

E959
Volume 5

RURAL ENERGY II PROJECT IN HA TINH PROVINCE

ENVIRONMENTAL ASSESSMENT

Prepared by:

POWER CONSTRUCTION CONSULTING CENTRE – PC1

Ha Tinh, February 2004

FILE COPY

Abbreviations

CPC	Commune People's Committee
DoNRE	Department of Natural Resources and Environment
DoST	Department of Science and Technology
EIA	Environmental Impact Assessment
EMD	Environmental Management Division
EMP	Environmental Management Plan
EVN	Electricity of Vietnam
GOV	Government of Vietnam
IEE	Initial Environmental Examination
IMC	Independent Monitoring Consultant
Km	Kilometre
KVA	Kilovolt Ampere
M/LV	Medium/Low Voltage
MoNRE	Ministry of Natural Resources and Environment
MoST	Ministry of Science and Technology
PAH	Project Affect Household
PCI	Power Company No. 1
PCCC1	Power Construction Consulting Centre - PCI
PMU	Project Management Unit
POP	Persistent Organic Pollutants
PPC	Provincial People's Committee
PPS	Provincial Power Services
RAP	Resettlement Action Plan
REP	Rural Energy Project
ROW	Right of way
T/L	Transmission line
WB	World Bank

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1 Introduction

1.1 Background to Project

1.1.1 Rural Energy II Project in General

At the present time 81% of the households in the rural areas in Vietnam have access to electric power, that means that about 12 million people are still living without electricity. Realizing the need of supplying power to the rural areas as an integral part of its poverty alleviation strategy, Government of Vietnam have approved a Master Plan period 2000-2010 with the objective of providing electricity to 100% communes and 90% of the rural households by 2010.

Though the Government of Vietnam has been trying its best to implement its RE program, progress has been very modest due to (a) lack of adequate financial resources - in 1998 MPI has estimated the total cost for the electrification of the entire country at US\$ 3.8 billion; and (b) lack of suitable institutional arrangements for RE.

Major issues in rural electrification in the country are (i) limited access to electricity - about 19% of the 12.8 million households in rural areas do not have electricity; (ii) low consumption levels - the average per capita electric power consumption in rural areas was less than 30 kW/year in 2000 reflecting the lack of productive uses; (iii) high retail tariffs - though households income in the rural areas is much lower than in urban areas, consumers in the rural areas often pay much higher prices for power due to poor management and high technical losses; (iv) high cost of extension discriminates against the poor who are unable to pay the connection charges to connect to the grid; (v) lack of legal organizations in the management of the local grids. Most of the existing management entities of rural network at commune level have no legal status, limited financial controls, difficult to access financing and there is no regulations of their activities for consumers protection; (vi) lack of supply to communes in the remote areas which can not be connected to the grid: supply of electricity to indigenous people who live in the remote areas present major problem in terms of technical, financial and institutional constraints. There are an estimated 1000-1500 communes and villages which are in remote areas-mountainous in the north and center and islands in the south - where it would be both physically difficult and extremely expensive to extend the national grid. Renewable energy sources development will, therefore, need to play a major part in supplying electricity to these areas. However, only limited field data and experience of these options is available at present.

The development objectives of the proposed Rural Energy Project II are to assist the Government of Vietnam to alleviate poverty in the rural areas by providing basic infrastructure services like electricity and access to information for improving living conditions and productivity. The Rural Energy I Project, which is under the implementation, was designed mainly for urgent need of the expansion of rural electrification and would connect about 900 communes to the national grids providing electricity to over 400,000 rural households. The RE-II would help the Government of Vietnam implement its objectives of providing electricity to about 24 million rural people through (a) development of a national strategy for rural electrification with special focus on provision of energy to the remote mountainous areas; (b) repair and maintenance of the existing rural power network in about 1000 communes (out of about total 6,000 communes which need to be rehabilitated) to reduce technical and non technical losses, (c) assisting local authorities to improve existing management systems, by converting the cooperative and/or company, (d) expanding the use of renewable energy for the off-grid systems to serve the rural load in the remote and isolated areas.

To achieve the development objectives, the project is expected to have 4 major components:

- 1) Rehabilitation and expansion the existing rural power network for improving power supply in the rural communes;
- 2) Improving the management of the rural power networks;
- 3) Promoting the use of renewable energy in the remote areas; and
- 4) Technical assistance for supporting the reform process of energy sector, and strengthening capacity for policy, financial planning and management to implement the Rural Electrification Program.

The project would be funded by IDA in the amount of US\$ 220 million (tentative).

1.1.2 Rural Energy II Project in Ha Tinh Province

1.1.2.1 Objectives and Necessity of Project

The Rural Energy II Project in Ha Tinh Province (the Project) will improve, upgrade and extend the existing electricity network in 99 communes in 9 districts, Nghi Xuan, Duc Tho, Can Loc, Thach Ha, Cam Xuyen, Vu Quang, Huong Son, Huong Khe and Ky Anh. Below are summaries of the objectives as well as the necessity of the Project:

- The existing electricity network in the proposed 99 communes is in very poor conditions. Most of the network was constructed about 20 years ago and is now declining. Many components of the existing network were built from communers' money and not according to national standards on electricity network. In the mean time, development in rural areas is rapidly increasing according to industrialization and modernization programs established by the Government that call for greater demand of electricity. Thus, the main objective of the Project is to provide a more stable source of energy that can fulfill the growing demand of electricity up to 2020.
- Besides, technical loss on the existing network is about 25% and electricity price in the 99 communes is currently considered to be high in comparison with other rural communes, where electricity networks have already been improved by Rural Energy Programs, due to lack of an appropriate management framework. Thus, one of the objectives of the Project is to improve, upgrade and extend the existing network in terms of technical as well as management aspects in order to reduce technical losses, provide better quality of electricity and increase management capability at the commune level through establishing an appropriate and capable management system, thereby ensuring that the electricity network in rural areas can operate properly, safely and profitably.

1.1.2.2 Criteria for Selecting Project Communes

- General criteria:

Voluntarily participate in the Project and agree with requirements and concepts recommended by the Vietnamese Government and World Bank in borrowing loans for the Project.

- Criteria to communes that need upgrading of the existing network:
 - Power loss is more than 20% and the existing network is in decline
 - Electricity demand is large enough (more than 500 households)
 - Electricity demand for production purposes is large enough (more than 20%)
 - Electricity has already been provided to more than 80% of the households
 - Average electricity use is large enough (500 kW/household)

- Criteria to communes that need to be connected to the grid:
 - Communes in provinces that have less than 60% households provided with electricity
 - Communes are able to partly contribute to investment of the Project and to pay fees.
 - Communes having potential of agricultural and industrial development that need electrification.
 - In the list of poor communes
 - In the list of supporting programs by World Bank
 - Accept to transform electricity management system in terms of establishing a legal distributor for managing LV distribution network.
 - Profits gained from carrying out electricity business are sufficient to pay for operation costs

1.2 Purpose and Methodology of IEE

1.2.1 Purpose

This report reviews the environmental impacts of the project. Because the Vietnamese Government will receive a World Bank loan to conduct the Project, this report and its related activities follow both World Bank's safeguard policies and Vietnamese Government policies on environmental assessment and environmental protection.

According to World Bank's guidance on Framework for Applying Environment Safeguards to Rural Energy II Project, the Rural Energy II project is classified as Category B for environmental assessment.¹ The Project may bring both negative and positive impacts to the Project area. The negative impacts will occur during pre-construction, construction, and operation. Most negative impacts will be minor, due to their temporary and/or small-scale nature. The positive impacts will occur mostly during operation. Positive impacts will likely be significant and positive due to their long term nature at both the local and regional level.

In order to present a more detailed evaluation of the Project's negative and positive impacts, an environmental screening should be conducted early in the Project cycle. If the screening reveals that negative impacts are minor, then the focus of work should turn to developing an Environmental Management Plan (EMP).² Guidance on conducting an environmental screening and on developing an environmental management plan for Category B transmission and distribution projects is also given in the World Bank's Framework for Applying Environment Safeguards to Rural Energy II Project.

1.2.2 Methodology

This IEE was conducted primarily based on a vast amount of data and information collected by the project team members of Construction Consulting Center of Power Company No.1 (PCCC1). Data and information on socio-economic conditions of the Communes that the Project traverses were collected from relevant local agencies and parties at three levels, province, district and commune, as well as from published documents. More specific data and information on Project Affected Households were collected by conducting surveys at each of the households in association with Commune People's Committees, results of which were to serve mainly for the Resettlement Action Plan. Environmental baseline conditions were collected from provincial agencies such as Ha Tinh DoNRE, as well as from published documents available at national agencies.

¹ For details on the classification of projects, see OP 4.01: *Environmental Assessment*.

² If significant negative impacts are identified in the screening process, then an EIA report will be required, following guidance of OP 4.01.

Environmental Screening Checklist and Checklist for Assessment of Environmental and Social Baseline Conditions given in Annexes 1 and 2 of the World Bank's Framework for Applying Environment Safeguards to Rural Energy II Project were also used as guidance for the information collection and assessment process.

The environmental assessments conducted at sub-stations and along the route of the electricity transmission line and included in this report are qualitative in nature and no quantitative prediction of impacts has been attempted (and none is considered necessary). The persons contributing to the IEE are well experienced in the assessment of environmental and social impacts from the type of developments proposed. Where site visits to the project areas (notably along the route of the distribution lines) was not possible due to the absence of any roads that would enable access within the time constraints involved, the nature of the terrain and the lack of points of visibility, prediction of environmental impacts has been based on field notes and photographs taken by other members of the project team, by knowledge of the area by the local consultant, discussions with local farmers and residents and through interpolation from the nearby environment that could be inspected.

1.3 Policy, Legal and Administrative Framework

1.3.1 World Bank Policy on Environmental Assessment

The World Bank's policy on conducting environmental assessments is to follow Operational Directive 4.01: *Environmental Assessment*. This directive describes guidance on Bank's policies and procedures for conducting environmental assessments of proposed projects.

Additional World Bank policies that were considered through the Project's IEE process include:

- *OP 4.04 Natural Habitats*
- *OP 4.11 Cultural Property*
- *OP 4.36 Forestry; and*
- *BP 17.50 Public Disclosure*

Detailed guidance on assessment methodologies and common impacts associated with transmission projects are found in:

- **World Bank, 1991. *Environmental Assessment Sourcebook, Volume 3***
- **IFC, 1998. *Environmental, Health, and Safety Guidelines on Electric Power Transmission and Distribution*.**

1.3.2 Vietnamese Policy and Administrative Framework on Environmental Assessment

1.3.2.1 Vietnamese Policy Framework

Vietnam's most relevant environmental policies for environmental assessment are:

- (i) Law on Protection of the Environment (LEP) was enacted in 1993. The LEP:
 - identifies the responsibilities of the state centre, provinces, organizations and individuals to prevent and remedy environmental deterioration and pollution and carry out specified environmental protection functions;
 - provides for the development of environmental standards and submission of environmental impact assessment reports on new and existing facilities;

- provides for responsible parties to pay compensation for environmental damage;
 - establishes the right of individuals and organizations to petition for enforcement of environmental regulations;
 - calls for civil and criminal penalties for violations; and
 - encourages international environmental co-operation.
- (ii) Decree 175/CP was promulgated in 1994 to guide implementation of the LEP and provides broad guidelines for division of responsibility among Ministries; environmental impact assessments; pollution prevention and disaster control; sources of finance; and environmental inspections and standards.
- (iii) Circular No. 490 was promulgated in 1998 to provide guidance on setting up and appraising environmental impact assessment reports for investment projects. The Circular identifies the legal requirements according to the stages of implementation of a project and its category; defines the content of project subject to the EIA procedures; and specifies management of the EIA report appraisal.

To supplement the above key environmental assessment policies, there are a large range of laws, decisions, regulations, and standards may also be considered:

- (iv) Law on Forest Protection (1992). This law regulates forest management, protection, development, and exploitation, prevention of wood-cutting, and forest destruction. It also encourages individuals and organizations to protect and develop forests.
- (v) Decree 54/1999/ND-CP specifies guidance on the protection of high-voltage networks.
- (vi) Decree 70/1987-HDBT specifies safety casements of high-voltage transmission lines.
- (vii) Decree 24/2000/ND-CP specifies the implementation on the Law on Foreign Investment in Vietnam (Article 82) concerning environmental protection as follows: 1) enterprises with foreign investment capital and joint ventures are obligated to observe regulations, satisfy standards in environment protection, and comply with Vietnam legislation on environment protection; 2) if investors apply international advanced environmental standards these standards should be registered with MoSTE.
- (viii) Decree 52/1999/ND-CP was appended to include environmental considerations for construction management as follows: 1) for PFS, Provision 3 of Article 23 stipulates that requirements for environment study relating to the “selection of construction sites, estimation of land use area needed, in ways which comply to the principle of minimizing land use and environmental and social impacts, and resettlement to the lowest possible level”. 2) Provisions 4 and 7 of Article 24 stipulate that FS must propose “specific site options (or regions, routes) which much match with construction plans (including documents on site selection, together with proposed solutions for minimizing environmental and social impacts)”, and “architectural alternatives, construction solutions, preliminary designs suggested for selection, environment management and protection solutions”. 3) For technical design: Section B, Provision 1, Article 37 and Section A, Provision 2, Article 38, contain regulations on appraisal and approval of “techniques for the protection of environment and ecology; for prevention and combating of explosion and fire and for occupational safety and industrial sanitation.”
- (ix) Decree 26/1996/CP provides regulations on the punishment of administrative violation of Environmental Protection Law. Chapter 1 describes the general provisions for punishment under the Environment Protection Law. Chapter 2, Article 6 details recommended punishments for parties who violate environmental pollution and prevention act. These punishments include financial penalties for not submitting an EIA report.

- (x) Tiêu Chuẩn Việt Nam (TCVN) are national standards established by MoSTE and applied to all government agencies. They include engineering, construction, scientific, and environmental standards. Most TCVN standards are direct translations of ISO standards. TCVN environmental standards include acceptable limits of many air, noise, and water quality parameters. In general, the list of bio-physical parameters are broad enough such that most monitoring programmes can employ TCVN standards as metrics of evaluation. There are some exceptions – for example, sediment, soil, and vibration standards do not yet exist. In these cases, it is common practice for ODA projects to use standards from other countries or international organisations.
- (xi) 18 TCN-03-92 provides standards for safety clearances for 500 KV Electrical Equipment Installation Standards. Section 1 of this policy states numerous requirements. For example, trees outside of the ROW must have two meters clearance between conductors and trees, and the clearance between top of the trees and conductors in the ROW must not be less than six meters.
- (xii) 11 TCN-1984 sets the standard for minimum clearance between live parts of a line and trees. Trees outside of ROW must ensure two meters of clearance between conductors and tree parts. The clearance between top of the trees and conductors in the ROW must not be less than six meters. The ROW identified by two parallel planes is seven meters from the outer conductors when they are vertical and not less than two meters when conductors are at maximum swing angle.

