ENVIRONMENTAL MANAGEMENT PLAN (EMP)

SUBPROJECT:
DISTRIBUTION EFFICIENCY PROJECT, PHASE 1 – NAM DINH PROVINCE

PREPARED BY

Vinh Thanh Construction and Consultant Company

Hanoi, 18 April 2012
TABLE OF CONTENTS

ABBREVIATION .......................................................................................................................... 4

I. INTRODUCTION .......................................................................................................................... 5

II. POLICY AND REGULATION FRAME ....................................................................................... 5
   II.1. Regulations issued by Vietnam Government .................................................................. 5
   II.2. Safety policy of WB applied in the project ................................................................. 6

III. PROJECT DESCRIPTION AND SCOPE OF WORK ............................................................. 6
   III.1. Targets of Project ........................................................................................................... 6
   III.2. Project area .................................................................................................................... 6
   III.3. Project control organization ....................................................................................... 7
   III.4. Project description ........................................................................................................ 7
       III.4.1. Description of the project and baseline conditions: ............................................ 7
       III.4.2. Scale of the project ............................................................................................. 8
       III.4.3. The main work volume of Project ..................................................................... 8
       III.4.4. The main operations before and during the construction .................................. 9
       III.4.5. Work schedule and total investment cost ........................................................... 9

IV. SUMMARY OF NATURAL CONDITIONS AND ENVIRONMENTAL CONDITIONS OF PROJECT AREA ......................................................................................................................... 11
   IV.1. Geographical position .................................................................................................... 11
   IV.2. Climate, topography and pedology .............................................................................. 11
       IV.2.1. Climate .................................................................................................................. 11
       IV.2.2. Topography .......................................................................................................... 11
       IV.2.3. Pedology .............................................................................................................. 11
   IV.3 Environment of the project area ..................................................................................... 11

V. DETERMINATION OF POTENTIAL IMPACTS OF PROJECT ............................................ 13

VI. ENVIRONMENTAL MANAGEMENT PLAN ........................................................................ 19
   VI.1. Environmental impact mitigation measures ................................................................. 19
       VI.1.1 Measures integrated in Design (performed by design consultant in the project preparation): .................................................................................................................. 19
       VI.1.2 Environmental impact mitigation measures during the construction: ................. 19
   VI.2 Environmental monitoring plan and report procedure ................................................. 26
       VI.2.1 Environmental monitoring plan ............................................................................. 26
       VI.2.2 Report procedure .................................................................................................. 27
   VI.3 Implementation organization to enhance the EMP ...................................................... 28
       VI.3.1. Responsibility for performing the EMP ............................................................... 28
       VI.3.2. Improving the capacity for EMP performance .................................................. 29
VI.4. Cost estimation for EMP performance ................................................................. 29

VI.5. Consultation and information publication ............................................................. 30

Annex 1: TOR of Construction supervision Consultant .................................................... 33

Annex 2: Sample of report on EMP performance monitoring (Applied for monthly report of CSC to PMU) .......................................................... 33

Annex 3: Sample of report on EMP performance monitoring (Applied for report prepared by Contractor) ............................................................. 33

Annex 4: Environment License of Project (Environmental protection commitment) ............ 33

Annex 5: Project area map (attached) .............................................................................. 33

Annex 6: Summary of environmental consultation (attached to the list of people in public consultation) ........................................................................... 33

Annex 1- TOR of Construction supervision Consultant (CSC) ....................................... 34

Annex 2: Sample of report on EMP performance monitoring ......................................... 36

Annex 3: Sample of report on EMP performance monitoring ....................................... 37

Annex 6: Summary of environmental consultation .......................................................... 38
ABBREVIATION

DoNRE  Department of Natural Resources and Environment
EA      Environmental assessment
EIA     Environmental impact assessment
EMD     Environmental Management Department
EMP     Environmental Management plan
EMF     Environmental Management Framework
EVN     Vietnam Electricity
GOV     Vietnam government
Km      Kilometre
LV      Low voltage
PMU     Project Management Unit
EMP     Environmental management plan
EPC     Environmental protection commitment
KV      Kilo-voltage (unit of voltage)
CSC     Construction supervision consultant
BSC     Building monitoring consultant
MoNRE   Ministry of Natural Resources and Environment
NPC     North Power Corporation
PMU     Project Management Unit under NPC
Project Area  Project area
DEP     Distribution efficiency project
ROW     Right-of -way
SEMP    Site environment management plan
SIMC    Safety independent management consultant of WB.
UXO     Unexploded ordnance
WB      World Bank
I. INTRODUCTION

The existing low voltage network of Nam Dinh province has mostly been in downgrade which is featured with small cross-section conducting wire, old and high power losses exceeding 25% and does not ensure the demand of the existing electricity supply. It is recognized that investment in this work is very necessary and Nam Dinh province sent its request to World Bank (WB) for funding of this sub-project.

Sub-project “Distribution Efficiency Project (DEP), stage 1 – Nam Dinh province” is one of the subprojects that will be implemented in the first phase of the Distribution Efficiency Project (DEP) funded by the WB and under EVN management. The sub-project shall be implemented in 90 towns/communes of 10 districts/city in Nam Dinh province.

The sub-project comprises installation of 1,267.428km of low voltage line, which maybe cause negative impacts on the environment and the local communities before the construction and during the operation of the electrical network.

In order to ensure that these negative impacts can be found and minimized during the performance of the sub-project as well as to comply with the environmental assessment given by WB - (OP/BP 4.01), an Environmental Management Plan (EMP) of the sub-project has been prepared in compliance with the guidance of Environmental Management Framework (EMF) of DEP. This EMP consists of the followings: description of the sub-project, policy frames, applicable regulations and technical standards on environment, the potentially negative impacts, proposed measures before and during the construction, operation and organization. EMP also includes an environmental codes of practice which will be integrated in the bidding documents and contracts and for environmental monitoring and supervision during the implementation.

According to the regulations issued by Vietnam Government, the sub-project need to prepare an environmental protection commitment (EPC). An EPC has been prepared and approved by the People’s Committee of Nghia Hung district – Nam Dinh province on 13/01/2012.

II. POLICY AND REGULATION FRAME

II.1. Regulations issued by Vietnam Government

The following laws and regulations of Vietnam shall be applied for the sub-project:

- Law on environmental protection No. 52/2005/QH11 passed by National Assembly on November 29, 2005 regulating the responsibilities of individuals and organizations in environmental protection.
- Law on forest development and protection No. 29/2004/QH11.
- Decree No. 80/2006/ND-CP dated August 09, 2006 of Vietnam Government detailing and guiding the implementation of some articles in Law on Environment.
- Decree No. 29/2011/ND-CP dated April 18, 2011 stating regulations on strategic environmental assessment, environmental impact assessment and environmental

- Decree No. 106/2005/ND-CP dated 17/8/2005 of Government on detailing and guiding the implementation of some articles of Law on Electricity on safety protection of high voltage electricity network.


Guidance of EVN No. 2623/CV-EVN - KHCN & MT, dated May 28, 2007 on torching and pollution management and prevention of PCBs.

II.2. World Bank Safeguard Policies

Environmental screening in compliance with criteria stated in the Environmental Management Framework (EMF) of DEP has been performed and it indicates that the World Bank policies on environmental assessment (OP 4.01) and involuntary resettlement (OP 4.12) are triggered. Compliance with the OP 4.12 is described in a separate social safeguard document.

III. PROJECT DESCRIPTION AND SCOPE OF WORK

III.1. Targets of Project

Sub-project will focus on: i) rehabilitation and expansion of the existing low-voltage line (0,4kV); ii) assurance of the electricity supply capacity, electricity quality for the project area; iii) enhancement of electricity supply safety and; iv) reduction of power loss.

