measures and development of the ESMP.

The ESMP scope covered various activities related to; construction works of the proposed development which includes ground preparation, construction of the KV 161/33 substation and distribution system and operation.

1.3 Project Justification

This project is intended to meet the increase of loads, satisfy the demand of electrical power and energy and regulate the connection points with the IEC; as they are random and unplanned.

In 2009, the EAMP that has been prepared for the construction of the electricity substations and distribution systems in the West Bank and Gaza came as part of the strategic project "Interconnection of the Electrical Networks of “Egypt–Gaza Strip” and “Jordan–West Bank”. Whereas the overall aim of the interconnection is to establish least cost options for establishing an independent electrical network and thereby increase the energy security in Palestine.

The interconnection project is no more part of the EUMP. Specifically, the EUMP consists of the following sub-components:
• Substations: New four KV 161/33 electricity substations.

• Distribution: Supply and delivery of (a) cables, conductors and accessories; (b) transformers, auto-reclosures; (c) high tension and low tension switchgears; (d) equipment for 161 KV sub-stations.

• Institutional: Capacity building of the PEA and the utilities in the West Bank and Gaza to improve collection efficiency of tariffs and service delivery through prepaid metering, implementing necessary sector reforms and design and construction of the proposed electricity substations distribution infrastructure.

1.4 Assessment Methodology

The conventions used for the assessment of project impacts are summarized in Table 1 below. The resulting assessments are structured with emphasis on the proposed Ramallah substation and distribution system. General impacts resulting from the construction and operation of the substation and distribution lines have been included.

1.5 Summary of Stakeholder Consultation

Stakeholder consultation was undertaken among people living along the proposed corridors where the electricity distribution lines are to be constructed and among those living near the proposed site of Ramallah substation. The aim was to ensure that all stakeholder interests were consulted and incorporated in the project development, implementation and operation.

The main consultative meeting was carried out by JDECO in collaboration with PEA on November 2011. The meeting discussed the environmental and social impacts for the substation and the distribution lines. The meeting was organized in Mövenpick Hotel in Ramallah with the presence of the impacted village councils and representatives of relevant ministries. A separate meeting was conducted with the representatives of the THA of Al-Ram, the landowners of the substation proposed site.

The main concerns that were raised in the meetings including those regarding the routings of the distribution lines and that they are not to impact private properties as they are to be underground along the Right of Way (RoW) have been clarified in the meetings. Several questions about the project impacts have been raised and answered in the meetings (Chapter 4). The overall picture emergent from the stakeholder consultations is that the project is seen as being strategic to stabilizing power supply to the area of Ramallah which is crucial to sustained economic growth of the Palestinian people. In order to sustain this
overwhelming public support, project development should proceed simultaneously with consideration of the public and stakeholder concerns. The outcomes and the concerns raised in the meetings were considered in the project designs and will be considered during construction and implementation of Ramallah substation and distribution system.

Table 1: Summary of conventions used for impact assessment

<table>
<thead>
<tr>
<th>Descriptive adjective</th>
<th>Definition</th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>Status:</strong></td>
<td><strong>Nature of the impact</strong></td>
</tr>
<tr>
<td>- Positive</td>
<td>- Beneficial environmental change</td>
</tr>
<tr>
<td>- Negative</td>
<td>- Adverse environmental change</td>
</tr>
<tr>
<td>- Neutral</td>
<td>- Neutral environmental effect</td>
</tr>
<tr>
<td><strong>Extent:</strong></td>
<td><strong>The area affected by the impact</strong></td>
</tr>
<tr>
<td>- Local</td>
<td>- Proposed Development Block</td>
</tr>
<tr>
<td>- Sub-regional</td>
<td>- Surrounding Districts/villages</td>
</tr>
<tr>
<td>- Regional</td>
<td>- Area served by utility</td>
</tr>
<tr>
<td><strong>Duration:</strong></td>
<td><strong>The period over which impacts will continue</strong></td>
</tr>
<tr>
<td>- Short-term</td>
<td>- Within a period of 6 months</td>
</tr>
<tr>
<td>- Medium-term</td>
<td>- Within a period of 6 months to 2 years</td>
</tr>
<tr>
<td>- Long-term</td>
<td>- For the lifecycle of the project</td>
</tr>
<tr>
<td>- Permanent</td>
<td>- Permanent – residual impacts</td>
</tr>
<tr>
<td><strong>Intensity:</strong></td>
<td><strong>The severity of impact on the site</strong></td>
</tr>
<tr>
<td>- Low</td>
<td>- Impact of low severity - minor effects</td>
</tr>
<tr>
<td>- Medium</td>
<td>- Medium severity - major effects</td>
</tr>
<tr>
<td>- High</td>
<td>- High severity impacts</td>
</tr>
<tr>
<td><strong>Probability:</strong></td>
<td><strong>Description of the likelihood of impact occurring</strong></td>
</tr>
<tr>
<td>- Definite</td>
<td>- Definite</td>
</tr>
<tr>
<td>- Highly probable</td>
<td>- Most likely</td>
</tr>
<tr>
<td>- Probable</td>
<td>- Distinct possibility</td>
</tr>
<tr>
<td>- Improbable</td>
<td>- Unlikely to occur</td>
</tr>
<tr>
<td><strong>Confidence:</strong></td>
<td><strong>Degree of confidence in predictions</strong></td>
</tr>
<tr>
<td>- Low</td>
<td>- Poor confidence that predictions will occur</td>
</tr>
<tr>
<td>- Medium</td>
<td>- Good confidence that predictions will occur</td>
</tr>
<tr>
<td>- High</td>
<td>- Certain that predictions will occur</td>
</tr>
<tr>
<td><strong>Significance:</strong></td>
<td><strong>Requires no further investigation, no mitigation or management</strong></td>
</tr>
<tr>
<td>- No significance</td>
<td>- Requires mitigation and management to reduce impacts to acceptable levels (if negative)</td>
</tr>
<tr>
<td>- Moderate significance</td>
<td>- Should influence a decision about the project if the impact cannot be mitigated or managed</td>
</tr>
</tbody>
</table>
2. Project Description

2.1 Project Objective

Ramallah electricity substation is one of the four substations and distribution projects in the EUMP. The main objective of construction of the Ramallah substation and distribution system is to meet the increasing loads and the need to find new resources to meet the increasing electricity demand in Ramallah area.

The annual growth of the energy demand in Ramallah increased by 8% during the last 10 years, therefore JDECO in cooperation with the PEA is to find practical methods to fill the gaps and meet the demand for electrical energy. An extensive study had been conducted showing the loads situation, and determine the required projects for improving and development the electricity network and construction of the electricity substations.

Building the KV 161/33 substation in Ramallah region serves both the public and private sectors in addition to investment projects in particular. The electrical company (JDECO) will be able to supply residential and commercial projects like Rawabi city (a new Palestinian city under construction), Al-Rayhan suburb, centers, and others after sustaining the additional capacity due to the construction of Ramallah substation.

2.2 Project Alternatives

Two other sites have been considered for the construction of Ramallah substation other than Qalandia, which has been selected as to its proximity to the electricity load centers and existing connection points. The proposed site in Qalandia is available and is near an existing electrical substation of the IEC and the existing Atarot industrial complex. There will be no impact on the land use and/or on other environmental elements. The site is approved and an EA has been issued by MEnA. An application for the construction permit at this site has already been applied to the Israeli Civil Administration.

The land parcels for the construction of Ramallah substation is made available and was purchased by JDECO from its owners, the THA, based on a willing-buyer willing-seller sale.

The design of the substation and the distribution lines has considered the international technical specifications reading the standards for protection from Electro-Magnetic Field (EMF) and coping with the International Commission on Non Ionizing Radiation Protection (ICNIRP) standards as to prevent any adverse environmental impacts. No transformers and/or
oils containing Poly-Chlorinated Biphenyl (PCB) residues are allowed. The routs and alignments of the distribution lines are designed to be underground in the RoW of the roads and stress. The overhead lines are not considered as to avoid impacting agriculture and private lands.

2.3 Project Activities

It is important to understand the scope of the works in the EUMP, in order to also understand the approach in dealing with both the evaluation of the environmental impacts, and the subsequent ESMP reporting. The summarized work items of EUMP are shown in Table 2.

**Table 2: Components of the EUMP**

<table>
<thead>
<tr>
<th>Substations</th>
<th>Work Elements</th>
<th>Activities</th>
</tr>
</thead>
<tbody>
<tr>
<td>KV 161/33 Substations</td>
<td>• System configuration and design</td>
<td>• Techno-economic assessment</td>
</tr>
<tr>
<td></td>
<td>• Construction of new substations.</td>
<td>• System analyses and design</td>
</tr>
<tr>
<td></td>
<td>• Installation of NCC/SCADA</td>
<td>• Procurement and equipment installation</td>
</tr>
<tr>
<td>Distribution</td>
<td>• System configuration and design</td>
<td>• Techno-economic assessment</td>
</tr>
<tr>
<td>Rehabilitation and extension of</td>
<td>• System configuration and design</td>
<td>System analyses</td>
</tr>
<tr>
<td>existing system</td>
<td>• Installation of pre-paid and automatic meters</td>
<td>Procurement and equipment installation</td>
</tr>
<tr>
<td>Institutional</td>
<td>• Improved customer service</td>
<td>Technical assistance</td>
</tr>
<tr>
<td>Technical assistance and capacity</td>
<td>• Strengthening of Northern Electricity Distribution Company(NEDCO)</td>
<td>improved customer metering, use of accounting and billing systems,</td>
</tr>
<tr>
<td>building</td>
<td>• Sector reforms</td>
<td>operation and maintenance</td>
</tr>
<tr>
<td></td>
<td>• Consultancy services for: Detailed design and construction supervision of</td>
<td>Construction supervision for detailed design and tender specs</td>
</tr>
<tr>
<td></td>
<td>substations and distribution components</td>
<td>Policy formulation for</td>
</tr>
<tr>
<td></td>
<td>• Promoting utilization of renewable energy sources, development of</td>
<td>Palestinian Electric Regulatory Commission) and Palestinian Electricity</td>
</tr>
<tr>
<td></td>
<td>appropriate institutional and legal framework.</td>
<td>Transmission Limited, promotion of renewable energy sources.</td>
</tr>
</tbody>
</table>
This ESMP study is mainly concerned with the construction of the Ramallah substation and distribution system that is intended mainly to serve Ramallah district. The construction of the substation and distribution system entails:

1. Site preparation and earth works
2. Installation of the substation (concrete works); foundations, control rooms, etc.
3. Supply and installation of the electrical components and accessories
4. Installation of safety measures, alarm system, and other auxiliary works
5. Landscape, fencing, etc.
6. Construction of the distribution lines.

2.4 Project Area

2.4.1 Land for the substation

The proposed site for the construction of Ramallah electricity substation is located in Qalandia village, southwest of Ramallah, on an unexploited land of about 17 dunums (17,000 m²), near the Israeli industrial complex Atarot, north of Jerusalem, south of Ramallah, at the boundary between Al-Ram, Beit Hanina and Qalandia suburbs (Figure 1).

Figure 1: The proposed site for Ramallah substation

The land for the Ramallah substation was owned by 36 families, with at least one teacher in the family. The families came together and formed the Teachers Housing Association (THA) to buy the land and to build houses on it. Through the THA, actual legal owner, the 36
families bought the land in Qalandia prior to 1967. At the time, the families were residing in different parts of Jerusalem. The THA formed a Board that is elected each year and makes decisions on behalf of the families. When the Israeli government took over the land as part of Area C, they did not give permits to the THA to build housing.

The owners of the land have voluntarily sold the land for the construction of the electricity substation as they believe that the construction of a housing project would never be materialized due to the Israeli restrictions hindering various activities in the area and the nearness to the separation wall. A November 8 follow-up consultation with the THA reflected both a satisfaction with the price as well as the process of financial compensation for each parcel, which included two consultations (see Anne VI).

To determine the price is fair JEDCO consulted engineering company (Al-Quds for engineering and construction) for the fairness of the price, and the company reported that 70 thousand USD per dounm is reasonable comparing with adjacent lands in the area. (see Annex VIII)

The proposed site for the construction of Ramallah substation is enclosed by the Israeli separation wall few hundred meters from it. It is within area C under the full control of the Israeli Authorities. Thus it requires the construction permit and licensing from the Israeli Civil Administration.

The construction of the substation at the proposed site is possible as there is a nearby electricity substation owned by IEC. In addition, the area is bounded by the nearby roads from all directions and is mainly occupied by the Atarot industrial complex.

There are no declared nature reserves or wetlands adjacent or near the proposed location. The area is neither classified as an environmental sensitive area, nor being used as a habitat for rare nor endangered species. Moreover, there are no official records for any natural and cultural heritages presents in or within the surrounding area of the site. Figure 2 is a google map of the location of the proposed Ramallah substation.
2.4.2 Distribution System

The main objective of construction of Ramallah substation is to meet the increasing of loads, and needing to find new resources to meet the increasing of the growth of the energy demand in Ramallah. The substation will serve both the public and private sectors in addition to investment projects in particular. After the construction of Ramallah substation, JDECO will be having the additional capacity to supply other residential and commercial centers like Rawabi city, Al-Rayhan suburb, and others.

12 distribution lines will be constructed from Ramallah substation distributed as follows:

- 7 lines for Ramallah region, 3 of them to replace existing lines and 4 lines are new.
- 5 lines for Jerusalem region serving the Palestinian villages including Qalandia, Al-Ram, etc.

These electricity distribution lines are to be constructed underground along existing streets and roads and/or on public lands. Nevertheless, mitigation measures are to be applied to remedy any negative impacts due to construction of the electricity distribution.
system. Figure 3 is a sketch of the distribution system showing the extension of the cables underground from Ramallah substation to the demand centers in Ramallah, Qalandia and Al-Ram.