1.3.2.2 Vietnamese Administrative Framework

The Government of Vietnam is in the process of creating a new administrative framework for environmental management. For the Additional Works Project, the framework's relevant institutes are as follows:

- (i) Ministry of Natural Resources and Environment (MoNRE). MoNRE was established by a Prime Ministerial Decision on November 11, 2002. This new ministry includes four vice-ministers, 16 departments, one newspaper, and one magazine. MoNRE merges numerous departments from several national agencies. These are outlined in Decree 91/2002/ND-CP: *Providing for the functions, duties, powers and organisational structure of the Ministry of Natural Resources and the Environment*.
- (ii) Environmental Impact Assessment and Appraisal Department. This Department is under MoNRE. According to Decree 91/2002/ND-CP, the Department's function includes: *To appraise environmental impact assessment reports of projects and of business and production establishments*. Environmental Impact Assessment and Appraisal Department is guided by the Vietnam's established regulatory framework: i.e. LEP, Circular 490, CP 175, etc.
- (iii) Provincial Departments of Natural Resources and Environment (DoNRE). Each provincial DoNRE houses an Environmental Management Division (EMD). The EMD is responsible for ensuring environmental protection and management of provincial matters in accordance with LEP, Decree 175, and Circular 490. Hence, it is DoNRE – and in particular, its EMD – that will likely play a key regulatory role during project construction and operation.

2. Project Description

2.1 Name of Project

Rural Energy II Project in Ha Tinh Province

2.2 Executing Agencies

- Investors: EVN and Ha Tinh Province
- Project Management Units
- Consulting Company: Power Construction Consulting Center - PCI

2.3 Socio-economic Targets of Project

The Rural Energy II Project in Ha Tinh Province is to improve, upgrade and extend the existing power network at 99 communes in 9 districts, Nghi Xuan, Duc Tho, Can Loc, Thach Ha, Cam Xuyen, Vu Quang, Huong Son, Huong Khe and Ky Anh. The list of 99 communes and their existing features are given in Appendix 4. The project will:

- Fulfill growing demand in the province up to 2020
- Supplement current power sources in Ha Tinh province.
- Increase reliability and convenience during operation process
- Reduce power losses of the existing network at 99 communes
- Supply power more sufficiently and improve the energy quality for agricultural, industrial and civil purposes in the area.
- Create premises for development of the economy, agriculture, industry, etc.
- Improve the cultural life of people
- Reduce electricity price
- Provide better network management system; and
- Improve security, stability and upgrade civilization.

2.4 Main Features of Project

The main features of the project are summarized in Table 2.1. The Map of Project Communes is given in Appendix 3.

Table 2.1: Main Features of the Project

Project Components	Specification
<i>Substations</i>	<i>511 substations in total</i>
Voltage	35/0.4; 22(10)/0.4; 10/0.4; 6/0.4 kV
Capacity	400, 320, 250, 180, 160, 100, 75, 50, 31.5 kVA
Tower	Centrifugal concrete pole with height of 10 and 12 m
New Substations	Construct 259 substations with total capacity of 32,732.5 kVA
Upgraded Substations	Upgrade 98 substations with total capacity of 21,620 kVA
Reused Substations	Reuse 154 substations with total capacity of 23,892 kVA
<i>MV Transmission Line</i>	<i>216.84 km in total</i>
Conductor	AC50 and AC70
Tower	Centrifugal concrete pole with height of 10, 12, 14, 16, 18 and 20 m
New MV Line of 35 kV	Construct 103.98 km MV transmission line of 35 kV
New MV Line of 22 kV	Construct 112.86 km MV transmission line of 22 kV
<i>LV Transmission Line</i>	<i>2,639.87 km in total</i>
Conductor	AV (120-95-70-50-35)
Tower	Concrete pole with height of 6.5, 7.5, 8.5, 10 and 12 m
New LV Line of 0.4 kV	Construct 1,838.87 km new LV transmission line of 0.4 kV, of which 1,026.38 km is for 3-phase line and 790.13 km is for 1-phase line
Upgraded LV Line of 0.4 kV	Upgrade 800.99 km LV transmission line of 0.4 kV, of which 544.58 km is for 3-phase line and 237.14 km is for 1-phase line

2.5 Project Schedule

Project implementation occurs between September 2003 to 2007.

2.6 Project Cost

The total investment for the project is estimated at VND 405,300,000,000 (equivalent US\$ 25.98 million). A summary of estimated costs is provided in Table 2.2.

Table 2.2: Summary of Estimated Project Costs

	US\$ million	VND billion
Equipment	0.94	14.50
Construction	20.22	315.50
Other costs	2.46	38.45
Contingencies	2.36	36.85
Total	25.98	405.30

3 Baseline Conditions

3.1 Natural Environment of Ha Tinh Province

3.1.1 Topography

Ha Tinh Province is located in the Northern Central Region of Vietnam with the total area being of 6,054 km². The province is adjacent to Nghe An Province at the North, Quang Binh Province at the South, the Eastern Sea (South China Sea) at the East and the Laos PDR at the West. The Western and Extreme Southern Regions of the Province are mountainous and upland areas, occupying over 70% of the total provincial natural area. The high peaks are Bamu (1,357 m), Giangman (1940m), Raoco (2,235 m), Hoanhson (1,044 m) and Rугiang (1,318 m). The Eastern Region is a narrow plain stretched along the coast.

In plain, soil is mainly saline and sandy with low fertility. In the mountainous and upland areas, soil is mainly eroded with low fertility.

3.1.2 Climate

Climate in Ha Tinh Province is very harsh: high temperature (average 29.4°C, maximum 40.1°C), low humidity, strong western dry wind and low rainfall (10-50 mm/month) in the driest months (February - May), but high rainfall (maximum in September: 500-600 mm/month) with high humidity (maximum monthly 92%) in the rainy season (June - November) (see Table 3.1–3.3 for more details). Annually, strong Typhoons commonly occur in the period of August to November. This type of climate creates serious draught in the dry months and flood in the rainy months, causing great constraints for agriculture, aquaculture and life of people.

Table 3.1: Atmospheric Temperature in Some Northern Central Provinces

Temperature (°C)	Ha Tinh	Nghe An	Thanh Hoa
Average annual	23.9	23.9	23.6
Max. monthly	29.4	29.5	28.9
Max. absolutely	40.1	42.4	42.0
Min. monthly	18.0	17.9	17.4
Min. absolutely	7.6	4.0	5.4

Table 3.2: Rainfall in Some Northern Central Provinces

Rainfall (mm)	Ha Tinh	Nghe An	Thanh Hoa
Average annual	2442	1868	1746
Average monthly	526 (Sep)	457 (Sep)	396 (Sep)
Min. monthly	84 (Feb)	15 (Feb)	25 (Jan)
Max. monthly	1450	1094	1092

Table 3.3: Humidity in some Northern Central Provinces

Humidity (%)	Ha Tinh	Nghe An	Thanh Hoa
Average annual	86	85	85
Max. monthly	92 (Sep)	91	90
Average monthly	75 (Feb)	74	82
Min. monthly	31	15	23

Source: Table 3.1 – 3.3: Adapted from Pham Ngoc Toan, Pham Tat Duc, 1993

3.1.3 Water Quality

3.1.3.1 Surface Water

Ha Tinh Province has a number of small rivers, originated from the Western mountains. The largest rivers are Ngansau, Ngantuoi, La, Raocai, Tri, Gia, Tiem, Quyen, Gياهو and Cay. All of the rivers have high discharge in the flooding months (September - November), creating inundation for a large area in the Eastern Plain Region, and very low discharge in the dry months (February - May), creating serious draught in the Eastern Districts. In the Province there are various natural lakes: Ducyen (10 ha), Kyhung (8 ha), Xuanvien (10 ha), Sontrung (7 ha) and artificial reservoirs: Kego, Mackhe, Songrac, Mochuong, Bocnguyen, Tauvoi, Culay, Khelang, Kheco, Controi, Consong etc. These reservoirs have been constructed in the period 1970 - 1990 for irrigation and water supply for domestic use.

According to Ha Tinh DoNRE, surface water in Ha Tinh is generally seriously polluted due to waste and sewage discharged into water bodies. Analysis results of surface water samples at some monitoring sites show that environmental parameters in surface water exceed permissible standards 4-8 times. In some areas such as Thach Ha, Cam Xuyen and Ky Anh, arsenic and heavy metals appear in the water.

3.1.3.2 Ground Water

Groundwater is not as polluted as surface water in Ha Tinh. However, in recent years, groundwater begins to be polluted due to urbanization and increasing development. The use of pesticide and chemical fertilizers is one of the main causes of groundwater pollution in the province.

3.1.4 Air Quality

According to the environmental data of Ha Tinh DoNRE, at present, air quality in the province is still good: concentrations of toxic pollutants as SO₂, NO₂, CO, Volatile Organic Compounds (VOC) at all monitoring sites in urban area are much lower than the permissible Standard for Ambient Air Quality (TCVN 5937-1995). However, dust concentration and noise level at some places near by the main road and construction sites sometime exceed the Standard.

3.1.5 Mineral Resources

Ha Tinh Province is rich in mineral resources: Thachkhe iron mine has a reserve of 544 million tons (largest in the Southeast Asia) with Fe content being of 46%; Imenite is found in the coastal zone; gold is found in the upland areas and granite is located in Hong Linh, Ky Anh and Huong Son Districts.

3.1.6 Biological Resources

Ha Tinh is also rich in biological resources: the Province has forest area of 226,807 ha in which 199,962 ha is natural forest and 26,845 ha is planted one. The conservation areas in which have been approved by the Government of Viet Nam are Vuquang located in Huongson District near the border with Laos PDR and Kego located in Cam Xuyen and Ky Anh District.

Vuquang Natural Reserve (VNR) has an area of 55,950 ha, where is a place for conservation of ten thousands vegetation species of the primary sub-tropical forest. VNR is also a habitat of various wild animal species, particularly Gibbons, *Pseudoryx nghetinhensis* and *Foklennia hodgingsis* belonging to most rare and endangered species listed in the Red Data Book of Vietnam.

Kego Nature Reserve (KNR) has an area of 24,801 ha, in which there are a number of native vegetation and animal species listed in the Red Data Book of Vietnam: *Madhuca pasquieri* (tree), *Phasianus colchicus*, *Phanardia ocellata* (animals).

In Ha Tinh, there is one wetland site in the list of conservation areas of Vietnam. It is Kego Reservoir located in Cam Xuyen District with an area of 3,000 ha. This is place having proper natural conditions for growth of aquatic animals and water birds.

With the length of coastal line of 137 km and hundreds km of rivers and streams, Ha Tinh is rich in resources. Over 300 species of saline water fishes and 120 species of fresh water fishes are found in sea and rivers.

3.2 Socio-Economic Conditions of Ha Tinh Province

3.2.1 Population

Ha Tinh Province has population of 1,269,000 in 1999 and about 1.4 million in 2002, in which 51.1% are females. The ethnic majorities include: Kinh accounting for over 95% and Lao, Tho, Chut living in the mountainous areas and accounting for only less than 5% of the total population.

3.2.2 Land Use

At present, in the total natural area of 605,395 ha, agricultural land is 102,513 ha, forestry land is 18,893 ha, land for infrastructural facilities is 29,790 ha, residential land is 7,468 ha and unused land is 276,626 ha.

Largest area of agricultural land is used for cultivation of rice (65,000 ha), upland crops (26,500 ha), vegetables and other. From the year 2000 up to now a large area (over 5,000 ha) of coastal zone is used for growing shrimp.

Due to limitation of soil quality, irrigation system and unfavourable climate, agriculture, aquaculture and fishery in the province have low productivity. This causes great difficulties for socio-economic development in the province.

3.2.3 Economy

Ha Tinh is one of the low developed provinces in Viet Nam. However, during the last 10 years the economy of the province has high and stable growth rate. In the period 2001-2010 the average annual GDP growth rate of the province is planned at 15%. Average annual growth rates of the sector of agriculture - fishery - forestry is 5.0%, the sector industry - construction is 22% and the sector of services is 20% (see Table 3.4 for more details). In the period 2001-2010 contribution of the

economic sectors in the total GDP also be significantly changed with high increase of the sectors of industry - construction and services from 17.3% and 43.4%, respectively, to 35.3% and 48.2%, respectively, in the year 2010 with reduction of the sector of agriculture - forestry - fishery (Table 3.5). The province has a plan to increase GDP/capita from USD 280 in 2000 to USD 950 by 2010.

At present, infrastructural facilities in the province do not meet the increasing demands of the rapid socio-economic development. Particularly, in the energy sector, only 220/262 communes have electrical supply, only 274 substations with a capacity of 68,962 KVA are in operation. Therefore, to meet the planned economic growth rate, infrastructural facilities, including electricity, should be rapidly improved.

Table 3.4: Economic Growth Rates of Province

Sector	Average annual growth rate (%)	
	1996 - 2000	2001 - 2010
Provincial GDP	16.7	15.0
Agriculture – Forestry – Fishery	7.0	5.0
Industry – Construction	28.0	22.0
Service	27.0	20.0

Table 3.5: Percentages in Total GDP of Economic Sectors of Province

Sector	Percentages in total GDP (%)	
	2000	2010
Provincial GDP	100	100
Agriculture - Forestry – Fishery	39.3	16.7
Industry – Construction	17.3	35.3
Service	43.4	48.2

Source: Adapted from "Vietnam is On the Way Reaching to the 21st Century", 2000

4 Impacts Analysis

4.1 Impact Assessment Methodology

The Environmental Impact Assessment focuses on the major environmental issues of the Project's Most Favoured Alternative. The potential impacts of the Project's pre-construction, construction, and operation phases were assessed as being in one of five categories:

- i. **NO IMPACT.** The potential impact of the Project activity is assessed as NO IMPACT if the project activity is physically removed in space or time from the environmental component.
- ii. **MAJOR IMPACT.** An impact is said to be MAJOR if the project activity has potential to affect an environmental component. Major impacts could be "Major Negative" or "Major Positive." The following criteria were used to determine whether a given impact is MAJOR:
 - a) spatial scale of the impact (site, local, regional, or national/ international);
 - b) time horizon of the impact (short, medium, or long term);
 - c) magnitude of the change in the environmental component brought about by the Project activities (small, moderate, large);
 - d) importance to local human populations;
 - e) compliance with national, provincial, or district environmental protection laws, standards, and regulations;
 - f) compliance with Vietnam's international commitments. These include the Convention on Wetlands of International Importance especially as Waterfowl Habitat (RAMSAR), the Convention Concerning the Protection of the World Cultural and Natural Heritage (World Heritage Convention), and the Convention on International Trade in Endangered Species of Wild Fauna and Flora (CITES); and
 - g) compliance with World Bank guidelines, policies, and regulations.
- iii. **MINOR IMPACT.** If an impact occurs but does not meet the criteria for a Major Impact it is assigned the category MINOR. Minor impacts could be "Minor negative" or "Minor Positive."
- iv. **UNKNOWN IMPACT.** The potential impact of a project activity will be assessed as being UNKNOWN if the magnitude of the effect can not be predicted for any of the following reasons:
 - a) the nature and location of the project activity is uncertain;
 - b) the occurrence of the environmental component within the study area is uncertain;
 - c) the time scale of the effect is unknown; or
 - d) the spatial scale over which the effect may occur is unknown.
- v. **MITIGABLE IMPACT.** The potential impact of a project activity on an environmental component is said to be MITIGABLE if there is potential for a major negative impact and the proposed mitigation measure will prevent the impact or reduce the impact to acceptable levels.

4.2 Summary of Impacts

Table 4.1 summarises the Project's impacts during pre-construction, construction, and operation. The details of each impact are discussed in remaining sections of this section.