III.2. Project area

The sub-project shall be performed in 90 communes/towns of 10 districts/cities named in the following list:
District/City | Commune/Town
---|---
1. My Loc: | My Trung | My Tan | My Hung
2. Nam Truc : | Hong Quang | Nam Thang | Dien Xa | Nam Thanh
       | Nam Hai   | Nam Duong | Hong Son |
3. Xuan Truong: | Xuan Kien | Xuan Phuong | Xuan Ninh | Xuan Hong
       | Xuan Ngoc | Xuan Vinh | Xuan Phu  | Xuan Thuy
       | Xuan Dai  |
4. Giao Thuy: | Giao Lac  | Giao Hai  | Giao Long | Hong Thuan
       | Bach Long | Giao An   | Giao Xuan  | Giao Huong
       | Giao Thanh | Giao Thien | Giao Phong  | Giao Thinh
5. Vu Ban | Lien Bao  | Tam Thanh | Thanh Loi | Tan Thanh
       | Trung Thanh | Cong Hoa | Kim Thai  |
6. Truc Ninh | Phuong Dinh | Liem Hai | Truc Thai | Cat Thanh
       | Trung Dong | Truc Tuan | Truc Dao  | Truc My
       | Truc Thuan |
7. Hai Hau | Hai Xuan  | Hai Trung | Hai Minh | Hai Hoa
       | Hai Duong | Hai Trieu | Hai Ly    | Hai Chau
       | Phong     | Hai Bac   |          | Hai Dong
       | Hai Tay   | Hai Anh   |          |          |
8. Y Yen | Yen Dong  | Yen Chinh | Yen Thang | Yen Nghia
       | Yen Phuong | Yen Nhan | Yen Hong  | Yen Cuong
       | Khanh     | Yen Phong | Yen Xa    | Yen Ninh
       | Yen Tho   | Yen Phuc  |
9. Nghia Hung | Nghia Trung | Nghia Tan | Nam Dien  | Nghia Thang
       | Nghia Son | Lieu De   | Nghia Binh| Nghia Phuc
       | Nghia Phong | Nghia Hai | Nghia Lac |
10. Nam Dinh City | Loc Hoa  | Nam Phong | Nam Van  | My Xa
       | |

(For the positions of the project communes, please refer to Annex 5)

III.3. Project control organization

- Subproject owner: Northern Power Corporation.
- Design consultant: Vinh Thanh construction and consultant Joint Stock Company.
- Project management and control unit: PMU under NPC.

III.4. Project description

III.4.1. Description of the project and baseline conditions:

The low voltage lines (0.4kV and 0.23kV) of project communes are featured by:

- The low voltage lines mostly follow the traffic lines of communes and groups, etc, and surrounded by local population. The lines directly supply power for local households.
- Some lines under communes where there are Ninh Co system river, Red river, Day river, So River, Dao River and Canal and canal systems. The survey results show that these lines in the project area are near the following main rivers:
  i. Dao river passes over the boundary of the following communes: Yen Nhan, Yen Phuc, Nam Duong, and Thanh Loi;
  ii. Red river passes over the boundary of the following communes: Yen Trung, My Tan, Dien Xa, Nam Thang, Nam Than, Giao Huong, Giao Thien, Hong Thuan
iii. Day river passes over the following communes: Yen Tho, Yen Phuong, Yen Phong, Yen Dong, Yen Nhan, Nghia Trung, Nghia Son, Nghia Hai, and Nam Dien;

iv. Ninh Co river passes over the boundary of the following communes: Nghia Thang, Nghia Binh, Nghia Phong, Nghia Lac, Nghia Son, Nghia Trung, Truc My, Truc Thuan, Cat Thanh, Phuong Dinh, Xuan Hong, Xuan Ngoc, Xuan Ninh, Hai Anh, Hai Bac, Hai Minh, Hai Ninh, and Hai Chau;

v. So river passes over the boundary of the following communes Giao Thinh, Xuan Phu, and Xuan Vinh.

These rivers own the typical features as: the residential area (local houses) is 130m in minimum from the river banks, the project electricity network is low voltage one which is only used to supply power for the groups of the communes. According to the survey results, there are no lines passing over these river, therefore there are no wire crossing over the river, no poles are placed near these rivers.

- Some lines in charge of electricity supply for the communes (including Giao Xuan, Giao Lac, Giao An and Giao Thien partly under Xuan Thuy reserve area), the nearest electrical lines to the reserve area as below:

i. The improved line to supply electricity for Group 21 of Giao Lac commune: with 530m from the boundary of Xuan Thuy reserve area;

ii. The improved line to supply electricity for Xuan Tien, Group 15, Group16 of Giao Xuan with 1.3km from the boundary of Xuan Thuy reserve area;

iii. The improved line to supply electricity for group17, group 19, and group 27 of Giao Thien, with 380m from the boundary of Xuan Thuy reserve area;

iv. The improved line to supply electricity for group17, group 18, group 19, group 20, group 21, group 22 of Giao An commune: with 470m from the boundary of Xuan Thuy reserve area; So that, the project on rehabilitation of some section is placed in the residential area, it shall not cause any impacts on the reserve area (because the residential area is not under the reserve area and far from it).

III.4.2. Scale of the project

The sub-project is to completely rehabilitate the low voltage lines: rehabilitation of the low voltage axial lines and branches (fishbone shape) in communes which electricity has been supplied. The work volume is 1,267.428km.

III.4.3. The main work volume of Project

<table>
<thead>
<tr>
<th>No</th>
<th>Key construction</th>
<th>Unit</th>
<th>Quantities</th>
<th>Construction method</th>
</tr>
</thead>
<tbody>
<tr>
<td>01</td>
<td>Installation of conductor wire AL/XLPE 4x120</td>
<td>m</td>
<td>687</td>
<td>Manual + mechanical</td>
</tr>
<tr>
<td>02</td>
<td>Installation of conductor wire AL/XLPE 4x95</td>
<td>m</td>
<td>45,738</td>
<td>Manual + mechanical</td>
</tr>
<tr>
<td>03</td>
<td>Installation of conductor wire AL/XLPE 4x70</td>
<td>m</td>
<td>153,796</td>
<td>Manual + mechanical</td>
</tr>
<tr>
<td>04</td>
<td>Installation of conductor wire AL/XLPE 4x50</td>
<td>m</td>
<td>239,862</td>
<td>Manual + mechanical</td>
</tr>
<tr>
<td>05</td>
<td>Installation of conductor wire AL/XLPE 4x35</td>
<td>m</td>
<td>233,522</td>
<td>Manual + mechanical</td>
</tr>
<tr>
<td>06</td>
<td>Installation of conductor wire AL/XLPE 4x35</td>
<td>m</td>
<td>123,813</td>
<td>Manual + mechanical</td>
</tr>
</tbody>
</table>
### III.4.4. The main operations before and during the construction

#### III.4.4.1. The main operations before and during the construction
- Making the compensation for land acquisition;
- Receiving premises and building temporary huts;
- Arranging human resources, machines, equipments, materials to the work site;
- Digging the foundation holes, pole erection and conductor wire installation;

#### III.4.4.2. Methods of transporting machines, materials, equipments to the work site:
- Equipment, materials shall be transported from the warehouse of Employer to the temporary warehouse of the project area by specific trucks meeting the requirements of package. Then, they are moved to the site by trucks of 5-7.5 tons in load. The ways for transportation (expected to be the centers of the project communes/towns) shall be NH1A, NH10, NH21, provincial roads 55, 56, 485, 486, 489 and inter-commune roads, etc. The used trucks for material, equipment transport should comply with the load bearing capacity of the local bridges and roads. After the temporary gather near the traffic roads, materials and equipment shall be moved manually to the site. The sites of the low voltage lines are distributed in 90 communes/towns. There are rural roads directing to the construction site in all project communes, which makes favorable conditions for the performance. The manually weighted average transportation keeps at 100 - 150m.

- Construction materials such as sand, gravel, rocks, cement can be provided by local suppliers in the radius of 10 to 15 km.