Annex VI presents the maps of these distribution lines. The maps shows the routs of the distribution lines. Some of these lines extends in area A (Ramallah and Al-Bireh cities), while others extend in area B, Qalandia, Bier Nabala and Al-Ram villages. Some other lines extend along the streets outside these residential areas in area C. Permits for construction in area C has to be secured from the Israeli Civil Administration. JDECO already applied for these permits.

2.4.3 Baseline Data of the project area

The project area, where the substation and the distribution system are mainly to be constructed is located south of Ramallah. The substation is to be constructed on an unexploited land of about 17 dunums (17,000 m²), where the topography is characterized by flat to gentle slope. The nearest village is about 1.5 km from the Ramallah substation site. Only one house was observed within 200 m from the site. PEA has contacted the owner of the house and indicated that he has no objection to the project. No agricultural or other human activities are observed in the area nearby the proposed substation site other than the industrial and commercial activities connected to Atarot.

In terms of climate, Ramallah and Jerusalem Districts are influenced by the Mediterranean climate; a rainy winter and dry summer. Winds from the west and southwest which are saturated with moisture from the Mediterranean precipitate a mean annual rainfall of about 700 mm on the Districts. This amount is distributed over an average of 59 days; and almost 85% of the total rainfall occurs between November and February.

The mean humidity level is 70.2% in Ramallah District. The minimum relative humidity was registered in May at 57.2% and the maximum in December with a value of 77.1%.

Ramallah and Jerusalem Districts are part of the Hill Regions which have lower temperatures than other places in the West Bank. Like other districts in the West Bank, January is the coldest month and August is the hottest. The mean annual temperature ranges between 15-20 °C. The temperatures of the coldest month (January) are 6-12 °C, while the temperatures of the hottest month (August) range between 22-27 °C.

During the summer, the area is influenced by regional winds with an average daily wind speed of 10.3 km/hr in August. During the winter season, the rain-bearing winds move in a
general west-east direction with an average daily wind speed of 8.4 km/hr in December, causing precipitation. Between April and June the area is influenced by desert winds which blow frequently from the Arabian Desert, full of sand and dust. This wind brings high temperature and reduced humidity.
Figure 3: Sketch of the Ramallah substation distribution System
3. Environmental Legislative and Regulatory Framework

3.1 Legal and Geopolitical Conditions

The legal and regulatory framework in Palestine consists of layers of legal systems, which have come into force in response to the changing occupational history of the country. Because most of the laws still remain in effect, finding the applicable law in any one circumstance can be quite confusing. The laws and regulations applied will vary depending on whether the subject area is the Gaza Strip and/or Areas “A” “B” or “C” as to Oslo agreement in the West Bank.

Oslo agreement (September 1993) has classified the lands of the Palestinian Territories as A, B, or C. The Palestinian Authority (PA) has civil and security control only over area A which includes mainly the Palestinian cities. Area C is totally under the control of the Israeli authorities. The civil affairs in area B, which extends outside the Palestinian cities and villages, are managed by the PA, while the security is kept in hands of Israel. The problems associated with securing the Israeli no objection and construction permits in area “C” is coordinated and solved with the PA and Joint Committees.

The land for the construction of Ramallah electricity substation at Qalandia site is enclosed by the Israeli separation wall and is area C. Thus it is under the full control of the Israeli Authorities and requires construction permits from the Israeli Civil Administration.

3.2 EIA System

3.2.1 Ministry of Environmental Affairs (MEnA)

The Ministry of Environmental Affairs (MEnA) has two formats for environmental assessment. The first is an Initial Environmental Evaluation (IEE) or screening, which covers projects were significant impacts are uncertain and/or unlikely due to the size of the operation (e.g. such as smaller projects undertaking works in already disturbed areas). Based on the IEE, the MEnA decides whether more detailed assessments in the form of revisions or a full scale EIA is necessary for licensing of the proposed operation.

The second is a full Environmental Impact Assessment, which covers projects where impacts will occur to natural areas and/or to natural resources, as a result of new activities. The regulations covering the environmental assessment are covered principally by the Environmental Assessment Policy through resolution (27-23/4/2000) and the Environmental Law of 1999.
3.2.2 Palestinian Environmental Law

The Palestinian environmental legal and administrative framework has taken major strides towards protecting environmental resources and institutionalizing their sustainable management. The Palestinian Environment Law (PEL) is comprehensive, covering the main issues relevant to environmental protection and law enforcement. Among the objectives of the PEL are:

- Protecting the environment from all sorts and types of pollution
- Protecting public health and social welfare
- Incorporating environmental resources protection in all social and economic development plans and promote sustainable development to protect the rights of future generations;
- Conserving ecologically sensitive areas, protecting biodiversity, and rehabilitating environmentally damaged areas;
- Setting inter-ministerial cooperation regulations and standards various environmental protection areas and jurisdictions;
- Promoting environmental information collection and publication, public awareness, education and training.

The PEL addresses various environmental issues including:

- Management and protection of various resources. Issues covered are related to land environment, air environment, water resources and aquatic environment, natural, archeological, and historical heritage protection.
- Environmental Impact Assessment (EIA) and auditing, permitting of development projects, monitoring of environmental resources and their parameters.
- Penalties to be applied in case of violation of any article presented under the law.
- Other issues addressed by the legislation include emergency preparedness, public participation, research training and public education.

The PEL of 1999 has stated in article 45, “The Ministry, in coordination with the competent agencies, shall set standards to determine which projects and fields shall be subject to the environmental impact assessment studies. It shall also prepare lists of these projects and set the rules and procedures of the environmental impact assessment”.

Article 47 of the PEL states that: “The Ministry, in coordination with the competent agencies, shall determine the activities and projects that have to obtain an environmental
approval before being licensed. This includes the projects that are allowed to be established in the restricted areas”.

### 3.2.3 Palestinian Environmental Assessment Policy

The Palestinian Ministerial Council approves the Palestinian Environmental Assessment Policy (PEAP), through resolution No: 27-23/4/2000. This Policy shall be interpreted and implemented to support the sustainable economic and social development of the Palestinian people through assisting in meeting the following goals:

1. Ensuring an adequate standard of life in all its aspects, and not negatively affecting the basic needs, and the social, cultural and historical values of people as a result of development activities.
2. Preserving the capacity of the natural environment to clean and sustain it.
3. Conserving biodiversity, landscapes and the sustainable use of natural resources.
4. Avoiding irreversible environmental damage, and minimizing reversible environmental damage, from development activities.

According to the PEAP, there are three documents that represent sequential stages in the project life cycle and the Environmental Approval (EA) review process: an Application for Environmental Approval; an Initial Environmental Evaluation (IEE); and An Environmental Impact Assessment (EIA). The ME&NA shall provide guidance on the content and preparation of these documents.

The PEAP has listed proposed projects for which an EIA must be conducted. Substations and super tension lines are listed as number 1 among the major development projects for which an EIA shall be conducted. These are:

1. Power plants (including gas turbines, substations and super tension lines)
2. Quarries and mines
3. Waste water treatment plants including main sewers
4. Cement plants
5. Solid waste disposal sites
6. Hazardous waste disposal sites
7. Plants producing, storing or using hazardous substances
8. Airports and landing strips
9. Seaports, jetties and harbors
10. Refineries
11. Industrial estates
For project types that are not listed, a determination of whether or not an IEE or an EIA must be conducted will be based on a screening criterion. The project proponent must first obtain initial approval from the appropriate Ministry or Local Planning Committee. The proponent then submits an Application for Environmental Approval to the MEnA. The MEnA will notify the appropriate permitting authorities that an Application for Environmental Approval has been received and that an EIA or an IEE is required. The proponent submits the Application for Environmental Approval to the appropriate permitting authorities as part of his overall application package for initial approval. These authorities then refer the project to the MEnA. The MEnA may ask the proponent for further information to ensure the Application is sufficient for consideration under the PEAP.

The screening process will be based on requirements of relevant land use plans, and on whether the project is likely to:

1. Use a natural resource in a way that pre-empts other uses of that resource,
2. Displace people or communities,
3. Be located in or near environmentally sensitive areas such as natural reserves, wetlands, or registered archeological and cultural sites,
4. Generate unacceptable levels of environmental impact,
5. Create a state of public concern, or
6. Require further, related development activities that may cause significant environmental impacts.

The IEE and/or the EIA are to define the environmental impacts of the project and the measures to mitigate the adverse impacts or capture potential environmental benefits. If neither IEE nor EIA are required, the MEnA will determine, in coordination with the relevant permitting authorities or the EA Committee as required, whether or not Environmental Approval will be granted and, if so, under what conditions.

Once the MEnA considers that an Application for Environmental Approval is complete, it has a maximum of 14 business days to determine the need for an IEE or an EIA, or to determine whether Environmental Approval will be granted based on the Application alone. If this deadline is not met, the proponent has the right to submit a written complaint.
to the Head of the MEnA, who must respond in writing within a week from receipt of the complaint. Without limiting its content, an Environmental Approval may specify:

- Required measures to mitigate adverse environmental impacts or capture potential environmental benefits, including a compliance schedule,
- Measures that the proponent must implement in order to comply with relevant standards and requirements; and
- Monitoring and reporting duties of the proponent.

As to PEAP, the construction of electricity substations falls within the projects that require full EIA. The EAMP that has been prepared by Norconsult in 2009 has been revised in December 2012 as to cover the construction of the four substations and distribution lines in the West Bank. The revised Environmental Impact Assessment and Management Plan (EIAMP) replied mainly to the MEnA comments of 2010 on the EAMP. MEnA has distributed copies of the EIA to the members of the EA committee and an Environmental Approval from MEnA is expected to be issued soon for the construction of the four substations including Ramallah substation. On the other hand this EMS and the ARAP are prepared as to answer the World Bank safeguard policies and are to be disclosed once they are accepted and approved by the World Bank.

This ESMP is only for the construction of Ramallah substation and distribution lines and is to cover the project works to the largest extent through. This document will be guided by MEnA 1999 and 2000 regulations and applicable World Bank safeguard policies.

3.2.4 Laws and Regulations relating to Community Participation to Project Formulation

The PEAP has referred to the stakeholder (any person in his natural or legal capacity with an interest in or affected by a development activity) consultation in two stages:

1. The Initial Environmental Evaluation (IEE) Report; where the policy stated that the stakeholder consultation is optional when undertaking an IEE. In consultation with the proponent and the EA Committee as required, the MEnA determines whether stakeholder consultation is required and, if so, what the minimum requirements should be. It may be required during scoping and terms-of-reference preparation, and during the conduction of the IEE.

2. The Environmental Impact Assessment (EIA) Report; where the policy stated that the stakeholder consultation is mandatory when undertaking an EIA. In consultation with the proponent and the EA Committee, the MEnA determines what the minimum
requirements for stakeholder consultation should be. It may be required during scoping and terms-of-reference preparation, and during the conduction of the EIA.

At the minimum, the proponent must meet with the principal stakeholders to inform them about the proposed project and to solicit their views about it. More problematic projects should involve more extensive consultations. The methods and results of these consultations must be documented in the EIA Report.

3.2.5 Laws and Regulations Relating to Environmental Management

The PEL No. 7 for 1999, under the third chapter, required from the MENA to follow up the implementation of decisions which are issued concerning the environmental impact through cooperation with the competent authorities. The MENA shall, in coordination with the competent authorities, control the various corporations, projects and activities in order to ascertain the extent of its compliance with the approved specifications, standards and instructions for the protection of environment and vital resources formulated by it according to the provisions of this law.

For the above purposes, the law entitles the MENA inspectors and other inspectors who are appointed in the Ministries and other authorities who have the capacity of judicial police as per the law to impound the environmental violations and crimes that may take place and violate this law. The MENA inspectors shall also have, in cooperation with the competent departments and authorities; the right of entry into the installations for the purpose of inspecting them, taking samples, carrying out the measurements and ascertains the application of the standards and conditions of the environment protection and prevention of pollution.

The owners of projects and other activities should enable the MENA inspectors and competent authorities to carry out their functions and provide them with the information and particulars which they deem necessary to obtain in implementation of the provisions of the Law. Owners of Projects should also carry out self-supervision operations according to the standards and conditions formulated by the MENA, in coordination with the competent authorities, and submission of reports according to the instructions of the MENA.

The competent authority shall have the right, with respect to every installation or project which has violated the environmental conditions necessary for granting the license, to cancel or withdraw the license before the competent court.
The Minister may decide to stop the work in any project or prohibit the use of any machine or material in part or in whole if the continuation of work in the project or use of the machine or article involves a serious hazard to the environment. The stoppage or prohibition shall be for a period not exceeding two weeks and may not be extended except by a judicial order from the competent court. Whoever was harmed from the stoppage or prohibition order may take exception towards it before the competent court.

3.3 World Bank Project Categories and Safeguard Policies

World Bank classifies projects into four categories, depending on the type, location, sensitivity, and scale of the project and the nature and magnitude of its potential environmental impacts. These categories are:

**Category A:** This list is limited to those projects with significant environmental impacts, which require a full detailed EIA. The list of subprojects under this category would include, but are not limited to:

- Landfill subprojects,
- Large healthcare waste management projects,
- Wastewater treatment systems.

**Category B:** A proposed project is classified as Category B if its potential adverse environmental impacts on human populations or environmentally important areas including wetlands, forests, grasslands, and other natural habitats are less adverse than those of Category A projects. These impacts are site-specific; few if any of them are irreversible; and in most cases mitigation measures can be designed more readily than for Category A projects. Projects falling under this category would include, but are not limited to:

- Construction of schools, housing, training centers, etc.
- Construction of health units, dispensaries, maternity clinics, medical research, etc.
- Construction of roads, bridges and water passage ways.
- Construction of water reservoirs.