Table 4.1: Summary of Impacts

Impact Title	Impact Evaluation
Pre-Construction Phase Impacts	
Impacts on Project Affected Households	Mitigable Impact
Land Acquisition	Mitigable Impact
Impacts Caused By Clearing the ROW	Minor Negative Impact
Cultural Property	No Impact
Health Risks Related to Explosives, and Toxic Substances	No Impact
Construction Phase Impacts	
Soil Erosion	Minor Negative Impact
Petroleum and Hazardous Waste Spills	Minor Negative Impact
Impacts of Temporary Access Roads	No Impact
Generation of Dust	Minor Negative Impact
Generation of Noise	Mitigable Impact
Water Contamination	No Impact
Traffic Congestion	Mitigable Impact
Solid Waste Generated from Excavating and Foundation Work	No Impact
Social Impacts Caused by Construction Workers	Mitigable Impact
Health and Safety	Mitigable Impact
Impacts on Protected Areas	No Impact
Operations Phase Impacts	
Social and Economic Development	Significant Positive Impact
Avian and Aircraft Hazards	No Impact
Induced Effects from Electromagnetic Fields	No Impact
Petroleum and Hazardous Waste Contamination	No Impact
Health and Safety	Mitigable Impact

4.3 Pre-Construction Phase Impacts

4.3.1 Impacts on Project Affected Households – MITIGABLE IMPACT

A total of 3,668 households (about 18,340 persons) will be affected by the Project. Most of these households will be affected by: 1) having some of their trees cut down; 2) relocating their house or other structures within their existing property; 3) land acquisition of part of their land (usually less than 3m²; 4) if their house or agricultural land is in the ROW, they will be restricted to growing trees less than 4m in height (in no cases will the height of houses need to be reduced); and 5) during construction, some PAHs will temporarily lose use of their productive land.

It is necessary to be noted that among PAHs there are 14 households of Chut ethnic minority in Huong Lien commune, Huong Khe district. This ethnic minority is very uncivilized and they have just recently known how to grow rice from the body guards' teaching. There is currently a LV line providing electricity for these households. The line runs along an existing inter-commune road as the households are located next to the road. Thus, the Chut people here have been using electricity for

several years and are aware of safety issues at a certain extent. However, as the Project components in this area include building a new substation for MV line as well as upgrading the existing LV line, certain effects such as electric hazards and social impacts may still occur. This should be paid attention to by contractors with strict implementation of mitigation measures.

The proposed mitigation measure is compensation. The detailed compensation scheme can be found in the Project's Resettlement Action Plan. The Plan has been prepared according to World Bank guidelines and Vietnamese legislation. The budget for compensation and resettlement will be arranged by the People's Committees of Ha Tinh Province.

4.3.2 Lands Acquisition – MITIGABLE IMPACT

Details on land acquisition can be found in RAP. As in similar projects, this type of impact is often considered mitigable. The proposed mitigation measure is compensation. The detailed compensation scheme is presented in RAP. The budget for compensation will be arranged by the Provincial People's Committees.

4.3.3 Impacts Caused by Clearing the ROW – MINOR NEGATIVE IMPACT

The clearing of the ROW will occur during Pre-Construction shortly after the land acquisition activities. ROW clearing activities include: 1) permanent tree cutting and vegetation control; 2) temporary clearing of agriculture area land; and 3) permanent removal of houses.

The main impacts of clearing the ROW include: 1) some people may try to burn waste vegetation on site – this can increase the risk of uncontrolled fires; 2) some people may be injured by felling trees; and 3) soil erosion may occur. The significance of these impacts is considered to be minor negative.

4.3.4 Cultural Property – NO IMPACT

The Project will not impact any cultural property, as defined by WB OP 4.11. This is for three reasons: 1) most of the work on construction and rehabilitation of transmission and distribution lines is carried out based on the current network, which has already been installed along the existing transport system (streets, roads, etc.); 2) one of the criteria in designing the network alignment is to avoid any sensitive area, including historic and cultural properties; and 3) the participatory nature of designing alignments means that each commune is involved in selected alignment, and the final alignment in each commune must be approved by the local People's Committee.

Even in some cases when the existing network traverses historic sites, the rehabilitation work will include removing such line from the site. For example, one of the solutions proposed by PCCC1 is to cut off the part in front of the site by installing 2 new sub-stations at 2 cutting points.

4.3.5 Health Risks Related to Explosives, and Toxic Substances – NO IMPACT

Since Ha Tinh Province is one of the provinces that had to suffer a great quantity of bombs during the war, there is a risk that construction activities may come in contact with explosive as well as non-explosive substances that are harmful to humans (toxic barrels, waste materials, bombs, mines). The data on mines and bombs left from the war time is currently not available in Ha Tinh and therefore it is difficult to accurately assess this type of impact. However, since the power lines are designed to go along the road sides and construction activities in project areas include mostly building foundation for

poles, which occupies very small areas, this impact can be considered insignificant. Moreover, discussions with EVN's staff and the review of FS report suggest that this impact is often negligible. Thus, this impact is assessed as being no impact.

4.4 Construction Phase Impacts

4.4.1 Soil Erosion – MINOR NEGATIVE IMPACT

The overall Project impact on erosion during construction will likely be minor for the following reasons:

- Construction and rehabilitation of MV and LV lines will only occur during dry season because of the need of avoiding any risks posed by electricity to construction workers;
- The largest construction work is for foundation of poles, which occupies only 2-6 m² for LV line poles and 0.5-1 m² for MV line poles. Therefore, the probability of soil erosion that might occur is considered to be very low.
- The ROW required to construct MV lines is only 8-10 m for overhead line.

4.4.2 Petroleum and Hazardous Waste Spills – MINOR NEGATIVE IMPACT

Petroleum and hazardous waste spills may be caused by several sources, including: 1) oil leakage from the construction equipment and transformers during their operation; 2) spillage from filling combustible engines such as vehicles and generators; and 3) dumping of waste petroleum products and hazardous chemicals. These impacts will likely be minor for the following reasons:

- The erection of the poles and the electrical equipment from 35 kV and lower, as practice in Vietnam, is done manually. Therefore there will be relatively few combustible engines used during most construction activities.
- The transformers used in the project are very small and contain less than 20 litres of oil. Operation records from other projects show transformer containers rarely break during installation or operation, and therefore, oil leakage from transformers is insignificant.
- PCBs and asbestos, two hazardous materials used in Vietnam before 1990 are no longer used in the power sector and absolutely prohibited in EVN's projects.

4.4.3 Impacts of Temporary Access Roads – NO IMPACT

As the length of each part of the MV transmission line is relatively short, usually ranged from 0.5 to 2 km and that of the LV transmission line is even shorter, the access roads for the transportation would not be required most of the time. This is because, in practice, if some parts of the lines can not be accessed by the trucks (in mountainous areas or in small alleys), the contractors usually opt for manual transportation, since the labour costs are much cheaper than the costs of constructing access roads. Furthermore, as the line goes along the existing transport network, there is no need for temporary access roads.

4.4.4 Generation of Dust – MINOR NEGATIVE IMPACT

Construction-phase activities that generate some dust will primarily originate from two sources. The first source is materials transport. Project materials (soil/sand, construction refuse, equipment, etc)

will be transported by large trucks. During the course of materials transport, the following will occur: soil and sand will be released as airborne particulate from the truck loads; 2) tires will stir up dust as the truck travels over temporary and permanent roadworks; and 3) trucks will release airborne particulate as part of exhaust emissions. The second source is the release of particulate matter from stockpiles of sand and soil. The impacts of dust generating activities may be most serious during the dry season, when dust levels are already well above national standard and rain is not available to naturally mitigate the impacts of dust generation. However, as the Project Affected Communes concentrate mostly in rural areas, where population density is relative low, the impact of dust would not pose any significant effects to the communities. Besides, based on practical experience in similar projects, the dust amount generated during construction activities of MV and LV lines is considered small in nature.

This impact is assessed as minor negative. Although detailed quantitative data on the number of vehicle-trips and number of stockpiles are not yet available, it is assumed that the incremental increase in Ha Tinh Province ambient dust levels would be negligible. This assumption is based on data from similar projects.

4.4.5 Generation of Noise – MITIGABLE IMPACT

Numerous project activities can contribute to the generation of noise : vehicle movement, construction machinery (jackhammers, drilling equipment, excavation equipment); generators, etc. As the Project takes place entirely within rural areas, increased noise levels often directly affect households, business, pagodas, etc. However, because population density in project communes is low and many of the construction activities will be carried out manually, the impact of noise would not be significant.

This impact is assessed as mitigable. The mitigation objective is to ensure that households, businesses, pagodas, etc are not disturbed by excessive noise levels during construction. Mitigation of this impact can occur by: 1) Ensuring noise-generating works (using engines, heavy machinery, etc) do not occur between 2200h and 0700h; 2) Project vehicles should meet TCVN 5948 (1995) standards for noise emissions; 3) Project vehicles should avoid the use of horns in urban areas, 4) Construction equipment should meet relevant standards for noise emissions.

4.4.6 Water Contamination – NO IMPACT

During construction work of upgrading the substations and other underground works, there will be around 30-40 persons participating in the construction work; many of them (around 50%) are residents nearby who will come back home after work hours. The remaining would need to live in construction camp and will obviously generate a certain amount of water from their daily activities. However, the water amount generated by construction workers living in camps would be relatively small as the number of construction workers is only 15-20. Mitigation measures need to be carried out in order to prevent any pollution to surface water due to discharge from construction camps.

The excavation work is planned to avoid rainy season. In the case of rain, some run off water will bring soil from work site to the sewage system or to the rice field nearby. However, this is not considered as a significant impact due to the time for digging and installing just lasts from 2 to 7 days for each site. The Project will not require a lot of work with mixing concrete as foundation for poles occupies only 0.5-6 m² and therefore turbid water generated from construction activities is not significant. Attention should still be paid to stopping turbid water from running off to affect water body along.

There is no possibility that construction and rehabilitation work might impact to the underground water since the depth of foundation for poles is only 1-2 m.

4.4.7 Traffic Congestion – MITIGABLE IMPACT

The Project will require dozens trucks and utility vehicles be integrated into Ha Tinh's rural traffic composition during construction phase. Since the number of vehicles in communes is indeed small and traffic congestion rarely happen in rural areas, the appearance of trucks and vehicles during construction phase will obviously increase the traffic density. Besides, the width of commune roads is generally relatively small, which further increases the chances that traffic congestion might occur. As advised by EVN's staff, in practice, the trucks and vehicles are not allowed to go on commune roads and have to park somewhere just outside the commune for unloading construction materials before manually delivering to construction sites. This would help avoid traffic congestion on commune main roads; however there would be still the risk of traffic jam due to construction activities occurring in small alleys, which would cause disturbances to communers. This calls for attention paid to mitigation measures that need to be carefully carried out during the construction phase.

4.4.8 Solid Waste Generated from Excavating and Foundation Work – NO IMPACT

As all substations in this Project will be hung-type and do not require any earthwork except for making foundation for poles that the substations will be hung up on, the major excavating work in the Project will be for foundation. As poles foundation occupies only a couple of square meter, this type of work would not generate very much solid waste that may pose risks to the environment and human health. Besides, the majority of excavated material will be backfilled into the trenches but it is likely that because of bulking some excavated soils etc., will require disposal. It is not considered that this will represent a significant disposal problem at the construction sites, partly due to the relatively small quantities involved and for the pylon locations due to the widespread nature of the points of generation.

4.4.9 Social Impacts Caused by Construction Workers – MITIGABLE IMPACT

Social impacts caused by construction workers on nearby residential areas are often considered potentially negative. This is because of the long period of time required to carry out construction works. Transmission and distribution line projects are not an exception since construction workers may have to stay in the project areas up to 20 weeks. Besides normal social impacts that construction workers could pose to the nearby residential areas, this type of project has one distinctive impact that is more cultural than social in nature. That is the impact on customs, traditions, and living styles of ethnic minorities living in remote areas where some parts of the line pass by. However, this impact can be reduced if appropriate mitigation measures are taken. Those mitigation measures include maximizing hiring local residents, developing social education programs for both workers and local residents and strictly managing construction workers in accordance with local regulations and terms stipulated in contracts.

4.4.10 Health and Safety – MITIGABLE IMPACT

The main health and safety issues during construction phase are: 1) industrial accidents for construction workers, and 2) electrical safety for construction workers and the general public alike. Each is discussed below:

- **Industrial Accidents:** Construction workers are at risk from industrial accidents in the workplace. Working near heavy machinery, electricity, erecting transmission/distribution line all comes with their share of safety risks. The severity and frequency of industrial accidents increase when safety procedures are not implemented, when construction equipment is not maintained, when safety gear is not issued or worn, or when construction workers are not trained on safety procedures.
- **Electrical Hazards:** The Project's construction phase is subject to several types of electricity hazards. For example: 1) on-site electrical supplies will be required for a range of equipment and lighting needs; 2) excavation and land clearing may need to take place near existing electrical utilities; 3) the Project itself is constructing a very large electrical transmission system, which comes with its own unique set of electrical hazards; 4) the Project may need to provide temporary sources of power for households and businesses near project affected areas; 5) there is a risk that when improving existing power systems, the existing power system may not be turned off properly before the Contractor begins construction; and 6) there is a risk that when the Contractor connects the new transmission line to the existing transmission line, the existing line may still be operating (i.e. live). All of these situations could create a risk of electric shock to workers and the general public alike.

4.4.11 Impacts on Protected Areas – NO IMPACT

As described previously, there are two protected areas in Ha Tinh Province: Vu Quang and Ke Go Natural Reserves. It can be seen from Appendix 3 on Map of Project Communes that there are 3 project communes (Cam My, Cam Lac and Huong Trach) located partially within or adjacent to Ke Go Natural Reserve. None of the project communes is close to Vu Quang Natural Reserve. Below is impact analysis of these 3 communes.

Cam My and Cam Lac communes, Cam Xuyen district

Some part of these communes are in Ke Go Natural Reserve. However, the project areas (where MV and LV lines are constructed) are actually quite far from the boundary of the Natural Reserve. The distance from the closest project area in Cam My commune to the protected area is about 2.2 km and that number in Cam Lac commune is about 4.5 km.

Huong Trach commune, Huong Khe district

This commune is adjacent to Ke Go Natural Reserve. If the project area is too close to the protected area, project activities may still have certain impacts on the Natural Reserve. Fortunately, the distance from the closest project area to the boundary of Ke Go Natural Reserve is about 5 km.

Thus, it can be concluded that although some project communes are partially within or adjacent to the protected area, the project activities will have no impact on the area due to the far distances.

4.5 Operations Phase Impacts

4.5.1 Social and Economic Development – SIGNIFICANT POSITIVE IMPACT

The project will provide approximately 115,311 households (about 576,000 people) in Ha Tinh Province with a stable network of electricity. As economic growth is increasing in Ha Tinh province, the current network will not be capable of fulfilling the coming demand of electricity. This will affect the Province's chances of economic and social development. By providing a stable and proper network of electricity distribution and transmission, it is expected that households in rural areas in the

province will be able to raise their standard of living through improvements in both their home and work.

4.5.2 Avian and Aircraft Hazards – NO IMPACT

The height of the highest towers will be 20 m for medium voltage lines. The potential for these impacts is not significant for the following reasons:

- **Impact on birds:** First, there are no wetlands near the Project Area and there are no known bird electrocutions/accidents on medium voltage lines recorded. This is because the local birds are small – not large enough to touch two lines to create an electric current.
- **Impact on aircraft:** The highest towers created by the Project are only 20m, well below the 50m height required for special safety lights and the new towers will be as high as the existing towers that have not posed any risk to aircraft.

4.5.3 Induced Effects from Electromagnetic Fields – NO IMPACT

The human and environmental impacts of electromagnetic fields are not well known. Published reports from reputable sources show inconsistent conclusions on the relationship between exposure to electromagnetic fields and cancer (e.g. leukaemia, brain cancer)³. Most scientists agree that the risk of cancer is directly proportional to several factors, of which two are quite important: magnetic field strength and length of exposure.