### III.4.5. Work schedule and total investment cost

#### III.4.5.1 Work schedule for Project
The work project is planned as follows:
- Formation of the investment project: September, 2011.
III.4.5.2. Project total investment cost

<table>
<thead>
<tr>
<th>No.</th>
<th>Structure of capital</th>
<th>Investment capital (VND)</th>
</tr>
</thead>
<tbody>
<tr>
<td>1</td>
<td>Construction cost</td>
<td>101,632,693,154</td>
</tr>
<tr>
<td>2</td>
<td>Procurement cost</td>
<td>72,101,220,605</td>
</tr>
<tr>
<td>3</td>
<td>Project management cost</td>
<td>2,486,427,184</td>
</tr>
<tr>
<td>4</td>
<td>Compensation</td>
<td>3,000,000,000</td>
</tr>
<tr>
<td>5</td>
<td>Construction consulting service cost</td>
<td>18,775,929,436</td>
</tr>
<tr>
<td>6</td>
<td>Others</td>
<td>7,326,538,264</td>
</tr>
<tr>
<td>7</td>
<td>Contingency</td>
<td>20,771,997,947</td>
</tr>
<tr>
<td></td>
<td><strong>Total investment</strong></td>
<td><strong>228,350,157,607</strong></td>
</tr>
</tbody>
</table>
IV. SUMMARY OF NATURAL CONDITIONS AND ENVIRONMENTAL CONDITIONS OF PROJECT AREA

IV.1. Geographical position

Nam Dinh is a province placed in the East south of the Northern Delta, Vietnam. It is a Northern coastal province having the boundary with Ha Nam province in the North, East Sea in the South, Thai Binh province in the East and Ninh Binh province in the West.

Ground area: 1,669Km$^2$.
Total population (20110: 2,005,771 with Kinh people in all.

In administration, Nam Dinh consists of 9 districts and 1 provincial City level II, covering with 230 communes, wards and towns, Nam Dinh City is the political, economic and cultural center of the province. It is 90 km from Ha Noi.

IV.2. Climate, topography and pedology

IV.2.1. Climate

Nam Dinh is placed in Northern Delta featured by tropical moonsoon climate. The climate is divided into 2 different seasons
- Hot and rainy season from April to November of year.
- Cold season with small rainfall from December to next March.
- Annual average rainfall: 1,750 – 1,800 mm.
- Annual average humidity: 84%.
- Average No. of sunny hours in year: 1,400 - 1,800 hours
- Annual average temperature: $23^\circ$C - $24^\circ$C

IV.2.2. Topography

By topography, Nam Dinh is divided into 3 regions: depressed low delta placed in districts of Vu Ban, Y Yen, My Loc, Nam Truc, Truc Ninh, and Xuan Truong; coastal delta placed in districts of Giao Thuy, Hai Hau and Nghia Hung with the coast of 72 km in length and rich soil; the industrial and service center placed in Nam Dinh City. Nam Dinh topography is featured by plain. Most of local roads are made of concrete with 2m - 3.5m in width.

IV.2.3. Pedology

The geology is mainly clay, clay loam, and clay sand.

IV.3 Environment of the project area

In general, the environment of the project area is good. However, in some places such as My Xa, Loc Hoa, Nam Phong, Nam Van, Xuan Kien, Xuan Ninh, Xuan Hong, Yen Thang, Hong Quang, Nam Thanh, etc, the environmental pollution has been occupied. Waste given by local people due to their free habit from house surroundings, local roads to local ponds, lakes, Canals, etc, due to their low awareness. It is very serious when in their mind, environmental protection does not belong their responsibilities, it belongs to the society. Moreover, most of local people do not classify waste therefore the disposal, collection and treatment processes meet difficulties.
Household waste, waste from rural markets are given without any treatment measures, mostly they are collected in a place for autolytic deterioration which presses on the environmental protection.

In addition, waste was born from breeding, according to the demand on economic development, local people have enlarged their farms but remained the raising methods. Untreated waste and waste water from these farms are freely directed to the local Canals. In case of rainy days, the waste water shall spreaded over, but heavy and bad smells shall be generated in case of sunny days.

Rural environment is also in risks by chemical uses in agriculture with fertilizers, pesticide – insecticide and the use of untreated waste, in particular in the production of vegetables for human beings, which is not only dangerous for the environment but also it affects seriously the human health.

The environmental features of the project area in details as below:

**Soil environment:** At this time, it is kept in good state. The land surface of the project area is quite fertile, especially Hai Hau, and Nghia Hung get the best productivity of rice of the province. The surface is not in erosion, washout, loss of organic substances, droughty, flooded, salted and aluming, etc.

**Water environment:** Water quality of the big rivers such as Ninh Co, Red river is quite good, but in some Canals, artifical Canals and Day river, water quality has strongly been decreased in which many criteria such as BOD, COD, NH4, total of N, total of P are higher than the allowable levels. The underground water of the project area is quite good.

**Air environment:** Air quality of the project area is assessed in good level. However, dust has been a alarming issue in the high density residential areas such as markets, construction material business areas, etc. The increase of vehicles has been generating air pollution in many places.

**Inshore environment:** Nam Dinh spreads along 72 km of coastl and owns Xuan Thuy reserve area in Giao Thuy district, the mangrove forest area of our country has been sharply decreased in time. The inshore environment keeps in stability.
V. DETERMINATION OF POTENTIAL IMPACTS OF PROJECT

Potential impacts by Project are described in the following table:

<table>
<thead>
<tr>
<th>Question</th>
<th>Y</th>
<th>N</th>
<th>Description of impacts</th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>I. The subproject location is close to or inside the following environmental sensitive zones or not?</strong></td>
<td></td>
<td></td>
<td>- Cultural heritage X</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>- Reserve areas X</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>- Flooding area X</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>- Forest X</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>- River mouth X</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>- Buffer area of the reserve area X</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>- Natural reserve areas such as bird area, mangrove forest X</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>- River and reservoir X</td>
</tr>
<tr>
<td></td>
<td>X</td>
<td></td>
<td>- <em>Some communes have river/stream systems crossing, but household electricity networks are only located in the residential areas</em></td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>- Canal and irrigational system X</td>
</tr>
<tr>
<td></td>
<td>X</td>
<td></td>
<td>- <em>Most of communes own the artificial canal systems, the project area is focused on the residential areas far from the Canals</em></td>
</tr>
<tr>
<td><strong>2. are Potential environmental impacts caused by Project?</strong></td>
<td></td>
<td></td>
<td>- occupying the historical/cultural areas X</td>
</tr>
<tr>
<td></td>
<td>X</td>
<td></td>
<td>- Impacting the ecological system (e.g.: sensitive area, reserve area, national forests, natural reserve areas, etc) X</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>- Making deformations of landscapes and generating waste X</td>
</tr>
<tr>
<td></td>
<td>X</td>
<td></td>
<td>- No tree clearing for the sub-project (Site clearing)</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>- Clearing the vegetation cover or trees for X</td>
</tr>
<tr>
<td></td>
<td>X</td>
<td></td>
<td>- There is no transformer station for the sub-project, the conductor wire line is installed</td>
</tr>
<tr>
<td>Question</td>
<td>Y</td>
<td>N</td>
<td>Description of impacts</td>
</tr>
<tr>
<td>-------------------------------------------------------------------------</td>
<td>---</td>
<td>---</td>
<td>----------------------------------------------------------------------------------------</td>
</tr>
<tr>
<td>transformer station premises and along the right-of-way?</td>
<td></td>
<td></td>
<td>along the local roads, without any right-of-way</td>
</tr>
<tr>
<td>- change of surface water quality or flow</td>
<td></td>
<td>X</td>
<td></td>
</tr>
<tr>
<td>Increasing turbidity of the surface flow or making erosion</td>
<td>X</td>
<td></td>
<td>- Excavation of pole foundation hole, ditches for grounding and wire line installation, etc. can generate washout of land, graves, rocks and the surface water system in the area;</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>- Topography of the project area is smooth, small slope therefore, risks of erosion and washout rarely happen.</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>- during the construction, in heavily rainy days, if there are no protection measures for the foundation construction (foundation hole excavation, grounding Canal excavation), erosion can be happened and caused impacts on the common flow</td>
</tr>
<tr>
<td>Is household waste water from hunts directly given to surface water sources?</td>
<td>X</td>
<td></td>
<td>Household waste water shall be gathered in the common waste water system</td>
</tr>
<tr>
<td>Is construction waste water directly given to the surface water sources?</td>
<td></td>
<td>X</td>
<td></td>
</tr>
<tr>
<td>- Does the dust level increase?</td>
<td>X</td>
<td></td>
<td>- Dust can be generated from the excavation of foundation holes, grounding Canals, especially in dry season. The objects directly impacted in the construction site and the surroundings are residential areas.</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>- Dust can be generated by the loading and unloading of materials, concrete mixing manually.</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>- Dust can be generated by transport means of materials, equipment and machines during the project construction. The objects directly impacted are traffic participants in the transportation routes in the local areas and NHs, provincial roads for the transportation.</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>- Dust can be generated by destroying the existing poles for new replacement</td>
</tr>
<tr>
<td>- Is higher noise and/or vibration level generated?</td>
<td>X</td>
<td></td>
<td>- Due to the transport of materials such as graves, rocks, cement, sand by trucks, noise can be generated.</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>- Noise and vibration can be generated by</td>
</tr>
<tr>
<td><strong>Question</strong></td>
<td>Y</td>
<td>N</td>
<td><strong>Description of impacts</strong></td>
</tr>
<tr>
<td>--------------------------------------------------</td>
<td>---</td>
<td>---</td>
<td>---------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>equipment, material transport, project means, pole foundation hole excavation, pole construction, generators (if any);</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>- The transport of materials by local suppliers and the movement to the work site;</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>- Noises generated by construction workers during the construction.</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>- Noise generated from the movement of materials, concrete mixing in manual way.</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>- Noise generated by destroying the existing poles for new replacement</td>
</tr>
<tr>
<td>- Permanent land acquisition</td>
<td>X</td>
<td>N</td>
<td>The land area in permanent acquisition is 20,461 m²; mostly is common area, area of local roads (setting up 11,378 foundation poles, and building 12,206 H shaped concrete poles).</td>
</tr>
<tr>
<td>- Temporary land acquisition</td>
<td>X</td>
<td></td>
<td>The land area in temporary acquisition is 1,223,591 m²; mostly is common area, area of local roads</td>
</tr>
<tr>
<td>- Households must be relocated or not? If any, how many households to be relocated</td>
<td></td>
<td>X</td>
<td></td>
</tr>
<tr>
<td>- Is the settlement area an environmental/ cultural sensitive area?</td>
<td></td>
<td>X</td>
<td></td>
</tr>
<tr>
<td>- Are there any risks by disease spreading from construction workers to local people (and vice versa)?</td>
<td>X</td>
<td></td>
<td>- The work is planned to divide into 90 construction teams in 90 communes, each team consists of 10 members. Total of workers in the peak is about 900 people distributed among communes with 10 people per one. The 10 people shall be distributed in different lines, not in the same position</td>
</tr>
<tr>
<td>- Are there any potential conflicts between the construction workers and local people?</td>
<td>X</td>
<td></td>
<td>- The sub-project is performed in the rural residential areas, worker out of their working time can visit the residential areas, conflicts between the workers and the local young in their relations can happen</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>- Conflicts can be generated when workers take water (the bored well water, tank water or pond water, etc) for the construction.</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>- On the other hand, construction workers and local people can have different income, habits, and customs. Workers should follow the principles of peace and harmony.</td>
</tr>
</tbody>
</table>
Description of impacts