**Category C:** These are projects, which are known to have no adverse environmental impacts, and accordingly will not require any environmental assessment or follow-up. Training, institutional capacity building, awareness, minor rehabilitation and furnishing/equipping of schools and training centers are examples of subprojects falling under Category C. Most of the service delivery type of projects falls under this category.
Categories B and C require Initial Environmental Examination, limited EMP, and/or Environmental Screening (ES).

**Category FI**: A proposed project is classified as Category FI if it involves investment of the Bank funds through a financial intermediary, in subprojects that may result in adverse environmental impacts. Environmental Screening is applied to FI projects to determine the level of Environmental Assessment (EA) to be required.

The World Bank has classified the Electric Utility Management Project (EUMP) as Category B. The components of the Project with the exception of capacity building have been subjected to environmental impact assessment. This is understood in the context of the development of the project and the preparations of this ESMP.

Main concerns for the assessment will be the impacts arising from the routing of substation followed by the impacts arising from the rehabilitation/extension of the distribution network. Ramallah substation to be constructed at Qalandia site that has limited impacts and the distribution lines are to be underground along existing roads and public lands.

Under the World Bank’s operational policies, there are ten environmental and social policies referred to as the Bank’s “safeguard policies”. The Bank’s environmental assessment policy and procedures in light of these ten safeguard policies are described in OP/BP (Operational Policy/Bank Procedures). Table 3 outlines the core requirements under each policy and lists the conclusion of applying each to the project. The examination and assessment were conducted in light of the World Bank’s environmental assessment policy and procedures OP/BP. Based on the information collected of the project, the assessment was addressed through:

1. Reviewing the ten safeguard policies and determining the OP 4.01 Environmental assessment is triggered by the project. Mitigating measures have been identified accordingly.
2. Describing the safeguard issues and impacts associated with the project. Identifying and describing any potential large scale, significant and/or irreversible impacts.
3. Describing the potential indirect and/or long term impacts due to anticipated future activities in the project area.
4. Describing the measures taken to address safeguard policy issues. Providing an assessment of project proponent capacity to plan and implement the measures described.
5. Identifying the key stakeholders and describing the mechanisms for consultation and disclosure on safeguard policies, with an emphasis on the potentially affected people.
### Table 3: World Bank Safeguard Policies and Core Requirements under each Policy

<table>
<thead>
<tr>
<th>Policy</th>
<th>Summary of Core Requirements</th>
<th>Public Consultation</th>
<th>Conclusion</th>
</tr>
</thead>
<tbody>
<tr>
<td>OP/BP 4.01 Environmental Assessment</td>
<td>Screen early for potential impacts and select appropriate instrument to assess, minimize, and mitigate potentially adverse impacts.</td>
<td>Consult affected groups and NGOs as early as possible.</td>
<td>Triggered; ESMP is prepared. Affected groups and NGOs are consulted.</td>
</tr>
<tr>
<td>OP/BP 4.04 Natural Habitats</td>
<td>Do not finance projects that degrade or convert critical habitats. Support projects that affect non-critical habitats only if no alternatives are available and if acceptable mitigation measures are in place.</td>
<td>Consult local people in planning, designing, and monitoring projects.</td>
<td>Not Triggered; No natural habitats exist at the project site.</td>
</tr>
<tr>
<td>OP 4.09 Pest Management</td>
<td>Support integrated approaches to pest management Identify pesticides that may be financed under the project and develop appropriate pest management plan to address risks.</td>
<td>Consult local people in planning, designing, and monitoring projects.</td>
<td>Not Triggered; Neither pesticides nor chemicals are used.</td>
</tr>
<tr>
<td>OP/BP 4.10 Indigenous Peoples</td>
<td>Screen to determine presence of Indigenous Peoples in project area. Policy triggered whether potential impacts are positive or negative. Design mitigation measures and benefits that reflect Indigenous People cultural preferences.</td>
<td>Carry out free, prior, informed consultation and obtain broad community support.</td>
<td>Not Triggered; No Indigenous people are impacted by the project. Consultation has been done and community support is obtained.</td>
</tr>
<tr>
<td>OP/BP 4.11 Physical Cultural Resources</td>
<td>Investigate and inventory cultural resources potentially affected, include mitigation measures when there are adverse impacts on physical cultural resources.</td>
<td>Consult appropriate agencies, NGOs, and University departments.</td>
<td>Not Triggered; No physical and cultural resources are affected.</td>
</tr>
<tr>
<td>OP/BP 4.12 Involuntary Resettlement</td>
<td>Assist displaced persons in their effort to improve or at least restore their standards of living. Avoid resettlement where feasible or minimize. Displaced persons should share in project benefits.</td>
<td>Consult resettles and host communities, incorporate expressed views in resettlement plans.</td>
<td>Not Triggered for the Ramallah Substation and Distribution Line (Triggered for the overall project); No involuntary taking of land resulting in loss of shelter, loss of assets or access to assets or income sources or means of livelihood. No involuntary restriction of access to legally designated parks and protected areas resulting in adverse impacts on the livelihoods of displaced persons.</td>
</tr>
<tr>
<td>OP/BP 4.36 Forests</td>
<td>Support sustainable and conservation oriented forestry. Do not finance projects that involve significant conversion or degradation of critical forest areas.</td>
<td>Consult local people, the private sector, and interest groups in forest area.</td>
<td>Not Triggered; No forests in project area.</td>
</tr>
<tr>
<td>OP/BP 4.37 Safety of Dams</td>
<td>For large dams, technical review and periodic safety inspections by independent dam safety professionals.</td>
<td>No public consultations</td>
<td>Not Triggered; No dams in project area</td>
</tr>
<tr>
<td>OP/BP 7.50 Projects on International Waterways</td>
<td>Ascertain whether riparian agreements are in place, and ensure that riparian states informed of and do not object to project interventions</td>
<td>No public consultations. Riparian notification required.</td>
<td>Not Triggered; No international waterways exist in project area.</td>
</tr>
<tr>
<td>OP/BP 7.60 Projects in Disputed Areas</td>
<td>Ensure that claimants to disputed areas have no objection to proposed projects</td>
<td>No public consultations. Claimants informed.</td>
<td>Not Triggered; No claimants or disputed areas are encountered.</td>
</tr>
</tbody>
</table>
Based on the assessment and the array of information that were made available in context of this study, it has been determined that all the other safeguards policies other than OP/BP 4.01 Environmental Assessment are not triggered and need not to be covered by the study for Ramallah substation and distribution lines. This ESMP examines the potential negative and positive environmental performance of the project and proposes the management mitigation measures needed to be implemented during the construction and operation of the substation.

Considering that project activities will be confined along existing infrastructure and road alignments, there is no conflict with natural habitats and sites of cultural/historical values. As a result it is assumed that additional policies such as Natural Habitats (OP 4.04) and Cultural Property (OP 4.11) are not triggered by the project activities.

In addition, OP 4.12 on involuntary resettlement will not be triggered for the construction of Ramallah substation and its related electrical distribution lines, which will be constructed underground along the existing streets and roads and on public lands considering the Right of Way (RoW). In other words, the construction of the Ramallah substation and distribution line will not result in adverse economic and social impacts through the: (1) involuntary taking of land resulting in relocation or loss of shelter, loss of assets or access to assets, or loss of income sources or means of livelihood, whether or not the affected persons must move to another location; or (2) involuntary restriction of access to legally designated parks and protected areas resulting in adverse impacts on the livelihoods of the displaced persons.
4. Stakeholder Consultation

Consultation is one of the most important activities that should be conducted in order to have a successful sustainable project. Such consultative process is critical for World Bank financed projects in order to inform project beneficiaries and key stakeholders of the project, to receive and include their input in the design and implementation and address concerns.

For Ramallah substation and distribution system, a number of meetings with the municipalities and village councils affected by the project were organized. Public were informed about the project by posting on the PEA website and by distributing informing sheets explaining the project.

The aim of such consultations is to ensure that all stakeholder interests are aware of the project and that their views are incorporated in the project development, implementation and operation. Consultation meetings enable interested and affected parties to contribute their concerns (views and opinions) on the proposed project. Findings of stakeholder analysis are very important in predicting impacts and development of ESMP.

A consultative meeting was carried out by JDECO in collaboration with PEA on November 2011 regarding Ramallah substation which is proposed to be constructed on a land parcel in Qalandia near Atarot industrial zone. This stakeholder consultation was undertaken among people living along the proposed corridors where the distribution lines are to be constructed and those living near the proposed site of Ramallah substation. The meeting was organized in Mövenpick Hotel in Ramallah with the presence of Qalandia, and other concerned village councils and representatives of Ramallah and Al-Bireh municipalities and of the Ministry of Local Government (MoLG) and Ministry of Public Works (MoPW).

A separate meeting was also conducted with the representatives of the THA of Al-Ram, the landowners of the substation proposed site. This meeting was mainly to inform them of the project and to negotiate the purchase of the land.

In the meetings, representative of JDECO explained the importance of the project and the positive impacts and the facilities that will result to the benefit of the Palestinians. All the attendance notes and comments have been recorded and discussed. Annex III lists the name of the participants in the November 2011 meeting.

Representatives of Qalandia council objected the project of building Ramallah substation and distribution lines. They stated that there are 3 old medium voltages cables passing
through Qalandia lands and that about 400 acres of the village lands cannot be used effectively due to these cables. They fear the construction of new lines that may hinder the use of other lands.

It has been stated by the PEA that these medium voltage cables are not owned by JDECO and/or PEA, but are owned and operated by IEC. Eng. Ali Hamoudi, the assistant of the general manager for development and strategic planning in JDECO assured that the new distribution lines will never adversely affect the lands as the cables will be underground along the existing streets and roads and will never go through the private lands of the village.

Regarding the cables which are currently passing through the village lands, Eng. Murad Hamed, from PEA announced that they welcome any complaint from the people about these cables and that PEA will deal with these complaints and will contact IEC in this regard. Eng. Murad stated that PEA will, in coordination with IEC, conduct a study and implement a project to remove one of the existing lines passing through Qalandia lands once financial support is secured and that this problem will be presented to the Head (Minister) of the PEA informing him of the damage to the lands because of the routes of the existing lines and that the problem will be settled. This has certainly to be coordinated with IEC, the owners of these cables.

The most important questions addressed were:

**Q1:** How long it will take to implement the project?

**A1:** The project began in terms of planning and preparing all the schemes and determined the tracks and routing of the distribution lines. The implementation is based on a time schedule which does not exceed 6 months to extend the cables and 4 years to build the substation after signing the agreement with the IEC.

**Q2:** Will the project serve the large residential and commercial projects like Rawabi city, Al-Rayhan suburb, Al-Ersal center and other similar ones only?

**A2:** This project will serve whole areas and villages, it will not be only for the new large residential and commercial projects, and it will also serve Al Ram region, Qalandia and north Jerusalem.

**Q3:** When will the large projects like Rawabi city, Al-Rayhan suburb and Al-Ersal center need the required loads? And how could these areas been provided currently?
A3: The temporary providing already existed; these areas need more time until reaching the maximum load.

Q4: Will the Israeli settlements benefit from the substation (The Industrial Zone-Atarot)?

A4: Settlements will not get advantages from the substation; it will serve the company's privilege areas only.

Q5: Does this project reduce the tariff of the electricity and the technical losses?

A5: The project will increase the efficiency of the electrical system that results a reduction in the losses. Regarding the tariff, Palestinian Energy Research Council (PERC) is responsible for determine the tariff and pricing the electricity services. By law there is an obligation in pricing. The law obliges the consumers to pay the bills as indicated.

Q6: What is the new in using the modern technology and renewable energy in the company?

A6: PEA has a project to proceed with the installation of solar modules for generating energy. This project requires legal framework in addition to train the relevant engineers and technicians. The company is working on the project of using the smart networks since four years, and there are three pilot projects.

Q7: What is the proposed area of the substation?

A7: The area of the substation will be 10 acres.

The overall picture emergent from the stakeholder consultations is that the project is seen as being strategic to stabilizing power supply to the area of Ramallah which is crucial to sustained economic growth of the Palestinian people. In order to sustain this overwhelming public support, project development should proceed simultaneously with consideration of the public and stakeholder concerns.

Annex IV is the minutes of the main meeting in Arabic and Annex V is a table that lists the summary of the stakeholder consultations. It is clear from the minutes that NGOs including Aman institution attended the meeting and that representative from the project beneficiary municipal and village councils and individuals were also in the meeting. The outcomes and the concerns raised in the meetings were considered in the later designs and steps of the project development and will be considered in the implementation.
5. Potential Impacts and Mitigation Measures

5.1 Introduction

The scope of the environmental assessment is to examine the project’s potential negative and positive environmental and social impacts and recommend any measures needed to prevent, remedy, mitigate, or compensate for adverse impacts and enhance and improve environmental positive impacts and performance. Main concerns will be the impacts arising from the construction of the Ramallah electricity substation and routing of the distribution lines. The main purpose of this ESMP is to investigate potential impacts of the proposed interventions under the project on both the environment as well as the surrounding community.

For compliance and in accordance with the requirements of MEnA and the operational policy and procedures of the World Bank, this study is site specific ESMP for Ramallah substation and distribution lines as to identify potential adverse environmental and social impacts of the project. The objectives of the ESMP are to:

- Identify both potential positive and negative impacts of the proposed construction of Ramallah substation and distribution lines during construction and operation.
- Develop an Environmental and Social Management Plan (ESMP) that outlines relevant mitigation measures to minimize and/or mitigate negative effects and impacts and to enhance positive effects and impacts.

Overall, once the works are completed, there will be a significant net positive social and environmental benefit. However, some negative environmental and social impacts will occur for short periods during the works. By careful planning and continuous follow up by PEA and JDECO to undertake the rehabilitation works, all the negative impacts can be addressed through this ESMP.