- **Magnetic field strength:** According to the US EPA, the magnetic field strength of transmission and distribution systems is surprisingly weak (Table 4.2). Indeed, the highest measured results of a 500 KV line in the ROW during peak usage (183 milligauss) is lower than the median measurement of magnetic field strength within six inches of many household items (e.g. hair dryers: 300 milligauss; can openers 600 milligauss).

Table 4.2: Magnetic field measurements of 115, 230, and 500 KV transmission lines⁴

Type of Transmission	Max on ROW(milligauss)	Distance from lines (milligauss)			
		15m	30m	60m	90m
115 KV					
Average Use	30	7	2	0.4	0.2
Peak Use	63	14	4	0.9	0.4
230 KV					
Average Use	58	20	7	1.8	0.8
Peak Use	118	40	15	3.6	1.6
500 KV					
Average Use	87	29	13	3.2	1.4
Peak Use	183	62	27	6.7	3.0

- **Length of exposure to magnetic fields.** The exposure time of household appliances is relatively short because magnetic fields are created when the appliance is in use.

³ c.f. U.S EPA, 1990. *Evaluation of the Potential Carcinogenicity of Electromagnetic Fields*; BC Hydro, 2003. *Electromagnetic Fields*; CWTI, 2002. *News Articles on Links of Power Lines to Cancer*.

⁴ Source: U.S. EPA, 1992. *EMF in Your Environment: Magnetic Field Measurements of Everyday Electrical Devices*.

Transmission and distribution lines, though relatively low-emitters of magnetic fields, provide constant emission. The effects on long term exposure are not well known.

EMF data is not available for 0.4-22-35 kV medium voltage lines. However, based on the data in the above table, the EMF created by the Project would be much lower than those recorded for 115kV lines. These lines are commonly used in urban areas throughout the world with no confirmed health effects. Finally, no houses will be placed in the ROW, where the impact of EMF is highest⁵. For these reasons, the impact of EMF from the Project is considered to be no impact.

4.5.4 Petroleum and Hazardous Waste Contamination – NO IMPACT

The Project will use very minimal amounts of oil and no hazardous materials⁶ during operation phase. The most common situation when an impact can occur is when transformer oil is being refilled. To refill a transformer, a maintenance crew will remove it from the Project site and bring it to the Proponent's provincial branch office for refilling oil and/or changing oil. The branch office has designated oil collection and oil treatment facilities. This maintenance procedure occurs about every 2 years during operation phase. As this is the main potential impact during operations, the overall impact of petroleum and hazardous wastes is considered to be not significant during the operations phase.

4.5.5 Health and Safety – MITIGABLE IMPACT

The operation of transmission lines and distribution stations come with a certain amount of risk – both to maintenance workers and to the general public. This includes: 1) electrical shock; and 2) fires.

Electric shock is a danger for the human life during the operation phase if there is no proper preventive measure. Mitigation measures for this issue will be discussed in the next sections.

⁵ Allowable distance of houses from median of ROW is described Government Decree N° 54/1999/ND-CP dated 08/07/1999 on Protection of High Voltage Networks.

⁶ The transformers do not contain PCBs.

5 Public Consultation and Information Dissemination

World Bank (the Bank) policy regarding community involvement is provided in detail in the WB Public disclosure Policy BP 17.50.

To avoid negative impacts on project affected people. Governmental Decree N 175/CP issued on 18 April 1994 requires that all projects in the development of industry: energy, transport, water resource, agriculture, etc. should conduct a compliant EIA study meeting the requirements of the environmental management authorities and the contents of EIA reports including predicted impacts and mitigation measures must be discussed with the PAP.

All the interested parties will be provided with access to EIA, RAP and project summary so that they can submit their comments and concerns to the project proponents through their authorized representatives, e.g. governmental agencies (the people Committee, People Council) and/or socio-political organizations (Fatherland Front, Farmers Association, Women Union etc.) or non-governmental organizations (e.g. Vietnam Association for the Conservation of the Nature and Environment, Biological Association, Economic Association, Foresters Association etc.). These organizations should collect all comments from the local people and send them to the environmental management authorities (DoNRE at the provincial level or MoNRE at the central level) or even to provincial People's Council or National Assembly. During the environmental review process, all comments and requirements of the PAP should be discussed and conclusions should be reported to the project proponents, so that the project can develop proper alternatives and implement measures for mitigation of the negative impacts. The project will receive an investment license, only after appropriate modification of location, design, capacity and/or technology of the project has been done to meet requirements of environmental protection and resettlement.

Many public consultation meetings were held during the preparation stage of this Project. The meetings were classified by two types: one is for environmental aspects and the other is for resettlement issues. The meetings on environmental aspects carried out are summarized below:

5.1 Time and Locations of Meetings

99 meetings were held in 99 project communes (plus a number of meetings at the province level) between July and November 2003. Most of the meetings were held at Commune People's Committee.

5.2 Stakeholders

The objective of the meetings was two-fold: to disseminate information on the project with emphasis on environmental impacts that the Project might have; and to consult the key stakeholders in terms of their comments, concerns and recommendations with respect to environmental aspects. The meetings at the province level included representatives from relevant agencies such as DoNRE, DoST, DoC, PPS, PPC. The meetings at the commune level included representatives from local authority such as Commune PC, General Co-operative (the body in charge of power management in the commune), Farmers' Association, Women's Association, Fatherland Front as well as the public itself.

5.3 Approach Used

The approach used in public consultation meetings was a combination of the following approaches: 1) disseminating information; 2) soliciting input. Below is a summary of the techniques used:

- 1) Disseminating information

- Displaying printed materials: project drawings; maps of line route; pictures.
- Giving presentation about the project in terms of size, main components, capacity, specifications.

2) Soliciting input

- Project team: direct discussions with the participants and relevant agencies and organizations on the project issues; exchange of information on local environmental conditions as well as land use issues;

5.4 Program and Topics Discussed

- Project team (specialists of PCCC1) gave presentation on project scope.
- Discussion with the participants on the project potential impacts on the environment and proposed mitigation measures.
- The local authority and people gave their comments on: appropriate design line routes, any other potential risks to the environment.
- Distributing questionnaires to the participants to collect their inputs
- All questions and recommendations were recorded and will be taken into account during the technical design phase. An example of Record of Public Consultation Meeting can be found in Appendix 6.

5.5 Materials Presented

- Summary of the Project Information,
- Maps of the project site
- Figures, tables, pictures, etc.

5.6 Issues Raised

In general, the reaction of attendees to the project was favorable in terms of the economic and social benefits it would potentially bring about. Also, most of the attendees agreed that the impacts that the Project may have on the environment are not significant because of the benign nature as well as the reasonable scope of the Project. They further emphasized that the benefits would obviously be able to compensate for the negative impacts. However, a number of concerns were expressed, most of which are quite typical for transmission line projects.

The most frequent issues raised is land use impacts. This concerns appeared in all of the meetings. It is understandable why the public is most concerned about this issue. The reason given was that it has direct impact on people's lives. Impacts on land use were related to different types by the participants. These include agricultural productivity, land acquisition, conflicts with previous and current land use plans of the locality and even compensation and resettlement for PAHs. Although the issues of land acquisition and compensation and resettlement for PAHs were not the focus of these meetings, they were still repeated in these environmental workshops by the participants. This is understandable and shows that the issue is most concerned by the local community and sensitive.

Another concern that was often raised during the meetings is EMF impacts. Some representatives emphasized the fact that Viet Nam has not yet issued any regulations on acceptable EMF level for 500 kV transmission line. Some representatives stressed that they wanted to know about this issue fully because after the workshop he needs to clearly explain the issue to his community.

Impacts on infrastructure facilities such as roads, drainage during the construction phase were also considered significant by the participants. However most of them realized that this type of impact is unavoidable and can be minimized greatly if mitigation measures and EMP are properly implemented by contractors. The Project Team explained that mitigation measures to minimize this impact will be provided in the EMP as part of the Environmental Assessment report and also the number of construction machines used during the construction phase of transmission line projects in Viet Nam in practice is not large. The Project Team further emphasized that the mitigation measures will be incorporated into tender document that the construction contractors will have to comply.

Impacts on water bodies and soil erosion due to earth work such as foundation building received some concern. However, the participants also agreed that this type of impact is not significant for this particular project and will be significantly minimized if mitigation measures are properly implemented.

Concerns about impacts on the ecology due to tree cutting for ROW clearing were also raised by some representatives but they were quite satisfied with the Project Team's answer that replacement of trees will be carried out close to the ROW.

Fortunately, impacts on cultural and historic sites, the most sensitive and concerned issue often encountered in construction projects in Viet Nam did not occur in most of this project.

Several representatives suggested that the Project implementation schedule should be informed to the local authorities early so that they can adjust their land use plans in order to avoid conflicts with the project area.

5.7 Information Disclosure

All of comments received during the meetings will be taken into consideration during the next stages of the Project implementation process as well as in the EMP. To address disclosure requirements of WB, the Project Management Unit will:

- Provide Vietnamese-language copies of the IEE, RAP, FS and Project Summary to Ha Tinh Province People's Committee as well as to Provincial Power Services of Ha Tinh Province.
- Advertise in major local newspapers several times over a two-month period. The advertisement will state that the IEE, RAP, FS and Project Summary are available for public review for a two month period during normal working hours at the following locations: 1) Ha Tinh Province People's Committee; and 2) Provincial Power Services
- English and Vietnamese-language copies of the IEE report will also be sent to the Vietnam Information Development Centre at 63 Ly Thai To in Hanoi, for access by NGOs and public display.
- English language copies of the IEE report will be sent to World Bank for publication on World Bank InfoShop.

5.8 Conclusions and Lessons Learnt

The information shared at the meetings was well received. It was clear that people in the Provinces welcomed the project in terms of the socio-economic benefits that it could bring. Most of the issues raised were quite typical for power transmission line projects. The most concerned issues were identified to be land use impacts. It was very useful and worthwhile to have the opportunity both to inform these stakeholders of the nature of the Project and to clarify certain issues of concern at this early stage. Moreover, the public consultation meetings indeed helped the Project specialists to know

better about the existing local conditions and to identify some issues that need to be studied further in the next stage.

It is necessary to be noted that some impact types such as impact on landscape that is quite typical in transmission line projects in developed countries was not at all raised as a concern in these workshops. This is understandable as in Viet Nam people tend to pay attention to the issues that have direct and immediate impacts on their lives rather than other “noble” impacts, given economic conditions and living standards of Viet Nam, especially in rural areas where this Project traverses the most.

5.9 EA Clearance

Besides the approval of the WB on the EA report, as advised by WB and according to Vietnamese regulations, it is necessary to have a similar approval of the Ha Tinh DoNRE, a State-management representative of the Government in Ha Tinh Province in environmental management. A Vietnamese version of this report was sent to the Ha Tinh DoNRE for applying Environmental Permit. 2 Environmental Permits were then issued by the Ha Tinh DoNRE on the 2rd of March 2004, of which one is for MV system and the other is for LV system. These Permits can be found in Appendix 7.

6 Environmental Management Plan

6.1 Mitigation Plan

When constructing the mitigation measure tables of this section, the following points were considered:

- Mitigation measures are provided for all “MINOR NEGATIVE” and “MITIGABLE” impacts;
- Construction mitigation measures should be woven into appropriate contract management documents (e.g. bidding documents, general conditions of contract, contractor specifications, method statements). This enables PMU to have significant authority over their implementation.
- “Environmental Best Practices” will not be made explicit within the Contractor Specifications. This in line with the general approach to seamlessly integrating environment into contract management and civil works projects in general.
- If a measure was considered to be ineffective during the implementation process, alternate mitigation measures would be considered.
- Costs that would be borne by the Contractor are not identified in this table — these costs will become part of the competitive bid of contractors. Costs of resettlement and land acquisition will be identified in the Resettlement Action Plan.

Table 6.1: Pre-construction - potential negative impacts and mitigation measures

	Potential Negative Impact	Target	Mitigation Measure(s)	Estimated Cost	Funding Source	Implemented By	Supervised By
1	Impacts on Project Affected Households (PAH)	All PAHs will be fairly compensated	Select alignment with minimum conflict with PAHs Compensate PAHs	As specified in Resettlement Action Plan.	GOV	Provincial, City and Commune Peoples' Committees	PC1
2.	Land acquisition	Land acquisition will be minimised. Land owners will be fairly compensated for loss of land.	Select alignment with minimum conflict with land acquisition requirements. Compensate land owners	As specified in Resettlement Action Plan.	GOV	Provincial, City and Commune Peoples' Committees	as above
3	Clearing ROW	Minimise impact of burning waste during clearing of ROW	Co-ordinate with local government to support education and enforcement of restricting burning of organic waste in the ROW.	Included in Contractor bidding price	GOV	Contractor	as above

Table 6.2: Construction - potential negative impacts and mitigation measures

Potential Negative Impact	Target	Mitigation Measure(s)	Estimated Cost	Funding Source	Implemented By	Supervised By
4. Soil Erosion	Project does not exacerbate the severity and frequency of landslides; local people can continue to use their land without net loss in productivity; natural environment is not permanently affected by soil erosion.	Contractor Specifications should include: <ul style="list-style-type: none"> Excavation activities in erosion-prone areas will be limited to the dry season and/or after harvest. Soil disturbance will be kept to a minimum and not undertaken until immediately prior to works starting in that area. During construction, surface runoff will be redirected around construction area. Excess soil should be dumped in approved locations by a responsible authority 	Included in Contractor bidding price	incorporated into Contractor's contract	Contractor	- PMU's technical supervisor - DoNRE
5. Petroleum and Hazardous Waste Spills	Members of the public and workers are not harmed by direct or indirect contact with petroleum or hazardous wastes.	Employer should encourage Contractor to use "best practices" to minimise hazardous waste spills – as described in the EIA report. Contractor Specifications should include: <ul style="list-style-type: none"> Contractor shall not use PCBs and asbestos during any part of Project construction. Contractor shall keep petroleum products and hazardous substances in safe locations away from the general public. 	Included in Contractor bidding price	as above	as above	as above
6. Dust	Nuisance dust emissions are avoided.	Contractor Specifications should include: <ul style="list-style-type: none"> Water sprays are to be regularly used on piles of sand. Wind fences to be installed if prevailing winds generate dust. Dust generating materials will be covered adequately. 	Included in Contractor bidding price	as above	as above	as above
7. Noise	Nearby residents are not disturbed by excessive noise levels during construction	Contractor Specifications should include. <ul style="list-style-type: none"> Noise-generating works (using engines, heavy machinery, etc) should not occur between 2200h and 0700h. All Project vehicles and noise-generating machinery must meet relevant standards for noise emissions. 	Included in Contractor bidding price	as above	as above	as above