- During the construction (in the construction time, rural roads maybe narrow which can impact on the traffic order at the construction site and cause negative effects on the surrounding people.

- During the construction, children around the site can come and take construction tools and conflicts maybe happen.

- However, all conflicts shall be minimized because workers are under the control of supervisors. On the other hand, each construction position (e.g. pole foundation, etc) lasts in short time of 1-2 days. Hence, there are no big and heavy conflicts between workers and local people.

- Are explosives or poisonous chemicals used in the Project? X

- Previously, is there any accidents caused by mine explosion or explosives given by wars? X

- Have any disorders in traffic in the area generated? X

- Equipment, materials are transported from Employer’s warehouse by trucks of 5-7.5 tons in load to the gathering positions, construction materials such as sand, rocks, graves, cement shall be provided by local suppliers and directly given to the work site.

- By average transport frequency and excavation, wire laying, the normal traffic shall be impacted. However, because the rural traffic is not crowded, loading and unloading time of materials, equipment is quite short (about 1 hour), moreover, materials (sand, land, stone) shall be transported by dump trucks, the traffic jam generation is not high.

- At the construction time of pole foundation (by the narrow roads) traffic can be temporarily impacted, but in short time (1-2 hours for 1 pole foundation hole of 1-2m²), because the rural traffic is not crowded, the traffic jam generation is not high.

- Temporary material collection including cement, sand and stone before the construction can cause the disorder of the
<table>
<thead>
<tr>
<th>Question</th>
<th>Y</th>
<th>N</th>
<th>Description of impacts</th>
</tr>
</thead>
</table>
| - Have any bad impacts on the existing roads by the construction of the project? |   | X | - All materials, equipment are transported to the gathering points, then they are moved to the work site by manual measures or small trucks which are suitable to the load of the transport route. The roads are asphalt ones (NH1A, 10, 21, provincial roads 55, 56, 485, 486..and roads connecting communes and groups:  
- Materials shall be moved to construction site by manual means with the load less than 1 ton. |
| - Exvacation during the construction can cause erosion or not?           | X |   | - At the pole foundation holes for the foundation construction, erosion can happen in the surrounding.  
- Construction time in each low voltage pole foundation often last 2 days in maximum and placed under the inspection and monitoring.  
- the project area has a plain topography, low difference in height. It has a stable geology for a long time. Therefore, erosion caused by excavation rarely happens. |
| - Are New service roads openned?                                        |   | X |                                                                                                                                                       |
| - Do Breaks of living environment of the flora system happen?            | X |   |                                                                                                                                                       |
| - Have any impacts on the air quality by Project?                       | X |   | - Impacts on the environment by exhausted air from traffic means during the material transport such as trucks shall be given.  
- Dust born by the excavation of foundation holes, grounding Canals, especially dust born by knocking materials, sand, stones and graves to the work site |
<table>
<thead>
<tr>
<th>Question</th>
<th>Y</th>
<th>N</th>
<th>Description of impacts</th>
</tr>
</thead>
<tbody>
<tr>
<td>- Have any risks and accidents for workers and communities during the construction?</td>
<td>X</td>
<td></td>
<td>- Accidents can happen during the construction if labor safety does not follow strictly including: checking machines and equipments before their uses, placing signs in dangerous areas (in incomplete foundation hole excavation, positions of generators, positions of conducting wire, and ones for laying, ones for loading and unloading materials, ones with workers in high level). These accidents are not only for workers but also for local people. - Accidents can happen with workers or local people near the project area.</td>
</tr>
<tr>
<td>- Can Project generate poisonous waste including PCB by the replacement of transformers?</td>
<td>X</td>
<td></td>
<td></td>
</tr>
<tr>
<td>- Can project create risks on safety and human health (Electromagnetic field, shock?)</td>
<td>X</td>
<td></td>
<td>- The line is designed and built under the currently effective regulations of the electricity (the line is designed in compliance with norms issued by State, ensuring the EMF $&lt; 5$ kV/m), including the calculation of EMF impacts and standards on electrical safety, safety for the operations to prevent risks. - Before being operated, all safety standards shall be tested and accepted by Employer, construction units, receiving units, therefore both workers and local people shall not be impacted by EMF.</td>
</tr>
<tr>
<td>- Other negative impacts? (in details if any)</td>
<td>X</td>
<td></td>
<td></td>
</tr>
</tbody>
</table>
VI. ENVIRONMENTAL MANAGEMENT PLAN

VI.1. Environmental impact mitigation measures

VI.1.1 Measures integrated in Design (performed by design consultant in the project preparation):

The permanent and temporary land acquisition can impact the affected households. This should be solved by design consultant. In the survey, the design consultant should conduct a detailed survey; select the optimal solution to mitigate these impacts. The mitigation measures are as follows:

- Carefully checking the site, taking advice of local people and government to select the pole positions, alignment to minimize the area demand (for adjusted low voltage sections).

- Selecting the optimal design on the distance between the 2 poles, designing the overtrade beam, laying wire in one direction of the pole, etc to mitigate the impacts on the affected households.