The bulk of the impacts fall under construction phase, mainly excavation works for site preparation and trenches, foundations, transformers and stringing of distribution lines. The secondary or indirect impacts of the construction works of the distribution lines will be disruptions to traffic, pedestrians, and safety issues where right of ways are located along pedestrian pathways and where they may block access to private and/or public property in both residential and commercial areas. These impacts can be minimized, in terms of severity and duration, by ensuring that the excavation and construction works are limited to short working sections, and that works are carried out rapidly and efficiently. The remainder of the impacts and the impacts during operation are site specific, and generally within the operating sites of PEA and JDECO.
The site for Ramallah substation is located on the outskirts from the respective population centers, but is enclosed within an area that encounters the Israeli industrial zone Atarot. With these areas that have mainly barren and/or grass-like vegetation, the new Ramallah electricity substation at Qalandia site does not entail to any significant extents additional on-site impacts and/or concerns.

The ESMP for the project has been drawn up according to the anticipated impacts from all phases of the project, starting with the construction of the substation and distribution lines to the rehabilitation works and subsequent operating phases. Table 4 summarizes these impacts.

**Table 4: Potential Key Adverse Impacts (+ positive; - negative)**

<table>
<thead>
<tr>
<th>Potential Impacts</th>
<th>Construction Phase</th>
<th>Operation phase</th>
</tr>
</thead>
<tbody>
<tr>
<td>Permanent loss of land for the substation</td>
<td>Purchased</td>
<td>-</td>
</tr>
<tr>
<td>Construction of distribution lines, traffic disturbance, visual impacts, etc.</td>
<td>-</td>
<td>-</td>
</tr>
<tr>
<td>Improve and extend electricity services</td>
<td>-</td>
<td>+</td>
</tr>
<tr>
<td>Increased reliability of power supply</td>
<td>+</td>
<td>+</td>
</tr>
<tr>
<td>National economic</td>
<td></td>
<td>+</td>
</tr>
<tr>
<td>Increased traffic due to transportation of construction and operation personnel and machinery</td>
<td>-</td>
<td>-</td>
</tr>
<tr>
<td>Associated impacts on land use</td>
<td>-</td>
<td>-</td>
</tr>
<tr>
<td>Health effects of electromagnetic fields (EMF) of Medium voltage power</td>
<td>-</td>
<td>-</td>
</tr>
<tr>
<td>Safety issues arising from the construction of the distribution lines</td>
<td>-</td>
<td>-</td>
</tr>
<tr>
<td>Possibilities for local employment during construction or operation</td>
<td>+</td>
<td>+</td>
</tr>
<tr>
<td>Noise</td>
<td>-</td>
<td>-</td>
</tr>
<tr>
<td>Dust and gaseous emissions from vehicles and construction machines.</td>
<td>-</td>
<td>-</td>
</tr>
<tr>
<td>Generation of Wastes</td>
<td></td>
<td>-</td>
</tr>
</tbody>
</table>

The electrical distribution lines are to be constructed underground along the existing streets and roads and on public lands considering the RoW. Therefore there will be no direct economic and social impacts through the involuntary taking of land resulting in relocation or loss of shelter, loss of assets or access to assets, or loss of income sources or means of livelihood.
5.2 Land use

Among the other impacts of the construction of Ramallah substation is the impact on land use. The current land use of the proposed site and nearby areas is not anymore residential. The Israeli Atarot industrial complex is located adjacent to the proposed site (Figure 1). In addition, an electricity substation has been already constructed by IEC at the site. Ramallah substation is to be door to door from the existing Israeli substation.

As described above, the THA, representing 36 families was the official land owner of the land where the Ramallah substation is to be constructed. The THA bought the land in Qalandia prior to 1967. When the Israeli government took over the land as part of Area C, they did not give permits to the THA to build housing. Therefore, there is no construction on this land. The land is now enclosed by the Israeli separation wall. Therefore the impact of changing the land use of the area to construct the substation is not significant.

The electrical distribution lines are to be constructed underground along the existing streets and roads considering the RoW and no electric overhead lines are to be constructed. This means that no impacts on the land use and no visual impacts except during the construction period are encountered.

5.3 Environmental and Social Impacts

Sections 5.4 and 5.3 list the environmental and social impacts during construction (section 5.3) and during operation (section 5.4). The descriptive description of these impacts in terms of their status, extent, duration, intensity, probability, and significance along with the mitigation measures are presented in a tabular format.

The overall assessment is that the construction of Ramallah substation and distribution network will not contribute to the generation of severe and serious direct and/or indirect negative social and environmental impacts, which prevent the implementation of the project. Among the other environmental and social impacts of the project area:

1. The Public health and the effects of the substation and distribution lines on the population (very low negative effect): According to the technical and design data of the substations, the electrical and the electro-magnetic fields on the fences perimeters and to any distance outside Ramallah substation are expected to be significantly below the threshold permitted values by the ICNIRP (International Commission on Non Ionizing Radiation Protection) at 5000 V/m and 2000 mG respectively. The PEA is to make sure that these standards are respected.
2. Excavation wastes (very low negative effect): The Contractor shall get rid of remnants of excavation in safe places that have been previously selected by the concerned municipality. Common sense civil works-related codes shall be followed by the contractor such as the vehicles transporting such excavation waste shall be completely covered. The contractor shall repair any damage of the infrastructures and shall restore the work site to its previous position as it was. These are part of the general conditions and the contractor will not be paid unless being sure the contractor complies with these conditions.

The PEA engineer (Environmental and Social Officer (ESO)) shall make sure that no random dumping by contractors and any waste will go to designated landfills. Provisions on all the issues during the construction phase will be included as a brief EMP in the bidding documents.

The ESO is also to make sure that environmental health and safety guidelines shall be followed and applied by those who are involved in the construction. Public health and safety and including traffic safety guidelines are also to be addressed and included in the bidding documents as well.

3. Harming/prejudicing the burying historical, cultural properties (almost no negative effect): When PEA proposes the project location it has agreed by the concerned municipality to avoid the locations to be in the historical archaeological sites. However, in the event of a discovery believed to be of historical archaeological asset during construction (chance-find), the works will stop immediately and the discovery will be reported to the competent authority (MoTA) to take its proper course of action. The work will be resumed after permission is given to continue.

4. Dust and air pollution (very low negative effect): The Contractor is required during works to control dust by spraying water on the earth to prevent dust from flying.

5. Noise (low negative effect): During the excavation the contactor shall undertake works during the daytime so as to cause least disruption and inconvenience to the local population. In the event that there are any complaints, then measurement will be taken (55dB during day and 45dB during night). During the operation of Ramallah substation, the ESO is to make sure that the operation noise is within the limits and that actions are taken in cases where the noise is exceeding the above limits.

6. Emissions of exhausts from the vehicles (very low negative effect): All vehicles in the work location shall be licensed and insured and be exposed to check regarding emission of exhausts from licensing authority, and to be sure that emission rates are not over the limits permitted.

7. Disabling the infrastructure and services due to the excavations (weak negative impact): The process of building new distribution lines does not require land acquisition. Installation of the distribution lines will be underground along existing
roads. The transformer rooms are to be constructed on allocated land parcels from the municipalities and village councils. These lands are for public use and services.

During the construction period, the impacts generated by the project will be temporary and expire with terminated implementation. These impacts are minor on the land use. To alleviate potential negative consequences during the construction phase, necessary measures should be taken in advance. It is to consider enduring some troubles, including noise, movement of large truck, equipment, etc. during the construction phase.
## 5.4 Construction Phase

<table>
<thead>
<tr>
<th>Potential Impact</th>
<th>Descriptive adjective</th>
<th>Mitigation Measures</th>
<th>Result of Mitigation</th>
<th>Responsibility &amp; When?</th>
</tr>
</thead>
<tbody>
<tr>
<td>Increase risk of erosion during site preparation and excavation of foundations.</td>
<td>Status: Negative</td>
<td>Separation and removal or maintaining the integrity of the topsoil to at least a depth of 20 cm.</td>
<td>- Ensure the preservation of the characteristics of the soil profile;</td>
<td>The contractor under the supervision of JDECO.</td>
</tr>
<tr>
<td></td>
<td>Extent: Local</td>
<td></td>
<td>- Ensure continued soil productivity.</td>
<td>To be done all the time.</td>
</tr>
<tr>
<td></td>
<td>Duration: Short term</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td></td>
<td>Intensity: Low</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td></td>
<td>Probability: High</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td></td>
<td>Significance: Low</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Increased erosion along slope areas</td>
<td>Status: Negative</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td></td>
<td>Extent: Surrounding area</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td></td>
<td>Duration: Short term</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td></td>
<td>Intensity: High</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td></td>
<td>Probability: Highly probable</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td></td>
<td>Significance: High</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Compacting of the soil due repetitive operation of heavy construction equipments; thus:</td>
<td>Status: Negative</td>
<td>After completion of the construction phase, affected soils, should be ploughed and ripped.</td>
<td>Recover the available space for water and air in the soil.</td>
<td>The contractor under the supervision of JDECO.</td>
</tr>
<tr>
<td></td>
<td>Extent: Surrounding Area</td>
<td></td>
<td></td>
<td>To be done all the time.</td>
</tr>
<tr>
<td></td>
<td>Duration: Short term</td>
<td></td>
<td></td>
<td></td>
</tr>
</tbody>
</table>
### Potential Impact

- **Pollution caused by waste produced during construction; i.e. fuels, lubricant oils and detergents.**

<table>
<thead>
<tr>
<th>Potential Impact</th>
<th>Descriptive adjective</th>
<th>Mitigation Measures</th>
<th>Result of Mitigation</th>
<th>Responsibility &amp;When?</th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>Intensity</strong></td>
<td>Medium</td>
<td>• Keeping construction sites, warehouses and temporary base camps clean, in order to avoid possible fires;</td>
<td></td>
<td>the end of construction works at site.</td>
</tr>
<tr>
<td><strong>Probability</strong></td>
<td>Definite</td>
<td>• Handling pollutant materials, such as fuels, lubricants, detergents, cement and others with special care, in order to avoid spillage;</td>
<td></td>
<td></td>
</tr>
<tr>
<td><strong>Significance</strong></td>
<td>Medium</td>
<td>• Conducting Fuelling and washing of machinery in places where potential spills can be contained;</td>
<td></td>
<td></td>
</tr>
<tr>
<td></td>
<td></td>
<td>• Breaking Concrete residues, with no further use, down into small pieces and disposing them in appropriate landfill sites.</td>
<td></td>
<td></td>
</tr>
<tr>
<td></td>
<td></td>
<td>• Disposing biodegradable packages (paper, cardboard, wood) in landfills.</td>
<td></td>
<td></td>
</tr>
<tr>
<td></td>
<td></td>
<td>• Rendering Plastic bags and packages that were used as toxic waste containers, to be useless.</td>
<td></td>
<td></td>
</tr>
<tr>
<td><strong>Status</strong></td>
<td>Negative</td>
<td>• Prevent pollution caused by wastes produced during construction.</td>
<td></td>
<td>The contractor under the supervision of JDECO and MoPW.</td>
</tr>
<tr>
<td><strong>Extent</strong></td>
<td>Surrounding area</td>
<td>• Manage the construction wastes properly and safely.</td>
<td></td>
<td>To be done all the time.</td>
</tr>
<tr>
<td><strong>Duration</strong></td>
<td>Short term</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td><strong>Intensity</strong></td>
<td>Medium</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td><strong>Probability</strong></td>
<td>Definite</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td><strong>Significance</strong></td>
<td>Low</td>
<td></td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

#### Destruction of vegetation in the area to be cleared

<table>
<thead>
<tr>
<th>Potential Impact</th>
<th>Descriptive adjective</th>
<th>Mitigation Measures</th>
<th>Result of Mitigation</th>
<th>Responsibility &amp;When?</th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>Status</strong></td>
<td>Negative</td>
<td>• Using manual labor to remove vegetation, especially near the banks and steep slope areas;</td>
<td>Protect vegetation and prevent their destruction.</td>
<td>The contractor under the supervision of</td>
</tr>
<tr>
<td><strong>Extent</strong></td>
<td>Surrounding area</td>
<td></td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

- **• decrease the available space for water and air in the soil; and • make it difficult for roots to develop.**
### Construction of KV 161/33 Electricity Sub-Stations and Distribution System in the West Bank (Ramallah Substation)

<table>
<thead>
<tr>
<th>Potential Impact</th>
<th>Descriptive adjective</th>
<th>Mitigation Measures</th>
<th>Result of Mitigation</th>
<th>Responsibility &amp; When?</th>
</tr>
</thead>
</table>
| **for installation of the substation and during the construction of the distribution lines.** | **Duration** Long term | • Herbicides or fires should not be used;  
• Identifying trees, located near the corridor, and considered potentially hazardous for the construction phase. Each tree must be assessed to determine the level of removal required (pruning to total removal). | | JDECO and MoA.  
To be done all the time. |
| **Loss of the sensitive habitats, through removal of vegetation for site preparation and clearing of Right of Way.** | **Status** Negative | • Minimizing the clearance for tower foundations and access routes by placing access points along existing roads and places where there is little or no vegetation.  
• Special care must be taken regarding:  
  - The use of non-pollutant and corrosion proof materials for pole foundations,  
  - Spillage of fuels and lubricant oils; and  
  - Abandoning or depositing any other products in sensitive habitats. | Avoid loss of sensitive habitats. | The contractor under the supervision of JDECO and MoPW.  
To be done all the time. |
| **Disruption to traffic and pedestrian access.** | **Status** Negative | • Traffic detour routes must be pre-arranged with the City Council.  
• In the case of dual carriageways, one side may be closed and single lanes used as temporary detours.  
• The sections under construction should be closed off and traffic rerouted according to a schedule drawn up by the contractor in cooperation with the Police, if it is not possible to redirect the traffic around works locations. | Avoid disruption to traffic and pedestrian access. | The contractor under the supervision of JDECO and Police department.  
To be done whenever needed. |
**Potential Impact** | **Descriptive adjective** | **Mitigation Measures** | **Result of Mitigation** | **Responsibility &When?**
--- | --- | --- | --- | ---
Presence of non-resident labor and their temporary camps | Probability: Probable | • Access at entry and exit points to works sites should be controlled and heavy trucks should be assisted by traffic controllers. | Avoid conflicts with local residents. | The contractor under the supervision of MoL and MoPW. Once at start of works.