	Potential Negative Impact	Target	Mitigation Measure(s)	Estimated Cost	Funding Source	Implemented By	Supervised By
8.	Traffic Congestion	Traffic does not become congested in the construction area. Traffic hazards are managed to minimise risk to road users.	Contractor Specifications should include: <ul style="list-style-type: none"> All construction vehicles (including vehicles working under sub-contract to the Contractor) shall clearly display a project logo, and project allocated number. Speed limits for the construction vehicles will be 10 km/hr on construction site. These speed limit signs will be posted on the construction vehicles. The travel route for construction vehicles should be designed to avoid areas of congestion. Near construction sites, separate traffic flows of: 1) cars/trucks and 2) motorcycles/bicycles. If Project works occur after dark, the Contractor should maintain a lighting system such that vehicles and pedestrians can clearly see the construction area. 	Included in Contractor bidding price	incorporated into Contractor's contract	Contractor	- PMU's technical supervisor - DoNRE
9	Social Impacts Caused by Construction Workers	Minimise social problems that could occur during the Project	Contractor Specifications should include: <ul style="list-style-type: none"> Contractor should be encouraged to hire local residents whenever possible If deemed necessary by Employer, Contractor should work with People's Committees and local Unions to develop social education program (STDs, drug use). Contractor should provide accurate and timely information about the construction team to the relevant Peoples' Committees. 	Included in Contractor bidding price	as above	as above	as above
10.	Health and Safety	Minimise health and safety problems that could be incurred by construction workers Ensure no electrical shocks to workers or local people during construction phase.	Contractor Specifications should include: All works employed/sub-contracted by Contractor should wear appropriate protective equipment such as gloves and construction hats, waterproof boots to be provided where necessary. Contractor Specifications should include: <ul style="list-style-type: none"> Contractor shall co-ordinate with Provincial Power Department prior to beginning construction works. Only qualified persons will install and maintain electrical systems used at the Project site. These people will be clearly identified by their clothing/hardhat. Only approved electrical cables and other pieces of electrical hardware shall be used on the Project site. 	Included in Contractor bidding price	as above	as above	as above
				Included in Contractor bidding price	as above	as above	as above

	Potential Negative Impact	Target	Mitigation Measure(s)	Estimated Cost	Funding Source	Implemented By	Supervised By
11.	Damages to Local Roads	Minimize damages to local roads due to project construction and material transportation activities	<p>Contractor Specifications should include:</p> <ul style="list-style-type: none"> • Contractor should provide appropriate vehicles for material and equipment transportation • Contractor shall load and unload construction materials and equipment in designated areas agreed with local authority • Contractor should limit transportation activities during rainy season. When this is unavoidable, only vehicles with reasonable loading are allowed to go. For acceptable vehicles' loading, contractor shall check with the local authority. • Contractor shall be responsible for any damages to local roads or drainage systems due to construction activities. If this is the case, contractor shall be required to repair damages. 	Included in Contractor bidding price	incorporated into Contractor's contract	Contractor	<ul style="list-style-type: none"> - PMU's technical supervisor - DoNRE - Communes' representative
12.	Impacts on underground cultural/historical properties	Minimize impacts to underground cultural/historical properties that could be posed by construction activities	<p>Contractor Specifications should include:</p> <ul style="list-style-type: none"> • Contractor should keep all underground cultural/historical properties remained in the existing situation when discovered. • Contractor shall inform the local authority or the provincial Department of Culture and Information as soon as possible. • During the process of informing to the relevant agencies, all discovered cultural/historical properties should be kept in strict protection with signs posted nearby. Also, irrelevant people or strangers are not allowed to penetrate the area. 	Included in Contractor bidding price	incorporated into Contractor's contract	Contractor	<ul style="list-style-type: none"> - PMU's technical supervisor - DoNRE

Table 6.3: Operation - potential negative impacts and mitigation measures

Potential Negative Impact	Target	Mitigation Measure	Estimated Cost	Funding Source	Implemented By	Supervised By
13. Health and Safety	Minimise health and safety problems related to electric shock, fire hazards, etc.	<ul style="list-style-type: none"> For electric shock: work closely with Provincial Power Department to periodically check ROW; provide appropriate training and certification for staff to operate and maintain power lines and substations. For fire hazards: design substation with fire detection and prevention equipment; train workers in fire prevention and fighting; conduct regular monitoring of fire prevention compliance. For other hazards: place "Danger-Warning" signs at appropriate locations (e.g. foot of poles, substations); ensure appropriate specifications for MV lines; ensure safety equipment (surge arrestors, lightning arrestors, breakers, insulated wires) are purchased, installed, and maintained. 	To be estimated by EVN	EVN	Provincial Power Department	PC 1
			To be estimated by EVN	as above	as above	as above
			To be estimated by EVN	as above	as above	as above

6.2 Monitoring Plan

The Project's performance and environmental effects will be monitored throughout pre-construction, construction, and operation.

Performance monitoring is conducted to evaluate compliance with standard operating procedures (SOP), national standards, and/or contractor management documents. In most cases performance monitoring results are evaluated against established performance criteria. For example a Contractor specification may be to place a tarp over all vehicles that carry soil. The performance monitoring activity could be to count the number of soil-carrying vehicles that use tarps, and compare the result against the Contractor Specification.

Environmental effects monitoring is conducted to estimate the impacts of project activities on ambient environmental conditions. These include qualitative monitoring elements, such as status of access roads, status of re-vegetation, proper distance between houses and T/L, etc.. Those monitoring elements, as advised by WB and agreed by EVN, will be included in the TOR for the EMP/RAP Safeguard Independent Monitoring Consultant. It is noteworthy that most of the monitoring activities of this Project are qualitative rather than quantitative due to the benign nature of the Project with respect to environmental impacts.

The below table describes detailed monitoring programmes.

Table 6.4: Monitoring Plan During Construction and Operation

	Parameters	How to monitor	Responsible bodies and frequency (for more details see Table 6.6)
	CONSTRUCTION PHASE		
1	Surface water turbidity and other matters related to soil erosion	<p>1) Visual observation to assess whether the excavation and other construction activities cause any pollution to the surface water, especially in term of making water to be more turbid.</p> <p>2) The measures applied by Contractor to avoid the pollution of surface water in term of turbidity.</p> <p>3) The measurement should be taken when there is some complaint from local people</p>	<p>- Technical supervisors of PMUs. Frequency: monthly</p> <p>- Safeguard independent monitoring consultants. Frequency: every six months</p> <p>- Commune's People's Committee. Frequency: monthly</p>
2	Noise level around construction sites and adjacent residential areas	<p>1) Assessment (by observation) whether (i) the noise level is unacceptable in the Project's residential areas (ii) the construction machines annoy local people.</p> <p>2) The mitigation measures applied by the Contractor to avoid the noise impact</p> <p>3) The measurement should be taken when there is some complaint from local people</p>	
3	Dust	<p>1) Assessment (by visual observation) whether (i) the dust caused by construction is serious; (ii) the measures that Contractors have taken to control the dust level</p> <p>2) The mitigation measures applied by the Contractor to avoid the dust level increasing in the area</p> <p>3) The measurement should be taken when there is some complaint from local people</p>	
4	Tree cutting and access road management and control	<p>1) Assessment (by visual observation) whether (i) there is any excessive clear cutting of trees beyond ROW in communal land</p> <p>2) Measures taken by Contractors for cleaning up woody residue after tree cutting.</p>	

	Parameters	How to monitor	Responsible bodies and frequency (for more details see Table 6.6)
5	Solid waste and site cleaning up after the construction	Assessment by visual observation whether: 1) Construction residues are clean up after the construction 2) The way that Contractor dispose the solid wastes from construction.	as above
6	Workers sanitation and safety facilities	Assessment by visual observation: (1) Status of solid waste and waste water disposal in camping sites (2) Hygienic and safety issues in camping site (3) Check the agreement with communes people committee if the workers stay in homes of local peoples	as above
7	Transportation disturbance	Assessment by visual observation: (1) Whether the construction and other project's activities such as pole's erection, cable pulling cause any serious disturbance to the local traffic; (2) Necessary measures are taken to avoid the disturbance of traffic such as: warning sign for construction work, avoiding of heavy traffic hours, ... (refer to Mitigation measures for details)	as above
8	Road degradation	Assessment by visual observation (1) The transportation of materials and equipment causes any damage to the local road system and how is the level of damage (2) The vehicles used for Project is overloaded that potentially cause the damage to the existing road system? (3) The Contractor has taken any measure to repair the roads that were damaged during transportation of Project's equipment and material. (4) There is any complaint from local peoples on the issue	as above

	Parameters	How to monitor	Responsible bodies and frequency (for more details see Table 6.6)
9	Status of application of safety measures	Assessment of safety issue during construction: - Personal safety equipment - Technical and safety regulation to avoid the electricity shocks, electrical hazards etc.	as above
10	Construction material management	Assessment by visual observation: (1) The management of construction material in the warehouses (2) The management of construction material in the construction site	
11	Impact on wild life, natural resources and induced impacts to protected areas	Notice of Consultant on: (1) There is any evidence that the Project's activities cause any disturbance to the wild life and natural resource (bird, animal, snakes etc.), to the precise trees. (2) Any hunting, trapping by construction workers in Project area.	
OPERATION PHASE			
12	Maintaining of ROW	Assessment by visual observation (1) The tree cutting: whether the right trees or right parts of tree are cut. (2) The proper maintaining of distance from houses to the ROW	Technician of Provincial Power Services. Frequency: every six months
13	Impact on-wild life and natural resources	Notice of Consultant on: (1) There is any evidence that the Project cause any disturbance to the wild life (bird, animal, snakes etc.) and natural resource (water, forest etc.)	

6.3 Institutional Framework for Environmental Management

The institutional framework for environmental management of the Project is described in the below table:

Table 6.5: Institutional Framework for Environmental Management

No	Organization	Responsibility and Role
1	Electricity of Viet Nam	<ul style="list-style-type: none"> - overall environmental management of REII - guiding and supervising implementation of the EMP for the project
2	Power Company No. 1	<ul style="list-style-type: none"> - project owner for REII projects in northern region in general - responsible for project implementation, including RAP and EMP.
3	Project Management Units (2 PMUs: EVN's PMU for MV line and Province's PMU for LV line)	<ul style="list-style-type: none"> - overall planning, management and monitoring of environmental management - ensuring that all environmental protection and mitigation measures of environmental impacts are carried out in accordance with policies, regulations on environment and other relevant laws. - coordinating with province' people committee, province' power services, districts' people committees... in environmental management activities. - in charge of organizing training courses for local staff (province, districts) and contractors' teams on mitigation measures and safety methods - carrying out internal monitoring and supervising independent monitoring, which will be contracted with other consulting services of the project. - supervising and providing budget for monitoring activities. - reporting on environmental information to EVN, DoNRE and WB. - implementing changes or adjustments according to DoNRE recommendations to protect the environment according to Vietnam's standards, laws, and regulations.
4	Provincial Power Services	<ul style="list-style-type: none"> - responsible for EVN's business within the province - in charge of supervision of contractors during construction and of operation of the project - in charge of supervision of EMP implementation during the operation phase
5	Ha Tinh Province's Department of Industry (DOI)	<ul style="list-style-type: none"> - responsible for management of industry's development of the Province. In RE 2 Project, DOI is authorised by the Province People's Committee to manage the Low Voltage component including implementation of RAP and EMP.
6	General Co-operative (transformed from Power Joint Stock Company)	<ul style="list-style-type: none"> - responsible for managing and maintaining LV systems at commune level. - responsible for collecting electricity fees
7	Department of Natural	<ul style="list-style-type: none"> - responsible for state management on environmental issues

	Resources and Environment (DoNRE)	<p>within the province's territory.</p> <ul style="list-style-type: none"> - reviewing and managing the approval process for the EIA report - monitoring the implementation of mitigation measures to minimize the project impacts in the construction and operation stage - controlling and checking health of workers, operators and inhabitants - managing and checking protection measures for plantations and animal subject to the impact caused by the project
8	Safeguard Independent Monitoring Consultant	<ul style="list-style-type: none"> - in charge of supervision of implementation of monitoring plan and mitigation measures - reporting results of monitoring to WB - carrying out specific monitoring tasks when required
9	Contractors	<ul style="list-style-type: none"> - applying construction-phase mitigation measures - ensuring safety for construction workers and local people during construction - following Vietnam and World Bank policies on environmental protection during construction - reporting results of implementation of mitigation measures or any environment-related issues to PMUs
10	Commune People's Committee	<ul style="list-style-type: none"> - confirming impacts caused by the project in the commune - monitoring environmental impacts, mitigation measures and protection process within the commune - organizing meetings at commune level on matters concerning environment - reporting monitoring results or any environment-related issues to PMUs

6.4 Environmental Reporting Procedures

There will be 4 reporters in charge of the reporting process. Their responsibilities are summarized below:

Contractors

Contractors will submit monthly reports to PMU. The content of reports should include environmental issues related to the project with an emphasis on mitigation measures being carried out. All problems that have not been addressed and need to be resolved in the forthcoming month should be included with explanation and discussion of solution. An outline of Contractor's report is given in Appendix 11.

Project Management Unit (PMU)

PMU's technical supervisors will submit Project monthly reports to the EVN and WB. The reports will include updates on the effectiveness of environmental mitigation measures being carried out, environmental monitoring results collected during the month, and discussion of any outstanding issues which should be addressed in the forthcoming month. An example of format and details of these reports is showed in Appendix 9.

Safeguard Independent Monitoring Consultant (SIMC)

SIMC will be hired by EVN and WB to monitor the Project implementation. Their responsibilities have been listed in the Monitoring Plan previously. The results of those works will be reported to EVN and WB every 6 months for the entire project. A Terms of Reference for SIMC can be found in Appendix 10.

Communes' Leader

As advised by WB, the Commune PCs should be involved in EMP/monitoring plan, and therefore it is necessary for Commune PCs to participate in the reporting process. During the Public Consultation Meetings on Environmental Impacts, the leaders of Commune PCs expressed their willingness to be involved in the reporting process and agreed to prepare monthly reports on environmental issues that would be sent to relevant parties. Appendix 5 shows a simple report format for the Commune PCs to fulfil this task. In order to support this, a targeted training needs to be provided to the Commune PCs' leaders under the capacity building component that will be discussed in the next section.

More details on the reporting procedures are given in the below table.

Table 6.6: Reporting Procedures

No	Issues to be reported	1 st reporting level	2 nd reporting level	3 rd reporting level (a copy should be sent to DoNRE)
Construction phase				
1	Implementation of mitigation measures and site environmental management	By: Contractor Frequency: Monthly To: Relevant PMU	By: Relevant PMU Frequency: Quarterly To: Relevant Owner	By: Relevant Owner Frequency: Quarterly To: WB
2	Environmental monitoring including safety issues	By: Technical supervisors of relevant PMU Frequency: Monthly To: Relevant PMU	By: Relevant PMU Frequency: Quarterly To: Relevant Owner	By: Relevant Owner Frequency: Quarterly To: WB
		By: Commune's People Committee Frequency: Monthly To: Relevant PMU		
		By: SIMC Frequency: Half-yearly To: WB	-	-
Operation phase				
3	Environmental monitoring including safety issues	By: Technician of Provincial Power Service Frequency: Half-yearly To: PC1	By: PC1 Frequency: Yearly To: EVN	By: EVN Frequency: Yearly To: WB
		By: General Cooperative (for LV lines) Frequency: Half-yearly To: DOI	By: DOI Frequency: Yearly To: Province's People's Committee	By: Province's People's Committee Frequency: Yearly To: WB

6.5 Capacity Building

Environmental management is a relatively new task for the power sector. Therefore, prior to project implementation, there should be training for staff that will participate in EMP. Management staff will be equipped with knowledge on mitigation measures for environmental impact and monitoring plan.