VI.1.2 Environmental impact mitigation measures during the construction:

The project construction is the stage causing many impacts on the surrounding environment, therefore, construction contractors are required to follow strictly all measures to mitigate the environmental impacts.

| 1. Affect on economic and social living of people by temporary and permanent land acquirement. | - Survey the sub-project area carefully, consult the local people in order to uses minimum land area and not resettlement. | - Contractors
| - Compensate satisfactorily in compliance with regulations in the sub-project Resettlement Plan | - NPMU
| - To graves affected by the sub-project: NPMU assigns staffs directly work with households having the affected graves, understand their aspiration to propose the most optimal compensation plan and carry out moving them in compliance with local manner and custom. | - Contractors
| - Relocation of the affected graves will be implemented as regulated in the sub-project resettlement policy framework and Resettlement Plan and by households having affected graves complying with local manner and custom. Grave moving must be completed satisfactorily before construction implementation. Detail costs relevant to the grave moving are mentioned in the sub-project Resettlement Plan. | - NPMU

| 2. Effect on flora by ROW clearance. | - Inform affected households to get harvest of rice and crops before site clearance and land using. | - NPMU
| - Carry out construction after the harvest. | + Contractors
| - Don’t cut the trees beside regulated scale. |
### VI.1.2.1 Measures, provisions in compliance with Environmental Codes of Practice (ECOP):

<table>
<thead>
<tr>
<th>Environmental and social issues</th>
<th>Mitigation Measures</th>
<th>Responsibility</th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>Affect on economic and social living of people by temporary and permanent land acquirement.</strong></td>
<td>- Survey the sub-project area carefully, consult the local people in order to uses minimum land area and not resettlement.</td>
<td>Contractors PMU</td>
</tr>
<tr>
<td></td>
<td>- Compensate satisfactorily in compliance with regulations in the sub-project Resettlement Plan</td>
<td></td>
</tr>
<tr>
<td><strong>Effect on flora by ROW clearance.</strong></td>
<td>- Inform affected households to get harvest of rice and crops before site clearance and land using.</td>
<td>PMU Contractors</td>
</tr>
<tr>
<td></td>
<td>- Carry out construction after the harvest.</td>
<td></td>
</tr>
<tr>
<td></td>
<td>- Don’t cut the trees beside regulated scale.</td>
<td></td>
</tr>
<tr>
<td><strong>1. conflicts between the construction workers and local people</strong></td>
<td>- Before the construction, the head of the construction team, supervisor shall meet local people, commune officials to notice them, any troubles and difficulties should be dealt thoroughly.</td>
<td>Contractor PMU</td>
</tr>
<tr>
<td></td>
<td>- The construction workers should be trained to deal sudden conflicts;</td>
<td></td>
</tr>
<tr>
<td></td>
<td>- During the construction period (at the construction time), negative impacts on traffic and local people near the construction site are often generated. Supervisors and the head of the construction team should be in charge of performing the measures to mitigate them.</td>
<td></td>
</tr>
<tr>
<td></td>
<td>- Making the construction time shorter, preventing the contact to local people if it is not necessary, in particular the primal ones.</td>
<td></td>
</tr>
</tbody>
</table>
## 2. Risks by dissemination from the construction workers to local people (and vice versa)

- Construction manager should prevent the connection between the construction workers and local people if it is not necessary. Should propagate for the workers to enhance their awareness of infectious diseases, social diseases such as HIV, AIDS...
- There are about 10 persons per team in one commune. The 10 persons shall be distributed in the lines without the concentration.
- The construction workers should be under strict management of the supervisors and the heads of the construction teams. Anyone is ill or caught with diseases shall be separated and given to examination and treatment.

## 3. Dust generation

- Contractor shall take responsibility for performing all Vietnam regulations on air quality.
- Contractor ensures to mitigate the generated dust amount and not impact the local people;
- Construction materials and ones easy for dust generation should be prevented during the transport from scattering. The construction should be ended completely and the site should be cleaned after that. Redundant materials or soil, stones around the construction site should be removed.
- Material stores should be prevented from dust, wind. During the preparation of the waste disposals and stores, should pay attention to the main wind direction and sensitive positions such as schools, residential areas.
- The construction should not performed in strongly windy days (from level 5 or higher), or thunderstorm days.
- Workers should be worn with mask to prevent dust in high density positions

## 4. Air pollution

- All transport means should follow Vietnam regulations on exhausted gas allowable limit control.
- All transport means in Vietnam should be regularly tested by the exhausted gas and issued with “Certificate of quality, technical safety and environmental protection” in accordance with Decision No. 35/2005/QD-BGTVT;
- Waste and construction materials (e.g.: bladders, plastic fastening wire, etc) are not burned in the work site.
5. Impacts by noise and vibration

- Contractor is in charge of complying with all Vietnam regulations on noise and vibration
- All means should be issued with “Certificate of quality, technical safety and environmental protection” in accordance with Decision No.35/2005/QD-BGTVT in order to prevent the noise generation of the machines which are required to maintain. In some cases, measures to keep the noise at a suitable level shall be made with mufflers, sound-absorber or separation of noisy machines in noise prevention area
- Avoiding or minimizing the transportation volume via the residential areas as well as avoiding the process of materials in the residential areas (such as cement mixing);
- Noise generated by the construction workers shall be prevented by construction supervisor and the head of the construction teams.

6. Increase of the water turbidity by surface water flow and erosion

- Ensuring that the drainage system as well as drain ditches, sewers of the groups in the good circulation.
- Making the construction period shorter
- Making the foundation holes, grounding Canals, pouring concrete, land filling are in compliance with the technical standards in construction, including installation measures of ditches.
- the construction should not be performed in rainy days or after the heavily rainy days
- In order to avoid the muddy flows which makes bad effects on the surroundings, deposit control works can be placed in some necessary positions.
- If it is required to dry the construction areas (such as the foundation pits of poles), extracted water should be treated by deposit control measures before it is directed to rivers and springs.

7. Management of material stores

- Selecting the loading yards in suitable positions in convenience for the management
- Materials provided by local suppliers being issued certificate of business in construction materials
- Recovering the loading yards in the similar state with the initially natural conditions.
### 8. Waste and hazardous waste
- Before the construction, Contractor should prepare waste control procedure (mostly household waste of the construction workers) including Storage, provision of rubbish bins, site clearance plan, and rubbish bin removal and follow them in the construction period.
- Measures shall be done to prevent rubbish from being thrown away in any places and the careless in waste treatment. Contractor shall provide recycle bins and waste collector in the necessary places.
- Rubbish can be kept temporarily in the areas approved by CSC, local relevant authorities before they are collected and treated by local environmental units. If in the project area, there are no units in charge of this task, disposal of non-hazardous household solid waste shall be made.
- Reused materials such as wood for the work, materials of scaffolding, package, etc shall be collected and classified at sources to reuse or used to land filled or sold.

### 9. Traffic management, disorder of traffic in the project area
- Before the construction, consultation with local authorities and communities, traffic police should be made.
- Impacts on the flow of traffic should be stated in the construction plan before it is approved. With the traffic routes especially motored vehicles traffic should refer to sensitive ones including that to schools, hospital and markets
- Lighting systems should be installed in nights if necessary to ensure the safety in traveling
- Construction materials should not be transported in rush hours, or over routes with wedding party or funerals
- In the positions of foundation pits, should shorten the construction time, complete the construction and not use large equipments in the construction.
- Assigning traffic guiders ...