Public and occupational safety. Potential negative health impact may arise from exposure to transformers oils. | Status: Negative | • Create awareness among workers in order to foster good relationships with local communities. • Ensure that mechanisms exist for effective negotiation, mediation and conflict resolution. | Ensure occupational health and safety at site. | The contractor under the supervision of JDECO and MoL. At start of works and during the construction.

Interference with any discovered sites of archaeological or cultural value | Status: Negative | • All workers should go through a training course on handling of transformer oils to ensure that appropriate: • Protective clothing is worn; • Procedures are followed regards refilling, storage and disposal; • Containment and clean-up actions are taken in case of spills; • Warning/ notice is given. | Protection of Archaeological and cultural values | The contractor under the supervision of JDECO and MoTA. Whenever found.

Interference with cultural resources. | Status: Negative | Reporting the discovery of any material, believed to be of cultural and/or archaeological value, to the relevant competent authority (MoTA). | Respect and protect cultural resources. | The contractor under the supervision of JDECO and
### Potential Impact

<table>
<thead>
<tr>
<th>Probability</th>
<th>Significance</th>
</tr>
</thead>
<tbody>
<tr>
<td>Probable</td>
<td>Low</td>
</tr>
</tbody>
</table>

### Mitigation Measures

- The use of heavy equipment and machinery should not be permitted;
- Avoid the unnecessary destruction of vegetation shorter than 3.5 meters high within the servitude, and do not cut down any trees outside the area.
- Implement stricter mitigation measures related to erosion, soil compaction, pollution, propagation of invasive plants and interference with bird life within the area.

### Result of Mitigation

- Preserve and protect ecological values.

### Responsibility & When?

- MoPW. Whenever interfered.
- The contractor under the supervision of JDECO and MEnA.
- To be done all the time during construction.
5.5 Operation Phase
5.5.1 Biophysical Impacts

<table>
<thead>
<tr>
<th>Potential Impact</th>
<th>Descriptive adjective</th>
<th>Mitigation Measures</th>
<th>Result of Mitigation</th>
<th>Responsibility &amp; When?</th>
</tr>
</thead>
<tbody>
<tr>
<td>Accelerated propagation of invasive plants.</td>
<td>Status: Negative</td>
<td>• The maintenance crews must be trained to recognize alien invasive plants and must systematically carry out their elimination.</td>
<td>Prevent and stop propagation of invasive plants.</td>
<td>JDECO under the supervision of PEA and MEnA. Once at start.</td>
</tr>
<tr>
<td></td>
<td>Extent: Surrounding area</td>
<td>• These crews must also create awareness among subsistence farmers in the vicinity of the line about the need to fight these invasive plants.</td>
<td></td>
<td></td>
</tr>
<tr>
<td></td>
<td>Duration: Long term</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td></td>
<td>Intensity: Low</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td></td>
<td>Probability: Probable</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td></td>
<td>Significance: Low</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Pollution caused by accidental release of oil from transformers.</td>
<td>Status: Negative</td>
<td>• Transformers and electrical installations containing oils or other potential pollutants must be placed on appropriate containment structures (i.e. impermeable surfaces with collection basins).</td>
<td>Prevent pollution caused by release of oils from transformers.</td>
<td>JDECO under the supervision of PEA and MEnA and MoH. In the designs.</td>
</tr>
<tr>
<td></td>
<td>Extent: Surrounding area</td>
<td>• Pollutant materials must be handled with special care, in order to avoid spillage.</td>
<td></td>
<td></td>
</tr>
<tr>
<td></td>
<td>Duration: Short term</td>
<td>• Fuelling and washing of machinery should be conducted in places where potential spills can be contained.</td>
<td></td>
<td></td>
</tr>
<tr>
<td></td>
<td>Intensity: Medium</td>
<td>• No transformers are used that contain BCP residues.</td>
<td></td>
<td></td>
</tr>
<tr>
<td></td>
<td>Probability: Definite</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td></td>
<td>Significance: Low</td>
<td></td>
<td></td>
<td></td>
</tr>
</tbody>
</table>
### Potential Impact

<table>
<thead>
<tr>
<th>Potential Impact</th>
<th>Descriptive adjective</th>
<th>Mitigation Measures</th>
<th>Result of Mitigation</th>
<th>Responsibility &amp; When?</th>
</tr>
</thead>
<tbody>
<tr>
<td>Atmospheric pollution from transformer generated fires</td>
<td>Status: Negative</td>
<td>• Consideration must be given to prevailing wind directions and natural barriers when designing the substation.</td>
<td>Avoid atmospheric pollution from transformer generated fires</td>
<td>JDECO under the supervision of PEA and MEnA and MoH</td>
</tr>
<tr>
<td></td>
<td>Extent: Locally</td>
<td>• The design of the substation must consider upwind from nearby residential communities and in such a way that natural topographic features may retard pollutant spreading.</td>
<td></td>
<td>In the designs</td>
</tr>
<tr>
<td></td>
<td>Duration: Short term</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td></td>
<td>Intensity: Medium</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td></td>
<td>Probability: Probable</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td></td>
<td>Significance: Medium</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Failure/ equipment malfunctioning due to weather</td>
<td>Status: Negative</td>
<td><strong>Temperature:</strong> design for the extreme temperatures expected. <strong>Wind:</strong> As a minimum, substation should be resistant to wind velocities in the order of 90 km/h near high altitude areas. <strong>Ice:</strong> Electrical installations should continue to operate despite ice accumulation. The complete assembly should also be undamaged by ice accumulation. <strong>Rain:</strong> Electrical installations should be designed to be operable under predictable conditions of rainfall. It is desirable that drainage around substation and tower foundations be sufficient enough to exhibit little standing water within a few hours after a heavy rainfall.</td>
<td>Avoid equipment malfunctioning due to weather</td>
<td>JDECO under the supervision of PEA</td>
</tr>
<tr>
<td></td>
<td>Extent: Surrounding area</td>
<td></td>
<td></td>
<td>In the designs</td>
</tr>
<tr>
<td></td>
<td>Duration: Long term</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td></td>
<td>Intensity: Medium</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td></td>
<td>Probability: Definite</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Potential Impact</td>
<td>Descriptive adjective</td>
<td>Mitigation Measures</td>
<td>Result of Mitigation</td>
<td>Responsibility &amp; When?</td>
</tr>
<tr>
<td>------------------------------------------------------</td>
<td>-----------------------</td>
<td>--------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------</td>
<td>-----------------------------------------------------------------------------------------------------------</td>
<td>----------------------------------------------------------------------------------------------------------</td>
</tr>
<tr>
<td><strong>Failure/ equipment malfunctioning due to earthquakes</strong></td>
<td>Status</td>
<td>Negative</td>
<td></td>
<td>JDECO under the supervision of PEA</td>
</tr>
<tr>
<td></td>
<td>Extent</td>
<td>Surrounding area</td>
<td>Minimize equipment malfunctioning due to earthquakes.</td>
<td>In the designs</td>
</tr>
<tr>
<td></td>
<td>Duration</td>
<td>Long term</td>
<td></td>
<td></td>
</tr>
<tr>
<td></td>
<td>Intensity</td>
<td>Medium</td>
<td></td>
<td></td>
</tr>
<tr>
<td></td>
<td>Probability</td>
<td>Definite</td>
<td></td>
<td></td>
</tr>
<tr>
<td></td>
<td>Significance</td>
<td>Medium/Low</td>
<td></td>
<td></td>
</tr>
<tr>
<td><strong>Accumulation of airborne seeds, leaves and debris</strong></td>
<td>Status</td>
<td>Negative</td>
<td></td>
<td>JDECO under the supervision of PEA</td>
</tr>
<tr>
<td></td>
<td>Extent</td>
<td>Locally</td>
<td></td>
<td>In the designs</td>
</tr>
<tr>
<td></td>
<td>Duration</td>
<td>Long term</td>
<td></td>
<td></td>
</tr>
<tr>
<td></td>
<td>Intensity</td>
<td>Medium</td>
<td></td>
<td></td>
</tr>
<tr>
<td></td>
<td>Probability</td>
<td>Probable</td>
<td></td>
<td></td>
</tr>
<tr>
<td></td>
<td>Significance</td>
<td>Medium/Low</td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

- **Significance**: Medium/Low
- **Significance**: Medium/Low

**Snow**: Electrical Installations have to be impervious to snow damage. Consideration needs to be given to snow accumulation and the maintenance of clearances.

**Electrical Storms**: A combination of surge arresters and shielding will reduce the probability of damage from lightning.

**Seismic design practices** can minimize the damage of electrical installations subjected to intense earthquakes.

Sub-stations should be located so as to minimize exposure to flying debris by shielding from prevailing wind directions.

Avoid accumulation of airborne seeds, leaves and debris.
## 5.5.2 Socio-economic Impacts

<table>
<thead>
<tr>
<th>Potential Impact</th>
<th>Descriptive adjective</th>
<th>Mitigation Measures</th>
<th>Result of Mitigation</th>
<th>Responsibility &amp; When?</th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>Objectionable appearance.</strong> Electrical installations interfere with general aesthetics and may elicit controversy due to urban nimbyism effect (i.e. not in my back yard).</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Status</td>
<td>Negative</td>
<td>• Substation and alignment of overhead lines should consequently be located in a way that they are not strikingly visible to the public;</td>
<td>Avoid objectionable appearances</td>
<td>JDECO under the supervision of PEA</td>
</tr>
<tr>
<td>Extent</td>
<td>Locally</td>
<td>• Substation and alignment of overhead lines should consequently be located in a way that harmonizes with the surrounding landscape;</td>
<td></td>
<td>In the designs</td>
</tr>
<tr>
<td>Duration</td>
<td>Long term</td>
<td>• Engineering of transmission, distribution, and sub-station facilities should be coordinated to develop the least overall objectionable layout.</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Intensity</td>
<td>Medium</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Probability</td>
<td>Probable</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Significance</td>
<td>Medium/Low</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td><strong>Audible noise</strong> Sources of audible noise include: transformers, voltage regulators, circuit breakers, and other intermittent noise generators. Among these, transformers have the greatest potential for producing objectionable noise.</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Status</td>
<td>Negative</td>
<td>• Locating transformers the maximum possible distance from the sub-station fence.</td>
<td>Avoid objectionable noise</td>
<td>JDECO under the supervision of PEA</td>
</tr>
<tr>
<td>Extent</td>
<td>Locally</td>
<td>• Measuring the ambient noise levels at locations of concern. They should be taken during the quietest periods, approximately midnight to 4 a.m.</td>
<td></td>
<td>In the designs</td>
</tr>
<tr>
<td>Duration</td>
<td>Long term</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Intensity</td>
<td>Medium</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Probability</td>
<td>Definite</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Significance</td>
<td>Medium/Low</td>
<td></td>
<td></td>
<td></td>
</tr>
</tbody>
</table>
## 5.5.3 Impact on Land use

<table>
<thead>
<tr>
<th>Potential Impact</th>
<th>Mitigation Measures</th>
<th>Result of Mitigation</th>
<th>Responsibility &amp; When?</th>
</tr>
</thead>
</table>
| Public and occupational safety | - Erection of a suitable barrier (e.g. such as a metal fence for a substation and mounting on poles/ enclosed housing for smaller transformers);  
- Appropriate warning signs should be posted on the sub-station's peripheral barrier fence.  
- Use the warning signs to inform the public during the construction and operation phases of the project. | Ensure public and occupational health | JDECO under the supervision of PEA, MoL, and MoH In the designs |

<table>
<thead>
<tr>
<th>Change of land use and prevent residential activities at substation site</th>
<th>Mitigation Measures</th>
<th>Result of Mitigation</th>
<th>Responsibility &amp; When?</th>
</tr>
</thead>
<tbody>
<tr>
<td>Status</td>
<td>Neutral</td>
<td>· Obtain the construction permits from the Israeli Civil Administration</td>
<td>Approve and consider the land use change</td>
</tr>
<tr>
<td>Extent</td>
<td>Locally</td>
<td>It is to note that the land allocated for the substation is not anymore residential as industrial and other activities are present at the site Atarot Industrial complex and IEC electricity substation.</td>
<td></td>
</tr>
<tr>
<td>Duration</td>
<td>Long term</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Intensity</td>
<td>Low</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Probability</td>
<td>Definite</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Significance</td>
<td>Low</td>
<td></td>
<td></td>
</tr>
</tbody>
</table>
6. Environmental and Social Management Plan

6.1 Introduction

The objective of the ESMP is to cater to the environmental and social needs of the project in a simple, responsive and cost effective manner that will not unnecessarily overload or impede the project cycle. This ESMP outlines the measures needed to address the issues identified in the assessment. Moreover, the ESMP demonstrates proposed monitoring activities that encompass all major impacts and identify how they will be integrated into project supervision as detailed in the tables of section 5.4 during the construction phase and section 5.5 during the operation phase.

The following are outlined in the ESMP:

- Main environmental and social mitigation measures;
- Environmental and social monitoring.

The ESMP can be considered as an assessment of potential impacts and mitigation measures. The following are highlighted by the ESMP:

- Environmental and social screening and assessment of key environmental and social issues;
- Ensure adequate consultation during the assessment process;
- Identify linkages to other safeguard policies relating to the project.