The following training has been conducted to date as part of the Rural Energy Project, during the first and second phase of Rural Energy I:

- 1) **2000: Project Launch Workshop.** The main objective of the workshop was to inform all the implementing agencies on the safeguards policies of the Bank, including the environmental issues of the project
- 2) **May 2002: Training Workshop** on the environmental issues, conducted by international and national environmental specialists. The objectives of the training were:
 - Legal documents on environment protection
 - WB stipulations on safeguard policies
 - Responsibilities and rights of state functional bodies in environment management
 - Identification of typical impacts of power transmission line projects and mitigation measures
- 3) **August 2003: Hands-on learning-by doing training** for improving environmental reports. Local and international consultants worked with PC 1 staff to improve draft EIA and EMP reports.
- 4) **September 2003: Hands-on workshop** for environmental assessment of transmission and distribution projects. International and national environmental specialists lead PC 1 staff and other participants on a field trip to test new tools for environmental assessment, held group work activities on challenges and opportunities to improve environmental assessment, and held lectures on WB safeguard policies and GOV environmental requirements for the Distribution and Transmission Lines Project.

Future training should include the following:

- 5) **EVN training:** Internal training course to PMU's technical supervisors on how to monitor SEMP's and how to report environmental results as part of monthly project reports.
- 6) **Training to Commune PCs' leaders:** training course on how to monitor and supervise SEMP's within their commune and how to report environmental results as part of monthly project reports.

6.6 Cost of Implementing the EMP

This section estimates the marginal costs for conducting the EMP's main sub-components: mitigation, monitoring and capacity building. Costs that are incurred by other project components but satisfy some aspect of the EMP are not included in this section (many of the mitigation measures should be incorporated in construction costs that the contractors will be bidding for the Project so as to express their competitiveness).

The total marginal cost of the EMP from construction through to the end of the 20th year of operation is 66,879 USD (not including contingencies, taxes, or inflation). Detailed estimates are found in the below Tables.

Table 6.7: Cost estimation for environmental monitoring

<i>No</i>	<i>Item</i>	<i>Amount (VND)</i>
Construction phase		
1	Labour requirement : 7 man-months x 10,000,000 VND/month	70,000,000
2	Supporting cost (lump sum): accommodations, transportation, sample collectors, writing report	50,000,000
Operation phase (for 20 years)		
3	Labour requirement : 2 man-months/year x 10,000,000 VND/month x 20 years	400,000,000
4	Supporting cost (lump sum): accommodations, transportation, sample collectors, writing report: 15,000,000 VND/year x 20 years	300,000,000
	TOTAL	820,000,000

Table 6.8: Cost estimation for capacity building

<i>No</i>	<i>Training program</i>	<i>Estimated cost (VND)</i>
Construction phase		
1	EVN training	Cost is covered by EVN
2	PC 1 training for commune leaders and local power technical staff on safety and reporting issues. Training courses will be held at the district level in order to minimize expenses. 10,000,000 VND/district x 9 districts x 2 times	180,000,000
Operation phase		
3	PC 1 training: provincial level Environmental management of the Project and Monitoring and Reporting of environmental management plan	50,000,000
	Total	230,000,000

Table 6.9: Costs of Implementing the EMP

<i>No</i>	<i>Item</i>	<i>Construction (VND)</i>	<i>Operation (20 years) (VND)</i>
1	Mitigation measures	The costs are covered in Contract with Construction Contractors	The cost is covered in production cost of the authorized owners of MV, LV lines
2	Monitoring costs (see Table 6.7 for more details)	120,000,000	700,000,000
3	Capacity building (see Table 6.8 for more details)	180,000,000	50,000,000
	Total	300,000,000	750,000,000
	Grand Total	1,050,000,000 VND = 66,879 USD (equivalent) Conversion rate: 1USD = 15,700 VND	

7 Conclusions

The Project will supply stable electricity to 99 communes in Ha Tinh Province. By providing this service, the Project will help improve the life of about 576,000 people. The impact of this service is evaluated as significant positive and long term. In order to provide stable electricity services; the Project will create some negative impacts to the natural and social environment. Most of these impacts are minor negative and short term, or mitigable.

This study has not identified any environmental impacts that would necessitate a more detailed Environmental Impact Assessment to be conducted. However, an outline EMP was prepared in order to ensure that mitigation measures identified are successfully implemented and environmental impacts are managed.

APPENDICES

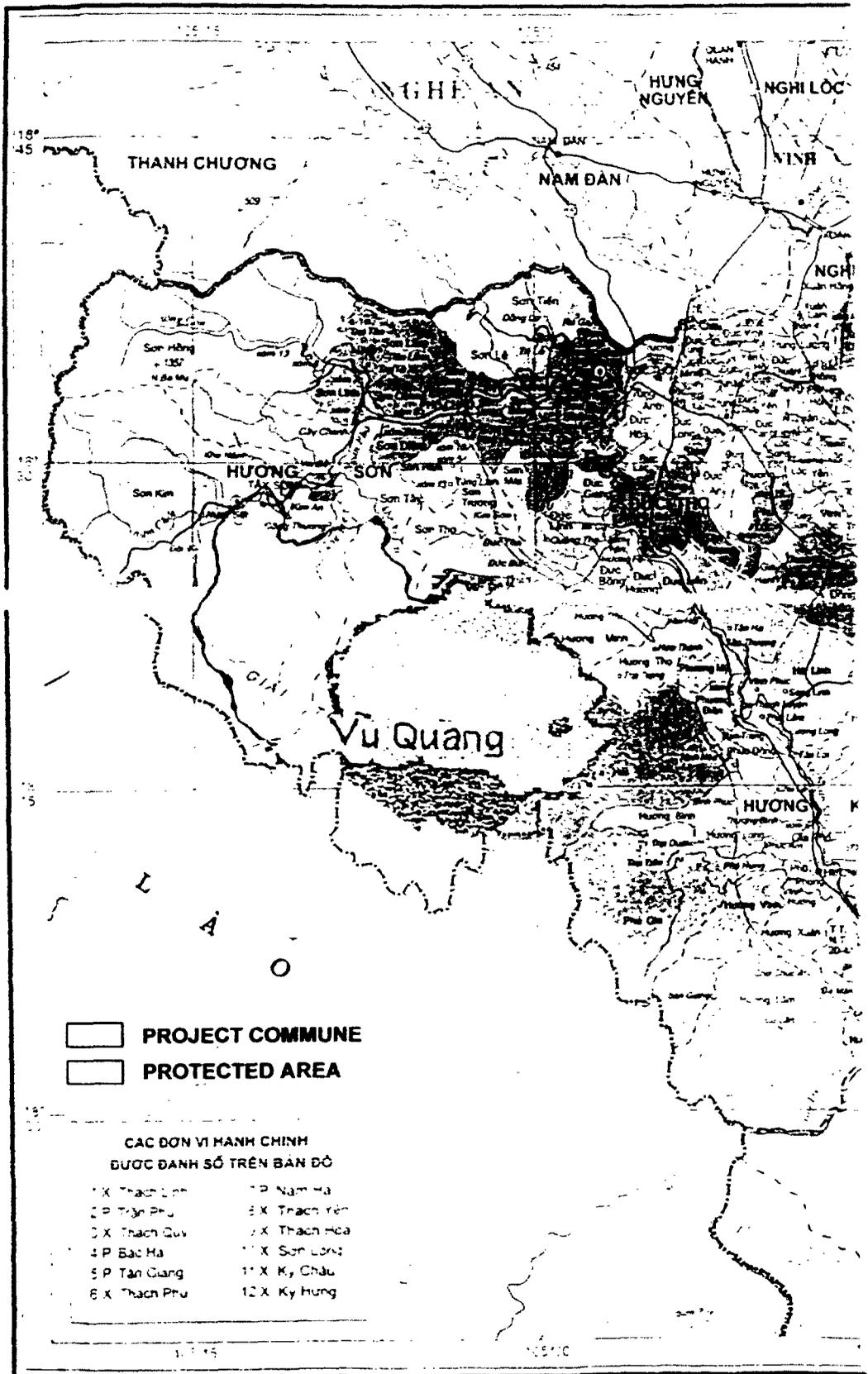
Appendix 1: List of EIA Report Preparers

1. Luu Duc Cuong – EVN Consultant
2. Nguyen Duc Vinh – Head of Section 1 of PCCC1
3. Tran Ngoc Minh – Deputy Head of Section 1 of PCCC1
4. Tran Anh Tuan – Staff of Section 1 of PCCC1
5. Pham Thanh Trung – Staff of Section 1 of PCCC1
6. Vu Duy Binh – Staff of Section 1 of PCCC1
7. Nguyen Minh Tu – Staff of Section 1 of PCCC1
8. Tran Minh Do – Staff of Section 1 of PCCC1
9. Cao Dung – Deputy Head of Section 2 of PCCC1
10. Cao Dai – Staff of Section 2 of PCCC1
11. Trinh Son – Staff of Section 2 of PCCC1
12. Le Tuan Thanh – Staff of Section 2 of PCCC1
13. Bui Hai Dang – Staff of Section 2 of PCCC1

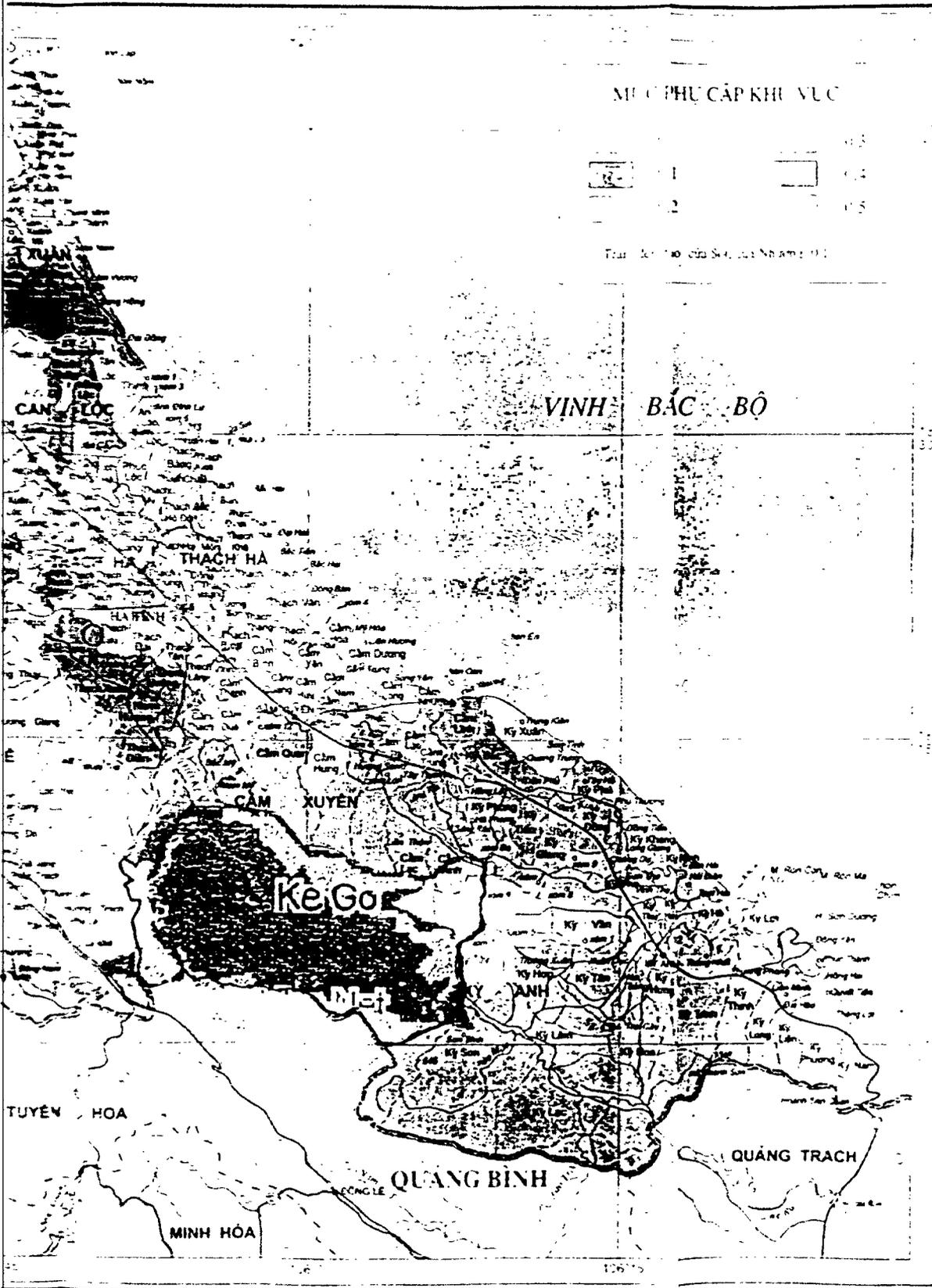
Appendix 2: References

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8. Climate in Vietnam - Pham Ngoc Toan
9. Vietnam is On the Way Reaching to the 21st Century”, 2000

APPENDIX 3: MAP OF PROJEC



T COMMUNES IN HA TINH PROVINCE



Appendix 4: Existing Features of Communes in Project Area

No	Commune	Population	Number of Hamlet	Number of Households		Average Income (10 ⁶ VND/year)	Power Loss	Transmission Line		Substation	
				have power	don't have power			LV (km)	MV (km)	No.	Total capacity (kVA)
I	Can Loc										
1	Thinh Loc	2965	5	1414	10	1.4	30.01	5.5	10.75	4	555
2	Thuong Loc	5593	11	1250	0	1.2	21.68	18	3.12	3	700
3	Phu Luu	6771	16	1470	112	1.75	27.18	12	0.25	3	700
4	Binh Loc	5593	9	1115	0	1.6	22.2	6	2.01	2	420
5	Vinh Loc	6088	7	933	13	1.35	15	6.2	1.6	2	500
6	Hong Loc	4800	11	2000	0	1.42	21.72	16	2.81	2	500
7	Son Loc	3800	15	1685	0	1.12	16.13	18	2.69	2	500
8	Phu Loc	8012	9	1402	202	1.21	22.54	16.7	2.1	2	500
9	Xuan Loc	7452	16	1650	30	1.8	28.15	25	7.21	4	1220
10	Thanh Loc	4854	5	1218	0	0.98	32.04	2.5	2.8	3	860
11	Thuong Nga	4713	7	981	0	1.01	21.04	9	4.06	3	760
12	An Loc	3224	8	805	1	1.32	23	7	1.66	2	500
13	Gia Hanh	6416	12	1452	152	1.65	28.94	10	4.12	3	620
14	Khanh Loc	4883	14	1126	6	1.78	17.6	12.5	3.1	4	850
15	Kim Loc	4412	11	1060	0	1.23	20.06	3.8	4.85	4	720
16	Song Loc	4582	10	1055	0	1.19	34.94	15	2.83	3	540
17	Tan Loc	6087	4	1475	75	1.28	21.96	15	5.07	4	920
18	Thien Loc	7245	19	1600	0	1.89	16.79	12	1.93	7	1270
19	Thuan Thien	7551	9	1615	0	1.42	17.95	7	1.08	4	1060
20	Tung Loc	8650	14	1960	0	1.23	19.82	10	1.77	3	820
21	Tien Loc	5125	10	884	0	1.54	53.18	15	3.53	6	800
22	Trung Loc	5254	12	1190	0	1.43	17.55	25.1	1.83	2	360
23	Vuong Loc	8129	24	2000	0	1.64	16.92	11.3	4.7	6	1430
24	Yen Loc	4261	9	943	0	1.52	15.68	21.9	3.8	3	645