### 10. Recovering the affected areas
- Evacuation areas such as the waste treatment areas, workers’ hunts, stores, scaffoldings or any temporary work items for the construction of the project shall be released to return the initial landscapes
- All affected areas shall be built with new landscapes and repaired, not delayed, including the creation of green space, roads and other affected areas.
| 11. Labour safety and community safety | - Contractor should follow all Vietnam regulations on labor safety  
- Preparing and performing activities to response to risks and emergency cases  
- Preparing services for emergency cases at the work site  
- Training for workers on regulations on occupational safety  
- Ensuring that labor protection equipment should be provided for machine workers against noise caused by machines in operations  
- Contractor shall provide safety measures such as installing and keeping barriers, signs and warnings in dangerous positions including foundation pits in progress as well as other risks for human resources  
- Only trained workers are permitted to install, keep or repair electrical equipment.  
- Turning off or grounding the electrical distribution before the above stated task is performed or the task is performed near the electrical line.  
- It is not permitted working at height when wind is strong (from level 5 or more, with thunderstorm).  
- Complying with the traffic safety regulations |
| Contractor PMU |
12. Chance Finds Procedures

During the construction, if any archaeological vestiges, historical, cultural and religious vestiges, including graveyards and separated graves are found, Contractor shall

- Stop all operation in the areas;
- Define the boundaries and protect the area to prevent any damages or losses of objects. In case, the antiques can be removed or they are sensitive ones, it is required to assign human resources to protect till local governments or Department of Culture, Sports and Tourism receive them;
- Send the notices to CSC, the CSC shall be responsible for reporting to local governments or competent State authorities of Vietnam (within 24 hours or earlier);
- Local governments or competent State authorities shall be responsible for protection and separation of the area before the next procedure is performed
- The local government shall be responsible for Making Decision on the ways to deal the discoveries even the changes in arrangement (in case a cultural vestige or an important antiquity is discovered but not removed), conservation, recovery and savings If the cultural area and/or vestige has a high value, their conservation is proposed by experts and asked by management departments, the owner shall make changes in the design if any to meet the requirements and the conservation of the area;
- Decisions relating to management of new discoveries shall be noticed in writing by relevant government;

Construction is only kept after it is permitted by local government in charge of vestige safety
VI.2 Environmental monitoring plan and report procedure

VI.2.1 Environmental monitoring plan

<table>
<thead>
<tr>
<th>Impacts</th>
<th>Monitoring criteria</th>
<th>Monitoring place</th>
<th>Tools and equipments for monitoring</th>
<th>Monitoring time/frequency</th>
<th>Cost</th>
<th>Responsibility</th>
</tr>
</thead>
<tbody>
<tr>
<td>I. Situation of the local traffic roads</td>
<td>- Construction means of 5-7 tons in loads on the rural traffic roads</td>
<td>- Along the route (from the provincial roads 55, 56, 485, 486 to the gathering positions )</td>
<td>- Observation, consultation with local people</td>
<td>- Every week, many machines, materials shall be transported to the local area - 6 months.</td>
<td>Calculated in the package cost</td>
<td>- contractor, construction supervisor - Construction supervision consultant</td>
</tr>
<tr>
<td>II. Quality of surface water, accretion and erosion</td>
<td>- Excavation is not performed in rainy conditions</td>
<td>- in the right-of-way; - Surface water source near the construction site</td>
<td>- Observation</td>
<td>- In and after the heavily rainy days</td>
<td>Calculated in the package cost</td>
<td>- contractor, - Construction supervision consultant</td>
</tr>
<tr>
<td>III. Dust, air pollution</td>
<td>- Dust level in the position of separated materials such as soil, sand, etc - The situation of material coverage during their transport</td>
<td>- in the gathering positions of stones, soil and separated materials</td>
<td>- Observation</td>
<td>- in strongly windy conditions</td>
<td>Calculated in the package cost</td>
<td>- contractor, - Construction supervision consultant</td>
</tr>
<tr>
<td>IV. Noise</td>
<td>- Noise level by machines - Response of local people to noises generated by the construction</td>
<td>- The electrical lines passes over the crowded residential areas</td>
<td>- Consultation with local people</td>
<td>- During the operations with large noise, when complaints of local people are given</td>
<td>Calculated in the package cost</td>
<td>- contractor, - Construction supervision consultant</td>
</tr>
<tr>
<td>V. Hygiene at the construction sites.</td>
<td>- Rubbish, waste water in the construction</td>
<td>- in hunts and its surroundings</td>
<td>- Observation</td>
<td>- Weekly, at the time of acceptance</td>
<td>Calculated in the package</td>
<td>- contractor, - Construction supervision</td>
</tr>
</tbody>
</table>
### Impacts Monitoring criteria Monitoring place Tools and equipments for monitoring Monitoring time/frequency Cost Responsibility

**including the hygiene of workers’ hunts**
- area, workers’ hunts
- whether workers’ hunts are supplied with clean water or equipped with mobile detritus pits or toilets meeting the hygienic standards or not

**VI. safety for workers and local people**
- accidents happen
- consultation site record book of contractor
Local works Calculation in the package cost - contractor, - Construction supervision consultant

**VII. Noise by aboiment**
- Noise level/frequency
- Consultation with local people
- Consultation with local people
Once per week in each construction site Calculation in the package cost - contractor, - Construction supervision consultant

### Operation period

**I. electrical shock**
- insulation for conducting wire
- in local houses near the ROW
- ECM / magnetometer
- in case of complaint and disputes of local people
Regular operation expense - Employer

### VI.2.2 Report procedure

Responsibility and frequency of reports on EMP performance are described as the following table:

<table>
<thead>
<tr>
<th>No.</th>
<th>Prepared by</th>
<th>Received by</th>
<th>Report frequency</th>
</tr>
</thead>
<tbody>
<tr>
<td>01</td>
<td>Contractor to Employer</td>
<td>PMU</td>
<td>One time before the construction and then once per month.</td>
</tr>
<tr>
<td>02</td>
<td>Construction supervisor (and environment supervisor)</td>
<td>PMU</td>
<td>Monthly</td>
</tr>
<tr>
<td>04</td>
<td>Community supervisor (if any)</td>
<td>PMU</td>
<td>In case of disputes</td>
</tr>
<tr>
<td>05</td>
<td>PMU</td>
<td>EVN</td>
<td>Quarterly</td>
</tr>
<tr>
<td>06</td>
<td>EVN</td>
<td>WB</td>
<td>Once per 6 months</td>
</tr>
</tbody>
</table>
VI.3 Implementation organization to enhance the EMP

VI.3.1. Responsibility for performing the EMP

a) During the detailed design and bid document preparation stage

In the detailed design and bid document preparation, PMU takes responsibility for setting up the EMP, or parts in EMP (such as measures, responsibilities of Contractor as the Annex in the bid document and Contractor’s contract. Engineer in charge of the detailed design shall refer to the environmental protection commitment and EMP to ensure a comprehensive calculation on environmental aspect in the final design.

In the bid document preparation and contract preparation, it should ensure that contractor understands all information on his responsibilities and obligations in performing measures to mitigate the environmental impacts and follow the commitment.

b) During the construction

PMU shall assign CSC and/or Site engineer to control daily performance of safety measures of Contractor. The reference provision for CSC is stated in Annex 1 (TOR of CSC), CSC and/or site engineer shall take the following main tasks:

- Before the construction, certificate that the compensation for the affected people is completed.
- During the construction, strictly monitor the measures to mitigate the impacts during the construction.
- Certificate the compliance with EMP and check any damage or losses caused by Contractor. If any, minutes can be made to ask the compensation/recovery in the construction site of Contractor under the contract regulations. The performance of the environmental safety of Contractor shall be recorded in the report on the Work schedule of the sub-project.

Role, missions and responsibilities of each relevant party in the performance of EMP are described in the following table:

<table>
<thead>
<tr>
<th>Role</th>
<th>Tasks</th>
<th>Organization</th>
</tr>
</thead>
<tbody>
<tr>
<td>- Employer</td>
<td>• Taking responsibilities at last for the management and performance of the project including the environmental management</td>
<td>NPC</td>
</tr>
<tr>
<td>- Environmental officers</td>
<td>• Taking responsibilities in details and keeping contacts if any environment problems are raised.</td>
<td>Environmental officers of PMU</td>
</tr>
</tbody>
</table>
| - Project management and performance unit | • Taking responsibilities for connecting and performing the project including guiding and monitoring the performance of EMP:  
  - Setting up the plan and performing the environmental management operation during the construction.  
  - Cooperating with other parties in charge of environmental operations.  
  - Making the local supervisor and independent | PMU                           |
### Role | Tasks | Organization
--- | --- | ---
- **Project operation unit** | Monitoring control. - Supervising and providing budgets for the monitoring activities. - Reporting environmental information to relevant parties | - NPC; - Nam Dinh power company
- **Contractor supervisor** | - Taking responsibilities for the project operation including the environmental management and monitoring during the operation | CSC rent by PMU
- **Construction contractor** | - Supporting PMU in monitoring daily activities to mitigate the environmental impacts according to the measures stated in the EMP, reporting and keeping the relations, contact to the local community. | Contractor selected by PMU

### VI.3.2. Improving the capacity for EMP performance

The plan to enhance the capacity for environmental management consists of i) Training the environmental management which covers with the EMP performance and other trainings (if any) for NPC’s officers; ii) training the environment and EMP for the construction officers of Contractor (performed by Contractor or CSC or PMU).