The construction of Ramallah electricity substation and distribution lines is not likely to result in any severe adverse environmental impacts. The tables of sections 5.3 and 5.4 above list the potential impacts due to the construction of Ramallah electrical substation and the distribution lines. The tables also list the required mitigation measures and the actions to be taken in addition to specifying who is responsible for these measures and when to be applied. It is necessary to adequately manage the impacts and implement the associated mitigation measures from an environmental perspective. When implemented efficiently, the ESMP should ensure that:

- Any environmental and social issues or concerns are addressed in the design phase and early phases of the project;
- Mitigation measures minimizing environmental and social impacts are being implemented; and
- Monitoring for compliance and sound environmental performance is continued.
6.2 Institutional Setup

For Ramallah substation project, the electricity distribution system is to be managed by JDECO, whereas PEA is to manage and operate the substation. Table 5 lists the PEA and JDECO roles and responsibilities in regard of the project preparation and implementation.

Table 5: Summary of Agency Roles and Responsibilities

<table>
<thead>
<tr>
<th>Stages</th>
<th>Agency</th>
<th>Responsibility</th>
</tr>
</thead>
<tbody>
<tr>
<td>Project Preparation</td>
<td>PEA</td>
<td>- Facilitate and support all relevant project actions</td>
</tr>
<tr>
<td></td>
<td>JDECO</td>
<td>- Identify all affected persons, advise them on their rights</td>
</tr>
<tr>
<td></td>
<td></td>
<td>- Follow-up on all matters related to complaints</td>
</tr>
<tr>
<td></td>
<td>PEA</td>
<td>- Locally disclose ESMP</td>
</tr>
<tr>
<td></td>
<td></td>
<td>- Provide direct contact with affected persons</td>
</tr>
<tr>
<td></td>
<td></td>
<td>- Liaise with appropriate government bodies and lawyers</td>
</tr>
<tr>
<td>Project Implementation</td>
<td>PEA</td>
<td>- Overall supervision</td>
</tr>
<tr>
<td></td>
<td></td>
<td>- Implement ESMP</td>
</tr>
<tr>
<td></td>
<td>PEA/JDECO</td>
<td>- Assess and process complaints</td>
</tr>
<tr>
<td></td>
<td>JDECO</td>
<td>- Undertake community liaison</td>
</tr>
</tbody>
</table>

The construction of the substation is the responsibility of PEA and will be coordinated with the IEC as to make the necessary connections. The construction of the distribution lines are to be managed mainly by JDECO. The following are required to enhance the process of the installation of the distribution lines and are to be applied prior to the construction:

- Official letters will be sent to the municipalities and Palestinian Telecommunication to inform them of the proposed location of the distribution lines and requesting them to determine the places of public facilities and infrastructure on the project site, this is to avoid damaging the infrastructure when implementing the project.
- The proposed location of the distribution lines will be officially handed over to PEA and/or JDECO by the municipalities in the presence of the Palestinian Telecommunication and the beneficiaries. The handover of the site will include all the public facilitations and infrastructure locations on the site. Assuring that work will have no impacts on the people, public service or infrastructure.
- PEA and JDECO will continue to coordinate with the municipalities and Telecommunication Company until completing the implementation of the project.
6.3 Grievance and Redressal System

In Palestine, the right of the public to complain or grievance has been confirmed by the Grievance and Complaints bylaw that has been approved by the Ministerial Cabinet on 9/3/2005 and that has been updated on 8/3/2009. The Bylaw has regulated the means and tools to settle the complaints of the public and has stated the policies for the improvement of the performance of the Palestinian Ministries and Authorities and other non-governmental institutions.

This means that the citizens and beneficiaries impacted by Ramallah substation project can raise their complaints anytime during the construction and operation of the substation and distribution line and that their complaints are to be settled.

The appropriate partner for the implementation of the Grievance and Redressal Mechanism (GRM) is JDECO as the technical company implementing the project. JDECO is responsible for working with PEA for assisting in implementation of the GRM. In addition, it acts as a conduit of information between PEA and the public. For example, it advises people on their rights and processes, including those of the GRM, throughout the period of implementation.

To ensure that the public has a safe, reliable and accountable means for their grievance to be heard, a specific mechanism of the following main features has been established.

- **Information on Project and where and how to address Complaints:** For information on the project and the GRM, compensation and consultation process, the public can download information from the PEA project website. The website indicates the contact information of the head of the JDECO GRM department. Information on how complaints can be received i.e. name of the person in-charge, Telephone, fax, e-mail, drop box, wake-in details will be announced.

  JDECO is to prepare the web page informing the people on where and how to complain. It will also put on the web the type of complaints received and the answers to these complaints. Log of the complaints at both PEA and JDECO is to be prepared and made available. Documentation of the complaints is essential for the success of the Grievance system and is committed to be applied.

  In addition, before construction begins, a billboard will be posted that is visible including contact information of the regulator, whose role is to record all complaints and inform JDECO immediately of the complaint. A brochure describing the project, its impacts, and channels for making inquiries, comments and complaints about the project will be prepared and distributed.
Processing of Complaints: In order to address all complaints in a timely manner, JDECO has set up a specific complaints department. The department will include at least three employees. The department will handle the complaints and will make sure that an initial reply indicating that the complaint is received is sent in a week time. The head of the GRM department will follow up with the officials to secure the reply to the complaint during 1-3 weeks time depending on the type of the complaint? The GRM department will respond to all concerns through meetings, written responses and other forms of communication.

The GRM department is to report monthly to the management of JDECO and PEA on the complaints and will inform of any pending ones that may need interference for the upper management. This is to ensure that all complaints are redressed and are settled.

Appeals Procedure: If a complaint has not been resolved in a manner that the person making the complaint is satisfied, he or she can appeal. The appeal procedure is also to be announced on the web and made available for the public. The appeal will be addressed directly to the upper management of JDECO and PEA, i.e. to the Head of JDECO and/or the Head (Minster) of the PEA as appropriate. A reply to the appeal has to be issued within 40 days. A meeting with the concern to answer the complaint and come to a compromise is to take place in case the issue is not solved.

Monitoring and Follow-up of Complaints: As stated in the Table 5 above, PEA will have the overall supervision and control on the project and will make sure that the ESMP is implemented. PEA will also make sure that the GRM and the complaint system is applied properly and as to the related laws and regulations.

6.4 Monitoring of the ESMP

To ensure that all the measures are applied and that JDECO and the contractors are to exactly cope with the requirements of the ESMP, PEA is to appoint an engineer from its side. The engineer is to act as the Environmental and Social Officer (ESO) for the project. He is to follow up, apply monitoring indicators, and report to PEA.

The ESO engineer will be appointed by PEA as permanent, not only during the construction of the Ramallah substation, but also to follow up the management and monitoring of the mitigation measures also during operation. During Construction he is to have his office at the construction site and to report to PEA the progress of the works and the status of the commitment to the ESMP on monthly basis. During operation he will have his office at PEA
and make periodical (weekly) visits to the substation site as to make sure that all measures are coped with.

In addition to the above, the ESO engineer will make sure that all complaints applied to PEA in regard of the project are recorded and documented, and properly handled and that the GRM is applied.

The construction of Ramallah substation and electrical distribution lines is undertaken according to the recommendations of the environmental assessment and ESMP in a way that is respectful to the local people, their land and resources. All operations will be managed in a manner that protects the environment, health and safety of employees, customers, contractors and the public.

A “Measures Plan” is prepared that establishes the steps required to ensure conformity with the principles and procedures laid down in the national environmental legislation during the planning/project design, construction and operation activities of the substation project, Tables 6 and 7.

A "monitoring plan" table is to be provided to potential contractors. This table shows the monitoring stages required to ensure conformity with the principles and procedures laid down in the national environmental legislation during the planning project design construction and operation activities of the proposed Electrical Distribution System and Substation. These are Tables 8 and 9.
## Table 6: Measures Plan for the Construction of Ramallah Electricity Substation and Distribution lines

<table>
<thead>
<tr>
<th>Stage</th>
<th>Activity</th>
<th>Measures to be Taken</th>
<th>Implementing Agency/Party</th>
<th>Monitoring Agency/Party</th>
</tr>
</thead>
<tbody>
<tr>
<td>Construction</td>
<td>Earth-moving wastes</td>
<td>Earth-moving wastes to be excavated in scope of this project shall be disposed safely in areas permitted by the relevant Municipality.</td>
<td>Contractor</td>
<td>JDECO/PEA/MoPW</td>
</tr>
<tr>
<td>Historical, cultural and archeological assets</td>
<td>Historical, cultural and archeological assets</td>
<td>In case any historical, cultural or archeological assets is encountered during excavations, the excavation work shall be stopped and the Provincial Culture and Tourism Directorate shall be informed thereof. The work will carry on after reaching an agreement</td>
<td>Contractor</td>
<td>JDECO/PEA/MoTA</td>
</tr>
<tr>
<td>Dust/air pollution</td>
<td>Dust/air pollution</td>
<td>The vehicles transporting materials shall be covered. In particular, the work sites shall be watered under warm, dry and windy weather conditions.</td>
<td>Contractor</td>
<td>MEnA/Police</td>
</tr>
<tr>
<td>Noise</td>
<td>Noise</td>
<td>The noise levels of the excavation and work machines shall not exceed the levels indicated in the Regulation on the Evaluation and Management of Ambient Noise; Impulse noise may not exceed 70 dBA</td>
<td>Contractor</td>
<td>JDECO/PEA/MEnA</td>
</tr>
<tr>
<td>Exhaust Emission</td>
<td>Exhaust Emission</td>
<td>Whether each vehicle used for construction works has measured its exhaust emission levels in accordance with the criteria set by the Ministry of Environment Affairs as well as their “Motorized Vehicle Exhaust Emission Measurement License” shall be checked and supervised.</td>
<td>Contractor</td>
<td>JDECO/PEA/MEnA</td>
</tr>
<tr>
<td>Excavation</td>
<td>Excavation</td>
<td>In order to avoid any damage on other infrastructure systems (water, natural gas, sewerage, communication, transportation, etc.), the related agencies and utilities shall be informed in writing before starting excavation works.</td>
<td>Contractor</td>
<td>JDECO/PEA</td>
</tr>
</tbody>
</table>
In order to avoid any danger that may be posed by the project against public safety (particularly for children), people must be prevented from entering the construction sites, using plastic stripes, barriers as well as phosphorous enlightened warning signs. Furthermore, the necessary measures shall be taken to ensure a safe flow of traffic in cooperation with the related agencies.

The Construction Site shall be restored to its previous position.

<table>
<thead>
<tr>
<th>Public Safety</th>
<th>Contractor</th>
<th>JDECO/PEA/MoPW/MoL</th>
</tr>
</thead>
<tbody>
<tr>
<td>Restoration of Construction Site</td>
<td>Contractor</td>
<td>JDECO/PEA/MoPW</td>
</tr>
</tbody>
</table>
### Table 7: Measures Plan for the Operation of Ramallah Electricity Substation

<table>
<thead>
<tr>
<th>Project Activity</th>
<th>Potential Impacts</th>
<th>Proposed Mitigation Measure(s)</th>
<th>Institutional Responsibilities (Incl. enforcement and coordination)</th>
<th>Cost Estimates</th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>Operation and Maintenance Phase</strong></td>
<td>Accelerated propagation of invasive plants</td>
<td>Training of maintenance crews in recognition and systematic removal of invasives</td>
<td>PEA through JDECO</td>
<td>Costs to be incorporated as part of training for O&amp;M estimated at about $10,000</td>
</tr>
<tr>
<td></td>
<td>Contamination of soil and water resources from accidental release of wastes</td>
<td>Installation of appropriate containment structures</td>
<td>PEA through ESO engineer</td>
<td>$20,000</td>
</tr>
<tr>
<td></td>
<td>Atmospheric pollution from accidental fires</td>
<td>Installation downwind of major population areas and observing recommended clearances</td>
<td>Contractor, Consultant to monitor compliance with design specs.</td>
<td>$20,000</td>
</tr>
<tr>
<td></td>
<td>Failure/ equipment malfunctioning due to weather/ earthquakes and accumulation of airborne seeds, leaves and debris</td>
<td>Application of appropriate design criteria and location to minimize potential impacts</td>
<td>As above</td>
<td>Included in the design</td>
</tr>
<tr>
<td>Project Activity</td>
<td>Potential Impacts</td>
<td>Proposed Mitigation Measure(s)</td>
<td>Institutional Responsibilities (Incl. enforcement and coordination)</td>
<td>Cost Estimates</td>
</tr>
<tr>
<td>------------------</td>
<td>------------------------------------------------------</td>
<td>------------------------------------------------------------------------------------------------</td>
<td>---------------------------------------------------------------------</td>
<td>-------------------------------</td>
</tr>
<tr>
<td></td>
<td>Objectionable appearance</td>
<td>Employing of least impactful designs to minimize visual impact</td>
<td>As above</td>
<td>Included in the design</td>
</tr>
<tr>
<td></td>
<td>Public and occupational safety</td>
<td>Erecting barriers and posting of warning signs to prevent public access/ interference</td>
<td>As above</td>
<td>Included in the contract</td>
</tr>
<tr>
<td></td>
<td>Audible noise and electrostatic and electromagnetic effects</td>
<td>Employing of appropriate/ recommended design criteria</td>
<td>As above</td>
<td>Included in the design</td>
</tr>
<tr>
<td></td>
<td>Management and monitoring of the mitigation measures</td>
<td>Assign an engineer to act as the ESO to work during construction and operation</td>
<td>ES0 to be appointed by PEA</td>
<td>$46,000 per year including salaries and other expenses</td>
</tr>
</tbody>
</table>
### Table 8: Monitoring Plan for the Construction of Ramallah Electricity Substation and Distribution lines