25	Ich Hau	7527	5	1869	0	1.57	19.06	10	2.39	4	1000
II Duc Tho											
26	Duc Yen	4168	7	959	0	2.2	32	1.2	1.13	2	500
27	Duc Chau	2577	5	598	0	2.6	56	3.2	1.46	3	610
28	Duc Lam	6216	9	1460	0	1.9	32	18.8	2.78	4	860
29	Duc Tung	2970	7	775	0	1.92	29.7	4.3	2.6	2	280
30	Duc Lac	4334	9	1077	0	2	27	5.1	2.11	7	730
III Ky Anh											
31	Ky Bac	4835	8	1269	0	0.99	53.19	6	1.1	1	320
32	Ky Hai	3654	7	926	0	1.2	42	5.6	1.79	1	250
33	Ky Ha	4481	5	1021	37	0.98	25	5	2.88	1	250
34	Ky Van	7016	11	1695	0	1.2	20	12	4.69	3	380
35	Ky Phong	6768	11	1738	0	1.3	45.87	8.2	0.4	3	500
36	Ky Hung	1727	2	620	204	1.1	35	4	0.29	1	180
37	Ky Lien	1966	4	886	30	0.9	47	3.6	0.55	1	160
38	Ky Hoa	4135	6	989	232	1.5	47	8	1.41	2	350
39	Ky Phu	8630	7	2085	66	1.2	48	12.8	6.62	2	430
40	Ky Dong	4890	10	1180	217	1.1	49	10	1.137	2	430
41	Ky Loi	7321	9	1684	321	1.1	46	8.1	13.09	3	540
42	Ky Thu	3984	7	960	27	1.3	32	8	0.93	2	570
43	Ky Tho	3293	6	824	35	1.2	29	4.3	0	3	300
44	Ky Ninh	5848	11	1450	8	1.1	31	13.5	12.608	4	400
45	Ky Trinh	4554	12	1121	89	1.2	26	15.8	0.02	5	740
46	Ky Giang	5457	13	1330	70	1.3	29	6.3	2.88	4	630
47	Ky Tien	5657	13	1330	70	1.3	34	6.3	2.88	4	630
IV Huong Khe											
48	Huong Lien	2445	9	685	100	1	40.31	9	3	2	350
49	Huong Vinh	4623	14	1100	90	1.8	52.42	10	0.5	1	250

50	Huong Xuan	4657	9	1100	20	0.8	33.9	7	2.74	2	360
51	Gia Pho	6448	14	1450	0	1.55	20	17	2.84	4	580
52	Ha Linh	5507	20	1380	191	0.8	50.21	10.7	7	4	640
53	Phuc Trach	5867	11	1380	367	1.8	43.74	10	3	3	350
54	Huong Do	4481	12	1057	57	1.45	41.61	10	1.3	3	380
55	Huong Trach	6171	10	1360	166	1	35	17	4	4	540
V	Huong Son										
56	Son Tan	2801	8	800	200	2.1	22	3	0.63	1	180
57	Son Phu	4086	12	976	76	1.78	23.04	1.3	1.4	1	250
58	Son tra	3309	10	804	14	0.96	29	3	1.2	1	250
59	Son My	2554	12	611	0	1.9	19	2	1.2	1	180
60	Son An	2899	10	598	8	2	33	3	1.2	1	250
61	Son Trung	5868	19	1340	115	1.6	31	3	0.02	2	500
62	Son Ham	4192	14	889	69	1.5	29	5.5	0.36	1	250
63	Son Phuc	2924	10	964	19	1.2	30	0.5	2.3	2	430
VI	Vu Quang										
64	An Phu	2500	5	480	620	1	39	1.7	0.85	2	360
VII	Thach Ha										
65	Thach Dien	5686	14	1266	32	1.3	30	11	0.44	1	320
66	Thach Huong	4678	13	1054	0	1.5	83	3	1.3	1	320
67	Nam Huong	1935	11	832	103	1.2	28	3	2.94	1	320
68	Thach Ngoc	4912	9	654	14	1.4	35	12	4.9	1	320
69	Thach Lien	5397	9	1118	0	2.1	23.1	12	1.55	4	700
70	Thach Ban	4356	8	834	0	0.98	36	5	1.1	2	280
71	Thach Dinh	3372	13	765	0	1.7	38	4	0.5	2	200
72	Bac Son	2965	7	844	94	1.5	34	7	0.05	2	360
73	Thach Tan	6167	13	1425	0	1.43	36	5	3.3	2	360
74	Thach Luu	3224	10	816	0	1.23	41	4	1.7	1	250

75	Thach Lam	3400	9	714	0	1.35	29	6	0.03	1	250
76	Thach Khe	3833	11	930	0	1.4	26	12	3.5	3	360
VIII	Cam Xuyen										
77	Cam Loc	4238	9	952	30	2.5	35	13	5	1	250
78	Cam My	6314	9	1472	18	1.5	30	10.5	8	2	500
79	Cam Nam	4625	9	101	3	3.5	43	10.86	4.7	3	680
80	Cam Phuc	5323	15	915	20	1.2	42.2	16.2	6.9	2	500
81	Cam Duong	6458	12	1500	2	1.4	51.2	18	4.2	3	380
82	Cam Lac	6413	12	1380	6	1.18	47.9	15	6.28	2	430
83	Cam Hoa	6044	10	1100	0	2.2	36	8.2	4.8	2	500
84	Cam Yen	4827	11	1135	0	3.12	37	12	2.3	2	430
85	Cam Thach	6015	6	1257	20	1.4	36	9.7	6.65	4	860
86	Cam Quan	6776	16	1720	60	2.8	32	12.5	4	2	500
87	Cam Thanh	7452	19	1760	20	2.8	30	17	10	3	600
88	Cam Hung	7453	20	1760	21	3.8	30	18	11	4	601
IX	Nghi Xuan										
89	Xuan Pho	4495	9	1162	0	1.8	39.5	5	0.06	1	320
90	Xuan Truong	5825	12	1310	0	1.2	39.7	4	0.06	2	500
91	Xuan Lien	6593	12	1449	0	2.17	36.7	6	0.02	2	430
92	Xuan Dan	2789	6	712	0	3.2	35	3	0.15	1	320
93	Cuong Gian	11680	15	2243	0	2.5	33	16	0.35	4	750
94	Xuan My	4050	12	980	40	1.44	24.8	5	2.35	3	405
95	Xuan Hoi	6900	13	1548	48	1.4	40	6	0.03	2	430
96	Co Dam	8218	15	1851	0	1.54	33.7	14	0.07	3	680
97	Xuan Linh	3006	10	858	200	1.3	31.07	13	0.76	2	340
98	Xuan Vien	4360	9	1200	400	1.32	40	6	0.05	3	520
	Total	335,327	1,038			1,328	2,793	917	278	254	49,856

Appendix 5: Example of EMP Report Format for Commune Leader and Local Community

Commune Name:

District Name:

Reporting Period:

Impact / Mitigation Measure	Commune Representative Comments	Community Comments
Project vehicles or activities increased ambient dust levels	No comment	No comment
Project vehicles or activities increased ambient noise levels	Some noise near hospital, but no noise other sensitive areas (schools, pagodas, etc).	Hospital staff complained about construction noise to Peoples' Committee and Dept. of Health.
Project activities polluted local rivers or lakes (turbidity increased?)	No comment	No comments
Project cleared vegetation and this caused environmental impacts (number and type of trees cut off)	No comment	No comment
Project activities created impacts on agricultural and/or residential land	Visited location where farmers complained and saw piles of dirt on their land	Some farmers complained that piles of dirt are being left on their paddy fields.
Project activities impacted cultural property	No comment	No comment
Project construction caused traffic congestion (materials loading and unloading, material transportation, construction activities)	No comment	No comment
Project caused solid waste or liquid waste impacts	Noticed garbage was left around construction camp	No comment
Social and health impacts posed by workers	No comment	Shopkeepers are happy to receive business from construction workers
Accidents	Two local workers were injured when some equipment fell on them during excavation activity.	No comment
Project activities caused damages to infrastructure facilities (roads, drainage)	No comment	No comment
Erosion and sediment controls	No comment	No comment
Siting of materials etc. to avoid exacerbation of flood effects, chemical pollution etc.	No comment	No comment
Waste management practices (how much waste is generated, disposal methods)	No comment	No comment
Dust suppression measures	No comment	No comment
Project activities caused any impact on birds, animals and rare flora	No comment	No comment
Other	No comment	No comment

Recommendations

- More care should be taken to clean up construction camps
- Contractor should make sure to keep piles of dust in designated working areas

Signature of Commune Representative:

Title of Commune Representative:

Date:

Appendix 6: Example of Record of Public Consultation Meetings

CỘNG HOÀ XÃ HỘI CHỦ NGHĨA VIỆT NAM
Độc lập - Tự do - Hạnh phúc
--- oOo ---

BIÊN BẢN THAM VẤN CỘNG ĐỒNG ĐÁNH GIÁ TÁC ĐỘNG MÔI TRƯỜNG

I. Thành phần tham dự:

1. Đại diện chủ đầu tư
Ông/bà..... Chức vụ:
2. Đại diện đơn vị tư vấn
Ông/bà..... Chức vụ:
3. Đại diện UBND xã Lũng Khê - H. Can Lộc - T. Hà Tĩnh
Ông/bà... Nguyễn Xuân Sơn... Chức vụ: Chủ tịch UBND...
4. Đại diện/người đứng đầu các nhóm dân tộc thiểu số (nếu có):
Ông/bà..... Dân tộc:
- Ông/bà..... Dân tộc:
5. Đại diện các hội, đoàn thể địa phương:
 - a) Mặt trận Tổ Quốc Ông/bà, Chức vụ: L. V. Văn Tấn.....
 - b) Đoàn Thanh niên Ông/bà, Chức vụ: Đoàn T. Văn Công.....
 - d) Chi hội Phụ nữ Ông/bà, Chức vụ: Đ. Thị Lệ.....
 - e) Liên minh dân Ông/bà, Chức vụ: Lũng Minh Chiến.....
 - f) Hội người lao động Ông/bà, Chức vụ: T. Văn Minh.....
 - g) Chi hội Cựu chiến binh Ông/bà, Chức vụ: T. Văn Công.....
 - h)..... Ông/bà, Chức vụ:
 - i)..... Ông/bà, Chức vụ:
6. Đại diện các hộ gia đình: người, trong đó số người dân tộc thiểu số:

II. Nội dung tham vấn:

1. Đơn vị tư vấn thông báo về:
 - Nội dung dự án (lý do đầu tư, quy mô công trình, vị trí hướng tuyến...)
 - Chính sách Đền bù, Tái định cư, Chính sách Môi trường, Chính sách đối với Người dân tộc thiểu số của WB và của Chính phủ Việt Nam
 - Mục tiêu của Đánh giá tác động môi trường (với ý kiến tư vấn của người dân và cộng đồng) là: đề xuất các giải pháp giảm thiểu các tác động tiêu cực tiềm tàng về Môi trường (bao gồm môi trường tự nhiên và xã hội).
2. Ý kiến tham vấn của cộng đồng:

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Y án Điện nông thôn ? (RE2)

2.1. Người dân trong vùng có đồng ý tham gia thực hiện dự án không ? có : _____ :
Không: _____, Nếu không, vì sao?

2.2. Tham vấn của cộng đồng về những tác động tích cực về Môi trường (bao gồm cả môi trường tự nhiên và xã hội: môi trường sinh thái, môi trường vật lý, truyền thống văn hoá và sinh hoạt cộng đồng ...):

+ Trước khi xây dựng:

+ Trong khi xây dựng:

Tạo dựng môi trường sống tốt đẹp.

+ Sau khi xây dựng xong:

phát triển kinh tế, tạo việc làm, nâng cao đời sống.

2.3. Tham vấn của cộng đồng về những tác động tiêu cực tiềm tàng (có thể xảy ra) về Môi trường và các giải pháp giảm thiểu:

+ Trước khi xây dựng:

+ Trong khi xây dựng:

Chạy điện đi qua các khu vực dân cư, gây ồn ào, bụi bặm, mất vệ sinh, mất mỹ quan, mất an toàn.

+ Sau khi xây dựng xong:

Mất đất do chiếm dụng, mất vệ sinh, mất an toàn, mất mỹ quan.

2.4. Đối với những hộ có nhà ở, công trình trong hành lang an toàn điện, nếu kỹ thuật cho phép, có đồng ý sử dụng những biện pháp hỗ trợ phòng chống cháy nổ thay thế cho các giải pháp di dời/di chuyển không? Có: ; Không: _____, Nếu không thì vì sao?

Ấn Điện nông thôn 2 (RE2)

2.5. Người dân và cộng đồng trong vùng DA có đồng ý tham gia công tác giảm thiểu tác động môi trường như: i) làm sạch nơi xây dựng công trình, thu gom rác thải, chất bẩn về đúng nơi quy định; ii) Cam kết thực hiện đúng các quy định về hành lang an toàn điện (như không được trồng cây lâu năm hay xây dựng công trình...); iii) Thực hiện công tác phòng chống cháy nổ, các tai nạn do điện giật gây ra?

Có: ; Không: . Nếu không thì vì sao?

2.6. Người dân và cộng đồng trong vùng DA có thể thực hiện công tác giám sát môi trường đối với chủ thầu trong toàn bộ quá trình trước khi xây dựng, trong khi xây dựng và sau khi xây dựng kết thúc không?

Có: ; Không:

Nếu không, vì sao:

2.7. Các ý kiến tham vấn khác của người dân và cộng đồng:

III. ý kiến bình luận (nhận xét, đánh giá) và đề xuất của Tư vấn (về các kết quả tham vấn nêu trên, đặc biệt là giải pháp giảm thiểu các tác động tiêu cực tiềm tàng về môi trường):

_____, Ngày 26 tháng 11 năm 2003

ĐẠI DIỆN CHỦ ĐẦU TƯ

ĐẠI DIỆN ĐƠN TƯ VẤN

Trần Anh Tuấn
Trần Anh Tuấn

ĐẠI DIỆN CHÍNH QUYỀN ĐỊA PHƯƠNG:



Trần Đại Nghĩa
TRẦN ĐẠI NGHĨA

ĐẠI DIỆN CÁC CƠ QUAN ĐOÀN THỂ ĐỊA PHƯƠNG:

La Việt Nga
La Việt Nga

ĐẠI DIỆN NGƯỜI ĐỪNG ĐẦU CÁC NHÓM DTTS:

Appendix 7: Environmental Permit Issued by Ha Tinh DoNRE

UBND TỈNH HÀ TĨNH
SỞ TÀI NGUYÊN VÀ MÔI TRƯỜNG

CỘNG HÒA XÃ HỘI CHỦ NGHĨA VIỆT NAM
Độc lập - Tự do - Hạnh phúc.

Số: 94 /TNMT

Hà Tĩnh, ngày 2 tháng 3 năm 2004

PHIẾU XÁC NHẬN BẢN ĐĂNG KÝ ĐẠT TIÊU CHUẨN MÔI TRƯỜNG

Tên dự án: "Năng lượng nông thôn 2 (REII)- Phần trung áp"

Địa điểm thực hiện dự án: Tỉnh Hà Tĩnh

Chủ dự án: Ban quản lý dự án lưới điện- Công ty Điện lực 1.

GIÁM ĐỐC SỞ TÀI NGUYÊN VÀ MÔI TRƯỜNG HÀ TĨNH XÁC NHẬN

Điều 1: Ban quản lý dự án lưới điện- Công ty Điện lực 1 đã trình nội dung Bản đăng ký đạt tiêu chuẩn môi trường (ĐTCMT) của dự án Năng lượng nông thôn 2 (REII)- Phần trung áp ngày 30 tháng 02 năm 2004 (có hồ sơ và bản đăng ký ĐTCMT kèm theo)

Điều 2: Chủ dự án có trách nhiệm thực hiện đúng những nội dung đã được nêu trong Bản đăng ký ĐTCMT. Trường hợp gây ô nhiễm môi trường, suy thoái môi trường, sự cố môi trường, Chủ dự án phải có trách nhiệm bồi thường mọi thiệt hại gây ra theo quy định của pháp luật

Điều 3: Bản đăng ký ĐTCMT là cơ sở để cơ quan quản lý nhà nước về bảo vệ môi trường kiểm tra việc thực hiện luật bảo vệ môi trường của chủ dự án.