### VI.4. Cost estimation for EMP performance

*Vinh Thanh construction and consultant Company* 29
Cost estimation shall be made for (i) performing measures to mitigate the impacts (ii) training activities as below:

<table>
<thead>
<tr>
<th>No.</th>
<th>Description of activity</th>
<th>Construction period</th>
<th>Operation period</th>
</tr>
</thead>
<tbody>
<tr>
<td>01</td>
<td>- Measures to mitigate the environmental impacts</td>
<td>Cost is calculated in the contract with construction contractor</td>
<td>Cost is calculated in the production cost of Nam Dinh Power company</td>
</tr>
<tr>
<td>02</td>
<td>- Environmental monitoring during the construction *</td>
<td>(is integrated in the cost for CSC).</td>
<td></td>
</tr>
</tbody>
</table>
| 03  | - Training on environmental management of Employer for local officers, construction contractor and supervisor | 24,000,000 VND                                           | 1. Training the EMP performance and making the report on EMP (2 people 2 days x 2,000,000 VND per one per day = 8,000,000 VND)  
2. Training by NPC on electrical safety (regularly performed by Nam Dinh Power company): 4 people x 2 days x 1,000,000 VND per one per day = 8,000,000 VND.  
3. Training and sharing experiment in EMP performance (2 people x 2 days x 2,000,000 VND per one per day = 8,000,000 VND) |

TOTAL: | 24,000,000 VND |

* Costs on measures to mitigate the impacts during the construction and Environmental monitoring by CSC shall be calculated in the relevant construction/monitoring contractor.

**VII. Public consultation and information disclosure**

In the project preparation (2011), the 05 following tasks should be performed:

**Task 1:** Conducting the Field survey, making discussions and unification to the electrical lines, the rehabilitation solutions with Power companies of the districts, and the province.

**Task 2:** Conducting the field survey and preparing Environmental inspection report and EMP.

**Task 3:** Public consultation for the Project.

From August 10, 2011 to September 15, 2011 the meeting with local people of 90 sub-project communes shall be held for public consultation in EMP, the Employer’s representative shall participate with the following contents:
Sending the notice on project area, scope of the project and basic criteria to select the improved of lines, rehabilitation methods, total investment and the requirements of the sub-project;

Potential impacts on the environment;

Measures to mitigate the environmental impacts.

Participants: Representatives of People’s committee of communes, Farmer Association, Women Association and other public organizations, heads of groups, representatives of the project affected household, consultants.

**Summary of the consultation:**

Most of ideals are for and welcome the implementation of the project, the provincial low voltage network in the project area has been invested for many years, but it has been downgraded, all levels and the community as well as local people understand the benefits given by the sub-project;

The selected ROW of the electrical line (for adjusted ones) is suitable and convenient to the construction. The selection of the line alignment has prevented from the negative impacts;

5 concerns of local people in environmental aspect of the sub-project are:

1. **The 1st issue:** the project shall improve and replace the existing electrical line which is welcome by local people. During the wire spreading, chopped trees should be compensated under market price (especially for economic trees of the local people). The new poles should ensure their safety and the acquired land area should be set off by the market price;

2. **The 2nd issue:** It is required to adjust the existing electrical lines crossing the local houses as well as improve the overload lines to ensure the electrical demand;

3. **The 3rd issue:** Asking the Employer and local people for local people to participate the Construction supervision to prevent the environmental impacts. Some former construction contracts after the construction did not clean the rest materials

4. **The 4th issue:** Before the project implementation, should publish information of the project as soon as possible for local people and local authorities.

5. **The final issue:** the former low-voltage network (branches are assets of local people and have not handed over to the electricity department for management) should be returned to local people when it is improved and replaced.

Response of Employer as follows:

- the project capital is limited, the rehabilitation is only performed with the conducting lines, poles which are in downgrade, not safe during the operation; Employer’s representative focuses on the responsibilities of design consultant and electricity departments of the districts, and of the province. They shall be responsible in front of the Employer for:
  
  o The reasonableness of each selected line for rehabilitation, the main lines.
  
  o Adjusting the electrical lines over the local houses or land of local people.
  
  o Making detailed statistic of assets invested by local people.

- Consultants and Employer should set up a suitable construction plan in order to mitigate the impacts on traffic, drying after the havests, avoid the damages of local roads and traffic jams. Construction premises should be in good conditions for the smallest effects
on daily operations of local people, after the construction, the work site should be returned as the initial state.

- Employer promises that he shall notice the Work schedule and compensation for local people and local authorities in soonest time. All relevant problems as well as recommendations of local people are acknowledged by Consultant and Employer and shall be considered during the design of the sub-project and the Environmental management of the sub-project shall be performed.

(Summary of consultation information and minutes on public consultation meeting are attached in Annex 6).

**Task 4:** Taking consideration and adjustment in EMP based on the public consultation. Continuously, collecting ideals from relevant parties and from affected households.

**Task 5:** Disclosure of the EMP

According the requirements of the World Bank on information disclosure, the PMU will:

Disclose the Vietnamese version of the EMP at People’s Committee of Nam Dinh Province and of the sub-project communes.

Copies of the EMP in Vietnamese and English will be sent to Vietnam Development Information Center at No. 63 Ly Thai To, Hanoi for information disclosure.

Copies of the EMP in English will also be sent to the InfoShop of the World Bank in Washington DC for its disclosure.
ANNEXES:

- Annex 1: TOR of Construction supervision Consultant
- Annex 2: Sample of report on EMP performance monitoring (Applied for monthly report of CSC to PMU);
- Annex 3: Sample of report on EMP performance monitoring (Applied for report prepared by Contractor);
- Annex 4: Environment License of Project (Environmental protection commitment)
- Annex 5: Project area map (attached)
- Annex 6: Summary of environmental consultation (attached to the list of people in public consultation)
Overview

CSC is the person in charge of providing technical services ("services") for the effective performance of EMP of the sub-project.

Scope of services:

Services provided by CSC are inspection, monitoring of all construction activities to ensure that the measures of EMP are followed as well as negative impacts on the environment are mitigated.

On behalf of PMU, CSC shall be responsible for:

- Regularly taking the site inspections;
- Controlling the practical performance of the environmental protection measures stated in the EMP and contract documents;
- Taking the efficiency of the measures to mitigate the environmental impacts by the project;
- If necessary, taking the acceptability of construction methods in environmental aspects (for both temporary works and permanent works), relevant design plans and submitted documents. CSC shall find and propose solutions which can mitigate the environmental impacts under the advisory of the designer, contractor and PMU;
- Verifying the inspection results on incompliance with any performance of the environmental quality and the efficiency of repairing methods, and
- Providing the feedback of the auditing results given by Contractor for Leader engineer under the procedures not stated in EMP;
- Directing Contractor to repair timely and taking the monitoring if any in accordance with regulations and making additional monitoring following the requirements and processes of Contract if any complaint and incompliance are found;
- Directing Contractor to perform activities minimizing the impacts and complying with the EMP when any incompliance and inconsistence are defined;
- Directing Contractor to stop his activities impacting and/or not following the requirements of EMP and to perform the repair.

- For contract with Site environmental management plan (SEMP), BSC shall check the last time and give recommendations on all site environmental plans which impact the environment. This operation shall cover, but not limited with the dredge areas, borrowed material store, waste disposal, workers’ huts. The CSC shall inspect and approve SEMP submitted by Contractor. If any incompliance with EMP, DTM and RAP, the CSC shall discuss with PMU and Contractor for suitable solutions

- Dispute settlement: Disputes raised by local people relating to environmental violations such as noise, traffic safety, etc shall be collected by Site officers of Contractor and solved by Head of Consultant, or Deputy head of consultant of contractor and CSC. The CSC shall issue a list of disputes and certificate that they are settled by Contractor in suitable and effective ways appropriate to defined problems during the site inspection.