<table>
<thead>
<tr>
<th>Stage</th>
<th>What are the parameters to be monitored?</th>
<th>Where will be the parameters are monitored?</th>
<th>How will the parameters be monitored/what are the monitoring instruments?</th>
<th>When will the parameters be monitored? Measurement frequency/continuous measurements</th>
<th>Implementing Agency/Party</th>
<th>Monitoring Agency/Party</th>
</tr>
</thead>
<tbody>
<tr>
<td>Construction</td>
<td>Earth-moving wastes</td>
<td>Construction routes/storage areas</td>
<td>Visual</td>
<td>Continuously</td>
<td>Contractor</td>
<td>JDECO/ESO of PEA/MoPW</td>
</tr>
<tr>
<td></td>
<td>Historical, cultural and archeological assets</td>
<td>Construction route</td>
<td>Visual</td>
<td>If cultural assets encountered</td>
<td>Contractor/ JDECO</td>
<td>JDECO/ESO of PEA/MoPW</td>
</tr>
<tr>
<td></td>
<td>Dust/air pollution</td>
<td>Construction site and vehicles moving materials</td>
<td>Visual</td>
<td>Continuous</td>
<td>Contractor/ JDECO</td>
<td>ESO of PEA/MEnA/MoTA</td>
</tr>
<tr>
<td></td>
<td>Noise(work machinery and transportation vehicles)</td>
<td>Work machinery at the Construction site</td>
<td>Noise measurement shall be performed at the site</td>
<td>Monthly, or when the people living in the environs complain</td>
<td>Contractor</td>
<td>ESO of PEA/MEnA/MoTA</td>
</tr>
<tr>
<td></td>
<td>Excavation</td>
<td>Construction site</td>
<td>The permits received must be checked for properness and the durations of permits must not be exceeded</td>
<td>Once, when vehicles enters work site for first time (expiration date of license)</td>
<td>Contractor</td>
<td>JDECO/ESO of PEA/MoPW</td>
</tr>
<tr>
<td>Public Safety</td>
<td>Construction route</td>
<td>Visual</td>
<td>Continuous</td>
<td></td>
<td>Contractor</td>
<td>JDECO/MoPW</td>
</tr>
<tr>
<td>Restoration of Construction Site</td>
<td>Construction site</td>
<td>Visual</td>
<td>At the end of Construction period</td>
<td></td>
<td>Contractor</td>
<td>JDECO/MoPW</td>
</tr>
</tbody>
</table>
**Table 9**: Monitoring Plan for the Operation of Ramallah Electricity Substation

<table>
<thead>
<tr>
<th>Mitigation Measure</th>
<th>Parameters to be Monitored</th>
<th>Measurements (methods &amp; equipment)</th>
<th>Frequency of Measurement</th>
<th>Responsibility</th>
<th>Cost (equipment &amp; individuals)</th>
</tr>
</thead>
</table>
| Operation and Maintenance Phase | Cleanup and preparation of disturbed areas for re-vegetation | As soon as backfilling is complete, the RoW should be cleaned up by:  
- Removing surplus material,  
- Restoring services to their original condition,  
- Disposing of refuse,  
- Smoothing disturbed earth,  
- Any additional work necessary to leave the RoW as close to its original condition as possible. | Continuous during demobilization | JDECO/ESO | The ESO is to be appointed by PEA and be responsible for the monitoring plan and abide to the mitigation measures both during construction and operation of the project. His annual salary including social charges is estimated at $36,000; other costs at $10,000 per year for consumables and equipments. |
| | Restoration of ground contours and erosion control | Prevent concentrated run-off by shaping land, establishing vegetation and applying erosion control as required. | Continuous during demobilization | JDECO/ESO | |
| | Remediation of compacted soils |  
- Use plough scarifier to rip soils, bit not deeper than 100 mm.  
- Backfilled trenches for submarine cable crossings and pole excavations should be covered by an even layer of topsoil to a minimum depth of 150 mm. | Continuous during demobilization | JDECO/ESO | |
| | Return and/or addition of stockpiled rootstock and mulch material |  
- Cut woody vegetation should be retained during the clean-up operation.  
- Tree trunks, limbs and stumps shall not be placed in watercourses. | Continuous during demobilization | JDECO/ESO | |
| | Re-vegetation of disturbed areas |  
- Preferably by natural processes, by spreading of topsoil, rootstock and mulch material from stockpiles established during clearing and trenching activities. | Continuous during demobilization | JDECO/ESO | |
## Mitigation Measure

<table>
<thead>
<tr>
<th>Mitigation Measure</th>
<th>Parameters to be Monitored</th>
<th>Measurements (methods &amp; equipment)</th>
<th>Frequency of Measurement</th>
<th>Responsibility</th>
</tr>
</thead>
</table>
| Control of alien and invasive plant species | - As far as possible this should be done manually, use of herbicides should be avoided  
- Training to recognize alien invasives  
- Proper disposal to prevent further spreading | Monthly during initial 1-2 years, thereafter as part of maintenance | JDECO/ESO | Cost (equipment & individuals) |
7. Conclusions

The project is feasible from the environmental and socio-economic viewpoints. Based on field work and consultations with project affected people, local and national government agencies and other organizations it is clear that the project will result in significant positive social and environmental impacts.

The project will contribute to the generation of significant social and environmental development outcomes. The main benefit as a result of the project is that it will improve the reliability of electricity networks; reduce losses; improve the safety of the electricity network; and reduce power outages. Some other benefits include improving electricity service for the citizens; reducing physical dangers caused by old electrical networks away from houses; reducing the problem of electricity cuts for the citizens; connecting the remote areas with electricity, which lie along the distribution lines; and reducing operating the generators used by citizens in their houses and shops due to electricity cuts. This will maintain the safety of the environment and also reduce the noise level resulting from these generators.

Some potential negative environmental impacts during construction and operation will be temporary, site-specific, reversible and minor in nature. Those impacts are mitigated via the ESMP detailed in the document. Any adverse impacts during the construction phase can be mitigated with the implementation of standard good practice construction codes by the contractor and measures outlined in the ESMP. Positive social and environmental impacts will far outweigh any potential negative impacts.

From the impact assessment carried out, the environmental acceptability of the project may be summarized thus:

**Terrestrial Ecology:** Ramallah proposed substation location at Qalandia entails none significant impacts on the terrestrial ecology. In all cases any negative impacts will be minor, capable of being reduced to an acceptable level through environmental management planning.

**Water Quality:** Potential serious negative impacts on groundwater quality can result from accidental leakage or spills of oils, lubricants from construction machinery and/or transformers. The risk of such impacts will consequently need to be managed through safety procedures and installation of structures for containment of spills (i.e. for transformers).
**Air and Noise Quality:** Minor negative impacts associated with dust, fumes and noise from construction works.

**Landscape:** Very small-scale and largely temporary negative impacts associated with works areas.

**Socio-Economic and Cultural Environment:** Minor short-duration socio-economic impacts associated with construction works. The THA of Al-Ram, the land owners of the proposed site for the construction of the substation, has accepted to sell. The price of one Million US$ has been paid to the owners.

The project will have some negative impacts, but these are mostly localized and of low to medium significance. The proposed grievance system will take care of any complaints from the public and will deal with these during the construction of the distribution lines.

The current design does not entail potential conflicts. The site for the construction of Ramallah substation is located near the existing Israeli electrical substation adjacent to Atarot industrial zone, but far enough from any residential complexes of at least 300 m.

Subsequent impacts from construction of the associated distribution lines are mainly related to clearing the routes where these lines are to be constructed (underground along existing roads and streets). Such clearing is anticipated to be very limited in extent and localized. However, all the impacts are susceptible to mitigation and most of the mitigation measures can be easily applied.

This environmental and social management plan should be followed in order to minimize negative impacts and enhance the positive ones. The ESO engineer to be appointed by PEA is to make sure that JDECO and the contractors, who are the main responsible for applying the mitigation measures, are coping with these measures.
8. Annexes

Annex I: Legal Documents of the Ramallah Substation land purchase deal

These legal documents are the land selling contract signed between JDECO and the representatives (Board of directors) of the THA. A legal confirmation and stamping that the signatures are right and that the purchased and selling are legal binding is also in these documents. The addendum that states the agreed price for the land is also annexed.
Construction of KV 161/33 Electricity Sub-Stations and Distribution System in the West Bank (Ramallah Substation)
Construction of KV 161/33 Electricity Sub-Stations and Distribution System in the West Bank (Ramallah Substation)

64
Construction of KV 161/33 Electricity Sub-Stations and Distribution System in the West Bank (Ramallah Substation)

Page 65
ملحق الثاني:

الفرق الأول:

جمعية إسكان المعلمين التعاونية بالرقم محدودة المسؤولية والمسجلة تحت رقم 584 بولاية
الضوين بالتوقيع عليها:

1- نسما عبد العلي خضير - من القدس وحاملة بطاقة هوية رقم (95602559995(0)
2- شيماء عبد الله بن برو - من القدس وحاملة بطاقة هوية رقم (009530908(0)
3- عبد الجليل مساحب نتاه - من القدس وحامل بطاقة هوية رقم (784681604(0)

الفرق الثاني:

شركة كهرباء محافظة القدس ممثلة بمديرها العام السيد هشام العماري - من القدس وحامل بطاقة
هوية رقم (00666606/92)

إتفاق الفريق الثاني على أن يتم الإذن للつまり بموجب الإتفاقية الموكلة بين الفريقين بتاريخ
الفرق الثاني 2012/4/2 هو 699250 ديناراً أردنياً.

ويوقع بموجب ذلك مسجوب على بنك القاهرة عمان، وسيتم للمفرق الثاني نقل هذا الملحق،

التاريخ: 2012/4/2

الفرق الأول

شركة كهرباء محافظة القدس
Annex II: The Environmental Approval issued by MEnA

The annex state that the Environmental Approval for the construction of the four electricity substations in Ramallah, Nablus, Heborn and Jenin is meet. The approval is signed by MEnA. The approval came after the preparation of the Environmental Impact Assessment and Management plan that has addressed the comments of MEnA and was distributed among the members of the Environmental committee.
Construction of KV 161/33 Electricity Sub-Stations
and Distribution System in the West Bank (Ramallah Substation)

ال_EXPRESSIONS

مجمع: مكافحة بيئة المشروع بناء محطات التحويل (KVs 161/33) ومواقع التوربين الكربونية في الصحراء الغربية

بالإضافة إلى أمكنة الأصلية لمشروع البترولية للنفط المكرر إلى إعداد، والمحافظة على واردات النفط والبترول في دراسة تقيم
و 느كين مشروع البترولية للنفط المكرر، فإن وزارة شؤون البيئة تقع المشروع المكرر محاطاً ببيئة و ملحًا أقوى من
منشآت إنتاج البترول. حسب الأصل المحدد، وفقاً للشروط التالية:

1. الإجراء الكامل والشامل: ما مرة في تنفيذ المشروع الخاص بالموضوع:

2. إجراء المشروع بطريقة سلبية وسومية وسطية إكفاء كافة الإجراءات والإجراءات الإلزامية التي تضع متماً أشجار

3. إنهاء طريقة مناسبة وقابلية لإدارة الأروقة المسموح بها في إعداد التكوينات والمساحة المسموح بها في محاور السياحة

4. إجراء كافة الطيات السلامة العامة والسلامة العامة والساحة المدنية وجمع وسائل الوقاية العامة وإجراء عروض طبية إعدادية

وفوراً نقل السكان في المشروع.

علينا أن هذه الموازنة سلامة المتحددة مدة سنة واحدة فقط، وتم إعدادها وأثرت عليها من قبل مجموعات
وهي مشروع مزود ووجهاء أي أشجار عامة أو بيئية، إذا تبين أن هناك أي أضرار أو عوامل تهدد هذه الموازنة، فهناك
سعود البيئة إعادة النظر في الموازنة الممولة وفقاً للمباني المستحقة، وليست المستحقة.

وخطراً يتطلب نقل العدد والاختيار.

د. يوسف أبو صفية
وزير شؤون البيئة

Al Birah – Al Sharafa – P.O.Box 3841
Tel: 2403495 or 2403498 Fax: 2403494
Email: info@environment.pna.ps
Annex III: List of the participants of the Consultation Meeting

Date: 22/11/2011

**JDECO Representatives:**
1. Eng. Ali Hamoded- General Manager, Assistant for Development and Strategic Planning
2. Eng. Akram Shihabi- Manager of Jerusalem Branch
3. Eng. Nayef Khashan- Manager of Ramallah branch
4. Eng. Sari Ibrahim
5. Eng. Feda’a AbdAl Rahman
7. Sereen Salem

**Attendances:**
1. Adnan Farmand- Ramallah Municipality
2. Jamal Shaltaf- Al Berieh Municipality
3. Abd Mahmoud Jabe’yeh- Ramoon Villages’ council, Chairman
4. AnsamAfaneh- Palestinian Energy Authority
5. MuradHamed- Palestinian Energy Authority
6. Ibrahim Al Dajani- World Bank
7. Ala’ Kharraz- Ramallah provinces and Al Bireh
8. Sawsan Abu Daqar - Ministry of Public Works
9. Saeid Hamad – Ministry of Local Government
10. Sameer Mansour - Ministry of Local Government
11. Hasan Al sheikh Qasem - Al Bireh municipality
12. Maher Al Ashmar - Al Bireh Municipality
13. Dr. Azmi Al Shoa’ybi- Aman Agency
14. Haj Tawfiq Al Nabali – Bier Nabala Villages’ council, Chairman
15. Rami Zidan - Bier Nabala Villages’ council
16. Yousef Awad Allah - Qalandia Villages’ council, Chairman
17. Samer Hatem Taha- Rafat Villages’ council
Annex IV: Minutes of the Consultation Meeting

These are the minutes of the consultative meeting that was carried out by JDECO in collaboration with PEA on November 2011 regarding Ramallah substation. The meeting invited the people living along the proposed corridors where the distribution lines are to be constructed and those living near Qalandia site of Ramallah substation. The meeting was organized in Mövenpick Hotel in Ramallah with the presence of Qalandia, Al-Ram, and Bier Nabala village councils and representatives of relevant municipalities and ministries. It was also attended by Amaan institution.