Điều 4: Sau khi hoàn thành các hạng mục về môi trường, chủ dự án phải có báo cáo bằng văn bản gửi cơ quan quản lý nhà nước về bảo vệ môi trường để kiểm tra.

Nơi nhận

- BQL lưới điện- Công ty Điện lực 1
- Bộ TN&MT (để báo cáo)
- UBND tỉnh Hà Tĩnh
- GD, các PGD
- Chi nhánh điện thụ xứ Hà Tĩnh
- Lưu VT-MT

KT GIÁM ĐỐC SỞ TN VÀ MT HÀ TĨNH
PHÓ GIÁM ĐỐC

Nguyễn Hùng Mạnh

Nguyễn Hùng Mạnh

UBND TỈNH HÀ TĨNH
SỞ TÀI NGUYÊN VÀ MÔI TRƯỜNG

CỘNG HÒA XÃ HỘI CHỦ NGHĨA VIỆT NAM
Độc lập- Tự do- Hạnh phúc.

Số: 93 /TNMT

Hà Tĩnh, ngày 2 tháng 3 năm 2004

PHIẾU XÁC NHẬN BẢN ĐĂNG KÝ ĐẠT TIÊU CHUẨN MÔI TRƯỜNG

Tên dự án: "Năng lượng nông thôn 2 (REII)- Phần hạ áp"

Địa điểm thực hiện dự án: Tỉnh Hà Tĩnh

Chủ dự án: Ban quản lý dự án Năng lượng nông thôn 2 tỉnh Hà Tĩnh.

GIÁM ĐỐC SỞ TÀI NGUYÊN VÀ MÔI TRƯỜNG HÀ TĨNH XÁC NHẬN

Điều 1: Ban quản lý dự án Năng lượng nông thôn 2 tỉnh Hà Tĩnh đã trình nội dung Bản đăng ký đạt tiêu chuẩn môi trường (ĐTCMT) của dự án Năng lượng nông thôn 2 (REII)- Phần hạ áp ngày 30 tháng 02 năm 2004 (có hồ sơ và bản đăng ký ĐTCMT kèm theo)

Điều 2: Chủ dự án có trách nhiệm thực hiện đúng những nội dung đã được nêu trong Bản đăng ký ĐTCMT. Trường hợp gây ô nhiễm môi trường, suy thoái môi trường, sự cố môi trường, Chủ dự án phải có trách nhiệm bồi thường mọi thiệt hại gây ra theo quy định của pháp luật

Điều 3: Bản đăng ký ĐTCMT là cơ sở để cơ quan quản lý nhà nước về bảo vệ môi trường kiểm tra việc thực hiện luật bảo vệ môi trường của chủ dự án.

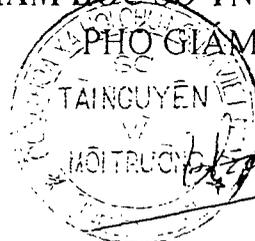
Điều 4: Sau khi hoàn thành các hạng mục về môi trường, chủ dự án phải có báo cáo bằng văn bản gửi cơ quan quản lý nhà nước về bảo vệ môi trường để kiểm tra.

Nơi nhận

- BQL lưới điện- Công ty Điện lực 1
- Bộ TN&MT (để báo cáo)
- UBND tỉnh Hà Tĩnh
- GD, các PGD
- Chi nhánh điện thị xã Hà Tĩnh
- BQL Dự án REII tỉnh Hà Tĩnh
- Lưu VT-MT

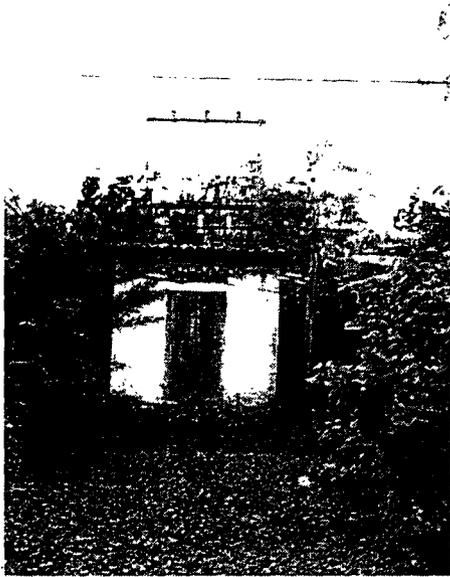
K/T GIÁM ĐỐC SỞ TN VÀ MT HÀ TĨNH

PHÓ GIÁM ĐỐC

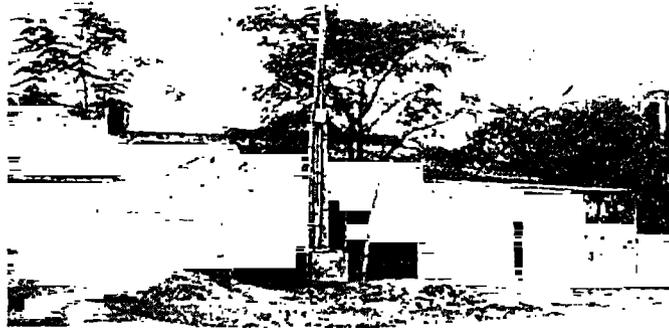


Nguyễn Hùng Mạnh

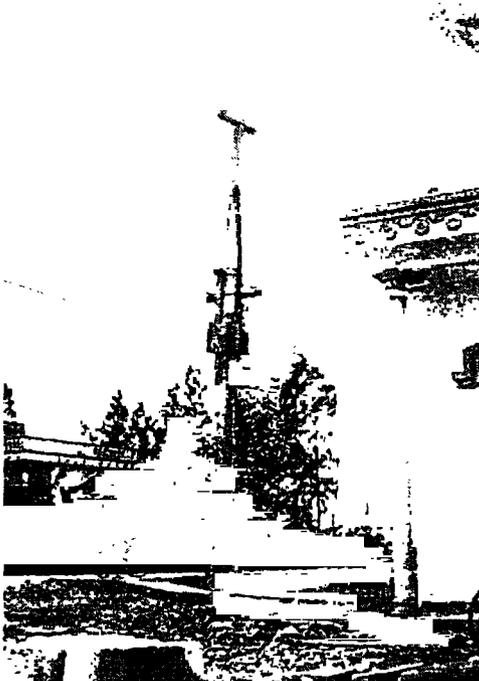
Appendix 8: Pictures of Existing Transmission and Distribution Network in Ha Tinh Province



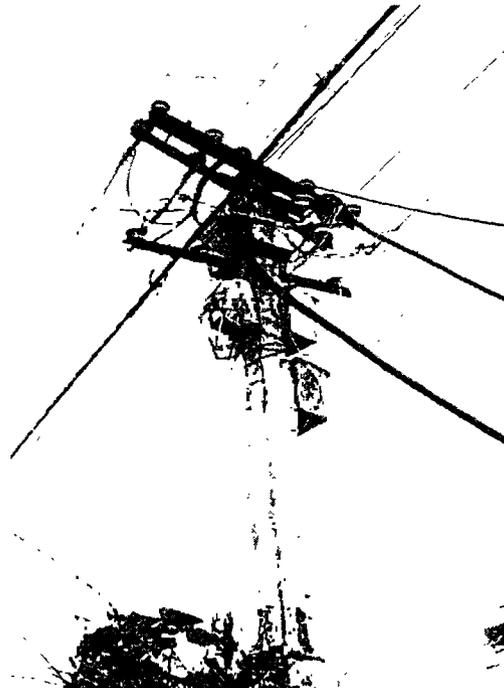
An existing substation



People connect to the line by themselves using bamboo



Existing LV lines and poles



Appendix 9: Example of Format of EMP Monitoring Report for PMUs' Technical Supervisors

Date: _____
 Commune Name: _____
 District Name: _____
 Contractor Name: _____

Mitigation Objective (from EMP)	Mitigation Measure (from EMP)	Mitigation Measure Being Implemented?	Mitigation Objective Being Achieved ?
Soil Erosion			
Project will not exacerbate the severity and frequency of landslides, that local people can continue to use their land adjacent to the project area without any net loss in productivity, and that the natural environment is not permanently affected by erosion caused by the project.	<i>Excavation conducted during the dry season; and /or after harvest</i>	✓	X
	<i>Soil disturbance will not be undertaken until immediately prior to construction works beginning in that area.</i>	✓	
	<i>Surface runoff will be redirected around the project area and into suitable drainage channels.</i>	✓	
	<i>Excess soil will be dumped only in approved locations by the Employer or Engineer.</i>	X	
Environmental Effects - Comments: Excess soil is not being dumped in approved location . Local people complained to People's Committee that soil was being dumped on their rice fields. This situation needs to be investigated further.			
Dust			
Ensure minimal impact of dust on local people and sensitive areas such as hospitals and schools.	<i>Water sprays should be regularly used on piles of sand and dirt roads;</i>	✓	✓
	<i>Wind fences should be installed if prevailing winds generate dust;</i>	X	
	<i>Project vehicles carrying materials should be adequately covered</i>	✓	
Environmental Effects - Comments: Wind fences are not necessary in this commune because there are not many prevailing winds. In general the Contractors mitigation measures are achieving the mitigation objective.			
Noise			
Nearby residents are not disturbed by excessive noise levels during construction.	<i>Noise-generating works (using engines, heavy machinery, etc) should not occur between 2200h and 0700h.</i>		
	<i>All Project vehicles and noise-generating machinery must meet relevant standards for noise emissions.</i>		

Mitigation Objective (from EMP)	Mitigation Measure (from EMP)	Mitigation Measure Being Implemented?	Mitigation Objective Being Achieved ?
Environmental Effects - Comments:			
Petroleum and Hazardous Waste Spills			
Members of the public and workers are not harmed by direct or indirect contact with petroleum or hazardous wastes.	<i>PCBs and asbestos are not allowed to use</i>		
	<i>Petroleum products and hazardous substances are kept in safe locations</i>		
Environmental Effects - Comments:			
Traffic Congestion			
Traffic does not become congested in the construction area. Traffic hazards are managed to minimise risk to road users.	<i>All construction vehicles clearly display a project logo, and project allocated number.</i>		
	<i>Speed limits for vehicles are 10 km/hr on construction site. Speed limit signs are posted on the construction vehicles.</i>		
	<i>The travel route for construction vehicles is designed to avoid areas of congestion</i>		
	<i>Separation of traffic flows</i>		
	<i>Use of lighting system after dark</i>		
Environmental Effects - Comments:			
Social Impacts Caused by Construction Workers			
Minimise social problems that could occur during the Project.	<i>Contractor should be encouraged to hire local residents whenever possible</i>		
	<i>If deemed necessary by Employer, Contractor should work with People's Committees and local Unions to develop social education program (STDs, drug use).</i>		
	<i>Contractor should provide accurate and timely information about the construction team to the relevant Peoples' Committees.</i>		
Environmental Effects - Comments:			
Damages to Local Roads			
Minimize damages to local roads due to project	<i>Appropriate vehicles for material and equipment transportation</i>		

Mitigation Objective (from EMP)	Mitigation Measure (from EMP)	Mitigation Measure Being Implemented?	Mitigation Objective Being Achieved ?
construction and material transportation activities	<i>Loading and unloading construction materials and equipment in designated areas agreed with local authority</i>		
	<i>Limiting transportation activities during rainy season. Only vehicles with reasonable loading are allowed to go</i>		
	<i>Repair damages to local roads</i>		
Environmental Effects - Comments:			
Impacts on underground cultural/historical properties			
Minimize impacts to underground cultural/historical properties that could be posed by construction activities	<i>Keep all underground cultural/historical properties remained in the existing situation when discovered</i>		
	<i>Inform the local authority or the provincial Department of Culture and Information soonly</i>		
	<i>Discovered cultural/historical properties are kept in strict protection with signs posted nearby. Also, irrelevant people or strangers are not allowed to penetrate the area.</i>		
Environmental Effects - Comments:			
Health and Safety			
Minimise health and safety problems related to electric shock, fire hazards, etc.	<i>For electric shock: work closely with Provincial Power Department to periodically check ROW; provide appropriate training and certification for staff to operate and maintain power lines and substations.</i>		
	<i>For fire hazards: design substation with fire detection and prevention equipment; train workers in fire prevention and fighting; conduct regular monitoring of fire prevention compliance</i>		
	<i>For other hazards place "Danger-Warning" signs at appropriate locations (e.g. foot of poles, substations); ensure appropriate specifications for MV lines, ensure safety equipment (surge arrestors, lightning arrestors, breakers, insulated wires) are purchased, installed, and maintained.</i>		

Appendix 10: Example of Environmental Terms of Reference for Safeguard Independent Monitoring Consultant

Task to be included in the TOR for Safeguard Independent Monitoring Consultant:

1. Visually look at the construction sites and make notes related to the following environmental issues, but not limited to:

- Surface water turbidity and other matters related to soil erosion
- Transportation disturbance
- Impact on wildlife, natural resources and induced impacts to protected areas
- General clean up after construction works.
- Excessive clear cutting of trees beyond ROW in communal or forest land.
- Measures taken by the contractor for cleaning up woody residues after tree cutting
- Status of access roads (have they been closed if in a protected area, are they still being used and to what extent, how are they being controlled/managed and by whom), Application of mitigation measures for or sign of soil erosion along T/L due to tree cutting and/or around tower foundation
- Status of re-vegetation in the ROWs and tower foundation
- Impacts of construction works (level of noise, dust, and damage to roads due to earthworks and transportation of building materials)
- Status of construction worker camps and sanitation facilities for them
- Proper distance between the houses and T/L,
- Status of implementation of safety measures (signboards, restricted zone, fences, isolation etc.)

2. Conduct public consultation to:

- Assess the level of involvement by the local authorities in dealing with environmental issues (dust, noise, damage to roads due to the transport of construction materials, tree cutting on public lands and protected areas).
- Identify any other environmental issues and record environmental complaints from the PAHs.
- Report on responses (if any) from appropriate local authorities on environmental complaints or non-compliance

Appendix 11: Example of Annotated Outline of Site Environmental Management Plan (SEMP) for Contractor

Title Page:
Table of Contents
Introduction
<ul style="list-style-type: none"> - 1 paragraph to introduce the purpose of the report
Update of Priority Issues Identified in the Last Reporting Period
<ul style="list-style-type: none"> - List priority issues identified in the last report - List progress made by Contractor in solving each issue - List any issues, which have not been adequately resolved, and provide recommendations on how to resolve those issues. If they cannot be resolved, explain why.
Results of the Environmental Management Activities in this Reporting Period
<ul style="list-style-type: none"> - Report on the mitigation measures that are identified in the SEMP - Is each measure meeting its mitigation objective? If not, why not? Make sure explanation is clear and thorough.
Conclusions for this Reporting Period
<ul style="list-style-type: none"> - List all priority issues identified during this reporting period - Provide access as to how and when the Contractor will resolve each issue. If the issue cannot be resolved, provide explanation as to why it cannot be resolved.
Appendices
<ul style="list-style-type: none"> - Completed survey forms and maps relevant to the EMP. - Copies of any other communications between PMU, Contractor, PCs, etc., regarding SEMP-related activities.