- Certificate of monthly payment: CSC shall certificate the monthly payment for his relevant environmental activities performed by Contractor.

- Reports: The following written reports shall be prepared by CSC:
o 2 week Reports on the non-compliance

o Monthly brief report on results of inspection and construction

o To the end of the Project, CSC shall make the final report to summarize detections found in his performance, violations, solutions, etc as well as give consultancy services and guidance for the similar ones in the future.
Annex 2: Sample of report on EMP performance monitoring

(Appplied for monthly report of CSC to PMU)

Name of project:

Project area: Province:
District
Commune/ town:

CSC:...... Full name

Date of report:……………………………………

<table>
<thead>
<tr>
<th>No.</th>
<th>Parameters</th>
<th>Assessment of feedback given from the monitoring and the community</th>
<th>Recommendation</th>
</tr>
</thead>
<tbody>
<tr>
<td>1</td>
<td>Turbid of the surface water and erosion</td>
<td></td>
<td></td>
</tr>
<tr>
<td>2</td>
<td>Noise level of the surroundings and of the residential areas</td>
<td></td>
<td></td>
</tr>
<tr>
<td>3</td>
<td>Dust</td>
<td></td>
<td></td>
</tr>
<tr>
<td>4</td>
<td>Solid waste and site cleaning after the construction</td>
<td></td>
<td></td>
</tr>
<tr>
<td>5</td>
<td>Conflicts between workers and local people</td>
<td></td>
<td></td>
</tr>
<tr>
<td>6</td>
<td>Disease dissemination</td>
<td></td>
<td></td>
</tr>
<tr>
<td>7</td>
<td>Hygienic and safe condition management of workers</td>
<td></td>
<td></td>
</tr>
<tr>
<td>8</td>
<td>Traffic disorder</td>
<td></td>
<td></td>
</tr>
<tr>
<td>9</td>
<td>Road damage</td>
<td></td>
<td></td>
</tr>
<tr>
<td>10</td>
<td>Application of safety measures</td>
<td></td>
<td></td>
</tr>
<tr>
<td>11</td>
<td>Construction material management</td>
<td></td>
<td></td>
</tr>
<tr>
<td>12</td>
<td>Management of redundant soil and stones</td>
<td></td>
<td></td>
</tr>
<tr>
<td>13</td>
<td>Evidence on biological diversification loss if any</td>
<td></td>
<td></td>
</tr>
<tr>
<td>14</td>
<td>Evidence on loss of historical and cultural assets</td>
<td></td>
<td></td>
</tr>
<tr>
<td>15</td>
<td>Other environmental issues (if any)</td>
<td></td>
<td></td>
</tr>
<tr>
<td>16</td>
<td>Remaining the right-of-way</td>
<td></td>
<td></td>
</tr>
<tr>
<td>17</td>
<td>1. Health and safety of workers and local people</td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

Vinh Thanh construction and consultant Company 36
Annex 3: sample of report on EMP performance monitoring

(Applied for report prepared by Contractor)

Name of project:
Project area:
Construction unit:
Inception report or monthly report:
Date of report:

<table>
<thead>
<tr>
<th>No.</th>
<th>Impact</th>
<th>Performed Environmental impact mitigation measures</th>
<th>recommendations</th>
</tr>
</thead>
<tbody>
<tr>
<td>1</td>
<td><em>Construction period</em></td>
<td></td>
<td></td>
</tr>
<tr>
<td>2</td>
<td>Surface water pollution</td>
<td></td>
<td></td>
</tr>
<tr>
<td>3</td>
<td>Noise and vibration</td>
<td></td>
<td></td>
</tr>
<tr>
<td>4</td>
<td>Erosion</td>
<td></td>
<td></td>
</tr>
<tr>
<td>5</td>
<td>Air pollution</td>
<td></td>
<td></td>
</tr>
<tr>
<td>6</td>
<td>Impacts on agricultural production by temporary land acquisition</td>
<td></td>
<td></td>
</tr>
<tr>
<td>7</td>
<td>Traffic disorder</td>
<td></td>
<td></td>
</tr>
<tr>
<td>8</td>
<td>Damages of the existing roads</td>
<td></td>
<td></td>
</tr>
<tr>
<td>9</td>
<td>Solid waste by excavation</td>
<td></td>
<td></td>
</tr>
<tr>
<td>10</td>
<td>Redundant land management</td>
<td></td>
<td></td>
</tr>
<tr>
<td>11</td>
<td>Impacts on environment caused by environmental workers</td>
<td></td>
<td></td>
</tr>
<tr>
<td>12</td>
<td>Conflicts between the construction workers and local people</td>
<td></td>
<td></td>
</tr>
<tr>
<td>13</td>
<td>Disease dissemination among the construction workers and local people</td>
<td></td>
<td></td>
</tr>
<tr>
<td>14</td>
<td>Health and safety</td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

Prepared by : 
Title : 
Address : 
Tel : 

Vinh Thanh construction and consultant Company
## Annex 6: Summary of environmental consultation

<table>
<thead>
<tr>
<th>No.</th>
<th>Location of consultation</th>
<th>Time of consultation</th>
<th>No. of women /No. of participants</th>
<th>Summary ideal of local people</th>
<th>Feedback of Employer</th>
</tr>
</thead>
<tbody>
<tr>
<td>1</td>
<td>People’s committee of Thanh Loi commune – Vu Ban district</td>
<td>8h-11h on 6/9/2011</td>
<td>1/12</td>
<td>- The rehabilitation and expansion of the electrical network has received the cheerful reception of local people; asking the designer to focus on the main lines; - selecting and adjusting the line for the minimum effects on local population and the environment.</td>
<td>- acknowledge and thanks for contribution ideals of local people; - Because the project capital is limited, the rehabilitation is only performed with the conducting lines, poles which are in downgrade, not safe during the operation; Design consultant, electricity department of districts and the province shall ensure its reasonableness (in particular the design consultant unit). They shall take responsibility for: + The reasonableness of each selected line for rehabilitation, the main lines; + Adjusting the electrical lines over the local houses or land of local people; + Making detailed statistic of assets invested by local people. - Employer monitors and verifies the detailed design document to ensure its feasibility and mitigate its impacts on local people and the environment, - Construction contractor should set up a favorable plan for the construction; - Employer shall publish information on project construction as soon as possible.</td>
</tr>
<tr>
<td>2</td>
<td>People’s committee of Hong Thuan commune – Giao Thuy district</td>
<td>8h-11h on 08/9/2011</td>
<td>3/27</td>
<td>- Adjusting the line which passes over the local houses - Improving the existing roads which are in overload; - Making compensation for the affected land area under the market price; - sending the notice on the Work schedule as soon as possible. - rubbish/waste from the work site shall be gathered after each construction day; - Dust for air pollution shall be prevented by canvas during the transport; - Environmental Hygiene should be made after the construction. - the permanent land acquisition / compensation value should be suitable to the market price or</td>
<td></td>
</tr>
<tr>
<td>3</td>
<td>People’s committee of Yen Cuong commune – Yen district</td>
<td>14h-16h on 26/8/2011</td>
<td>3/22</td>
<td></td>
<td></td>
</tr>
<tr>
<td>4</td>
<td>People’s committee of Nam Thang commune- Nam Truc district</td>
<td>8h-11h on 25/8/2011</td>
<td>2/23</td>
<td></td>
<td></td>
</tr>
<tr>
<td>5</td>
<td>People’s committee of Liem Hai commune – Truc Ninh district</td>
<td>8h-11h on 06/9/2011</td>
<td>2/10</td>
<td></td>
<td></td>
</tr>
</tbody>
</table>
### Distribution Efficiency Project, Stage 1 - Nam Dinh province

**Environmental Management Plan**

<table>
<thead>
<tr>
<th>No.</th>
<th>Location of consultation</th>
<th>Time of consultation</th>
<th>No. of women /No. of participants</th>
<th>Summary ideal of local people</th>
<th>Feedback of Employer</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td></td>
<td></td>
<td></td>
<td>unit price as replacement.</td>
<td>- Following all Environmental impact mitigation measures on the environment as committed (Monitoring consultant and construction contractor).</td>
</tr>
</tbody>
</table>

*attached list of people in consultation*