The minute list the name and positions of the attendees and summaries the issues and the questions raised and the answers to these questions. Chapter 4 of this ESMP covers the stakeholder consultation and summaries these minutes, questions and answers.
الموضوع: محاور اجتماع 21/11/2011 لمناقشة إنشاء محطة التحويل 161 ك.ف أثرها البيئي والاجتماعي وفوائدها

ممثلو الشركة المساهمة المحترمين:
المهندس علي حمودة، م.ع. لشؤون التطوير والتخطيط الاستراتيجي.
المهندس أكرم الشهابي، مدير فرع محافظة القدس.
المهندس نايف خشن، مدير فرع محافظة رام الله والليرة.
المهندس ساري إبراهيم.
المهندسة فداء عبد الرحمن.
المهندسة مثال نصار.
سيرين سالم.

الحضور: السيدات المحترمين:
عدن فرمند، بلدية رام الله / عضو مجلس الإدارة.
جمال شلطف، بلدية البيرة / عضو مجلس الإدارة.
عبد محمود جيبيه، رئيس مجلس محلي رمون / عضو مجلس الإدارة.
الدكتور عزيس الشعبي، مؤسسة أمان.
المهندس إبراهيم الدجاني، البنك الدولي.
علاء خراز، محافظة رام الله والليرة.
مراد حامد، سلطة الطاقة الفلسطينية.
أنساب عفانة، سلطة الطاقة الفلسطينية.
سوسن أبو دقر، وزارة الأشغال العامة.
سعيد حمدي، الحكم المحلي.
شرق الشمالية، مساهمة المحافظة المحدودة
JERUSALEM DISTRICT ELECTRICITY CO. LTD.
15 شارع صلاح الدين – القدس، 19118 – الهاتف: 02 6269333، الفاكس: 6282441
15 Salah El-Din Street – Jerusalem – P.O.Box 19118 – Tel 6269333 – Fax. 6282441

يرحب المهندس علي حمودي مساعد المدير العام لشؤون التخطيط والتخطيط الاستراتيجي بالحضور وشكر المدعوين على الحضور والمشاركة. بدأ الحديث بأن الهدف الأساسي من إنشاء محطة التحويل 161 كم هو مكافحة زيادة الأحمال حيث أكد على أن أحمال محافظة رام الله والبيرة حالياً 120 ميجاوات وهي تتضاعف كل 10-12 سنة والحاجة لإيجاد مصادر جديدة لتغطيتها حيث تم التعاون مع سلطة الطاقة لبحث عن سبل لسد الفجوات وتلبية الطلب على الطاقة الكهربائية، فقد تم إعداد دراسة كاملة تبين وضع الأحمال في الشركة وما المشاريع المنوي العمل عليها لتحسين وتطوير الشبكة وتقويمه للنظام الدولي حيث أنه تم الموافقة على تمييز المشروع وتحديد موقع المحطة وشرح قطعة الأرض، فكان لا بد من عقد لقاء مع الجهات ذات العلاقة لشرح الهدف من المشروع. أحيال تنفيذه، والأثر البيئي وتشمل العرض على مناقشة الأمور الأساسية التالية:

• فوات بناء محطة ال 161 لمحافظة رام الله بشكل عام والمشاريع الاستثمارية بشكل خاص حيث أن بناء المحطة سيتمكن شركة الكهرباء من توزيع المشاريع الإسكانية والتجارية الكبرى مثل مدينة روضي، ضاحية الريحان، الارسال سنتر وغيرها.

• مسارات الخطوط ومشروع المحطة حيث سيتم إنشاء 12 خط من محطة 161 موزعة على رام الله والقدس، 10 خطوط لمنطقة رام الله ثلاثية منها لتجديد خطوط قادمة وأرها خطوط جديدة وخطين لمنطقة الندس، إضافة إلى مسارين التخطيط الاستراتيجي بأن معظم
الخطوات ستكون كوابل أرضية وستمر في الشوارع كما سيتم مد كوابل ألياف ضوئية مع الخطوط.

- أثرها البيئي، حيث أكد المهندس علي حمودة بأن هذا المشروع لا يعرض البيئة لأية أخطار مع الحفاظ على المنظر الجمالي للمنطقة المنوي للبناء فيها وتم العرض والشرح بإسهاب عن الدراسة التي تم إعدادها من قبل سلطة الطاقة للآثار البيئية للمشروع مبينا فيه أثر جميع الأعمال الهندسية والأنشطة في موقع المحلة.

شكر م.P. لكل من شارك في المشروع والتخطيط الاستراتيجي المضطور على حسن الاستماع وفتح المجال للأسئلة والاستفسارات من الحضور حيث تم طرح عدة أسئلة كان أهمها:

- كم المدة الزمنية اللازمة لتنفيذ المشروع؟
- تم البدء بالمشروع من حيث التخطيط وتجهيز المخططات اللازمة ومسارات الخطوط وسيتم الالتزام بجدول زمني لن يتجاوز 6 شهور لتمديد الكوابل و4 سنوات لبناء المحلة بعد توقيع الاتفاقية مع الشركة القطرية الإسرائيلية.
- هل سيتم المشروع المشاريع الإسكانية والتجارية الكبرى مثل مدينة روابي، صحاينة الريحان، الإرسال سنتر وغيرها فقط؟
- سيقدم هذا المشروع كافة المناطق والقرى ولن يقتصر على المشاريع الإسكانية والتجارية الكبرى الجديدة كما سيضم مناطق الرام وقلنسية وشمال القدس.
- متى ستكون المشاريع الكبرى مثل مدينة روابي، صحاينة الريحان، الإرسال سنتر بحاجة للتحمل المطلوب وكيف سيتم تنفيذها في الوقت الحالي؟
- التزود المؤقت موجود حيث أن هذه المناطق بحاجة لوقت حتى تصل للتحمل الأقصى.
- أعرب السيد م.ع.م. باسل قلنديا القرية على مشروع إنشاء محطة 161 كف بشدة حيث يوجد 3 شبكات ضغط متوسط تمر في أراضي قلنديا القرية أي ما يقارب 400 دونم لا يمكن استغلالها وتم إنشاء شبكات بدون موافقة من أصحاب الأراضي ولذا يوجد تخوف من مد خطوط هوائية في أراضي أخرى.
Construction of KV 161/33 Electricity Sub-Stations and Distribution System in the West Bank (Ramallah Substation)

شركة كهرباء محافظة القدس المساهمة المحدودة
JERUSALEM DISTRICT ELECTRICITY CO. LTD.
15 Salah – El-Din Street – Jerusalem – P.O.Box 19118 – Tel 6269333 – Fax: 6262441


ESMP

15 Shaban Street – Ramallah P.O. Box 700
Ramallah, Palestine
Fax: 972-2-9930040

O.K: 972-2-9930040

Dr. Nabil Al-Amin

The Prime Minister of the Palestinian Authority

The President of the Palestinian Authority

The Palestinian National Authority
وما الجديد فيما يتعلق باستخدام التكنولوجيا الحديثة والطاقة المتجددة في الشركة؟

سلطة الطاقة لديها مشروع لمشروع في تركيب وحدات شمسية لتوليد الطاقة وهذا المشروع بحاجة لتسهيل وإطار قانوني وتدريب كادرات والشركة تعمل حالياً على إدخال الشبكات الذكية حيث أن العمل جاري من أربع سنوات ويوجد 3 مشاريع تجريبية ويتم في الوقت الحالي تدريب الموظفين.

كم ستكون مساحة المحطة؟ ستكون 10 دونم.

• ممثلة وزارة الإشغال أكدت على ضرورة التنسيق المسبق مع الوزارات المعنية مثل طرق التعبئة حديثاً ولا يمكن إعادة جرحها؟ ذكر المهندس علي حمودة بأن الشركة لن تسبب أي ضرر للشارع وأن كثير من المشاريع لا تعلم عنها مسبقاً على سبيل المثال شارع بيرزيت.

م علي حمودة

مساعد المدير العام لشؤون التطوير والتخطيط الاستراتيجي.

- مرفق الوعر التقديمي.
- نسخة للسيد المدير العام المحترم.
- نسخة للمهندس إبراهيم الدجاني- البنك الدولي.
- نسخة للمهندس جمال أبو غوش- مدير عام وحدة مراقبة المشروع- سلطة الطاقة الفلسطينية.

ملاحظة: الدراسة البيئية موجودة في مكتب سلطة الطاقة، موقع شركة كهرباء محافظة القدس على الإنترنت.
## Annex V: Summary of Stakeholder Consultation for Ramallah Substation Project

<table>
<thead>
<tr>
<th>Project Component</th>
<th>Brief Description</th>
<th>Questions</th>
<th>Stakeholders Opinions</th>
</tr>
</thead>
<tbody>
<tr>
<td>Construction of Ramallah electricity Substation and distribution system</td>
<td>The proposed project involves the construction of 161/33 KV Ramallah electrical substation and distribution system. 12 distribution lines will be constructed from the KV 161 Ramallah substation. The lines are distributed as follows: seven lines for Ramallah region and five lines for Jerusalem region. All lines are to be constructed underground in the RoW of the streets and roads.</td>
<td>Do you encourage the construction of the substation?</td>
<td>PEA</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>Yes</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>They stressed that they are with the project, but want to make sure that there will be no impact on the lands and that the cables will be underground and not overhead.</td>
</tr>
<tr>
<td>What is your opinion regarding the project?</td>
<td>The project has significant positive impacts. It will contribute to social and environmental development, raise the reliability of electric networks, and limit the power outages. The substations will be the center points for the independent transmission system. This will promote the Palestinian sovereignty on land. The project will solve many dilemmas related to electric sector; including its distribution and conveyance to all Palestinian areas with high efficiency. Building Ramallah substation will enable the electricity company of serving the major residential and commercial projects in Ramallah.</td>
<td>We welcome the project and support the electricity company.</td>
<td>We strongly reject the project of building the substation.</td>
</tr>
</tbody>
</table>
## What is the main problem regarding the project implementation?

Any negative environmental or social impact is expected to be minimal, temporary and site-specific. These impacts may arise during the construction phase, and can be mitigated by the contractor through his commitment to the (EMP) procedures.

There is a fear of negative impacts on land.

Additional lands for the substation and distribution system. There is a fear of the establishment of new lines in other lands.

Impacts on lands and adequacy of compensation. Settlements benefits from the substation.

## What are your requests?

The project to be approved and implemented

Taking engineering specifications, environmental and safety measures into account during construction. In addition to, repairing and compensating for any damage to the infrastructure.

Searching for alternative land for the project implementation.

Giving special privileges to the locals; such as minimal fees and compensating land owners before starting the project implementation.
Construction of KV 161/33 Electricity Sub-Stations

Annex VI: Ramallah Substation - Electricity Distribution System
Construction of KV 161/33 Electricity Sub-Stations and Distribution System in the West Bank (Ramallah Substation)
Construction of KV 161/33 Electricity Sub-Stations and Distribution System in the West Bank (Ramallah Substation)
Annex VII: Follow-up Consultation with THA Regarding Ramallah Substation

A follow-up consultation was held on November 8 with the THA and JDECO to carry out due diligence on the transparency and fairness of the land purchase process. The main conclusions of the meeting were the following:

- JDECO requested and obtained from the Israeli Civil Administration the permission to buy the land from its owner, the Teachers Housing Association (THA), which represented 58 Palestinian teachers.
- After being approached by JDECO, the THA held two meetings with its members, in July and October 2011, to decide whether to sell the land. Out of the 36 THA members present at the meetings, only 2 raised issues with the sale (related to the sale price). In accordance with the THA’s rules of association, the THA decided to sell the land by a majority vote, and elected a three-member committee to negotiate the sale directly with JDECO. A representative of the Palestinian Ministry of Labour attended the THA meetings to ensure the legality of the negotiated sale.
- The THA representatives expressed the unanimous satisfaction of its members for the final negotiated price of 50 Jordanian Dinars / m2 (70.65 US$ / m2), including from those that had expressed initial concerns.
- The THA demonstrated that it had an appropriate internal process to deal with concerns amongst its members and to propose a final satisfactory outcome for all of them.
- The THA decided to use the funds obtained from this transaction to build 29 duplex apartments – already completed - for its 58 members in a location near Beit Hanina. It was reported that the THA members, were all completely satisfied with the land sale, since this had been critical to them owning their newly developed apartments.
Construction of KV 161/33 Electricity Sub-Stations

and Distribution System in the West Bank (Ramallah Substation)

Attendance at EUMP Social safeguards review meeting – Ramallah substation

<table>
<thead>
<tr>
<th>Name</th>
<th>Title</th>
<th>Institution</th>
</tr>
</thead>
<tbody>
<tr>
<td>Samia Barakat</td>
<td>Board President</td>
<td>Teachers Housing Association</td>
</tr>
<tr>
<td>Shaumia Aboderi</td>
<td>Accounting Director</td>
<td>Teachers Housing Association</td>
</tr>
<tr>
<td>Adel Eid</td>
<td>Board Member</td>
<td>Teachers Housing Association</td>
</tr>
<tr>
<td>Abduljalil Nadj</td>
<td>Board Member</td>
<td>Teachers Housing Association</td>
</tr>
<tr>
<td>Ahmed Abou Ghosh</td>
<td>Member</td>
<td>Teachers Housing Association</td>
</tr>
<tr>
<td>Ali Hamoudah</td>
<td>Strategic Planning Manager</td>
<td>JDECO</td>
</tr>
<tr>
<td>Mansour Nassar</td>
<td>Deputy General Manager</td>
<td>JDECO</td>
</tr>
<tr>
<td>Simon Stolp</td>
<td>Senior Energy Specialist</td>
<td>World Bank</td>
</tr>
<tr>
<td>Roger Coma</td>
<td>Energy Specialist</td>
<td>World Bank</td>
</tr>
</tbody>
</table>
Annex VIII: price fairness letter