

**GREATER MEKONG SUBREGION TRANSMISSION
PROJECT**

**RESETTLEMENT PLAN
FINAL VERSION**

July 2004

THIS IS NOT AN ADB BOARD APPROVED DOCUMENT.

C O N T E N T S

Abbreviations, Acronyms etc	v
Definition of Terms	vii
Executive Summary	viii
1 INTRODUCTION	1
2 SCOPE OF LAND ACQUISITION AND RESETTLEMENT	3
2.1 Project Description	3
2.1.1 Design Criteria COI Easements and WWP and TSS Substations	3
2.2 Proposed Transmission Line Route	6
2.2.1 Land Use	7
2.2.2 Administrative Areas	9
2.3 Route Selection	14
2.3.1 Engineering Survey – Use of GPS	14
2.3.2 Social Survey – Use of GPS for Field Work and Development of GIS Database	14
2.3.3 Route Selection	15
2.3.4 Connection Point in Phnom Penh	16
2.3.5 Northern Section: Phnom Penh to Takeo Town	16
2.3.6 Southern Section: Takeo Town to Vietnam Border	18
2.4 Project Impacts	19
2.4.1 Land Acquisition	19
2.4.2 Temporary Effects During Construction	30
2.4.3 Project Detailed Design Phase	32
2.4.4 Measures Proposed to Minimise Project Impacts	33
3 SOCIOECONOMIC INFORMATION	35
3.1 Data Collection	35
3.1.1 Preliminary Social Survey (2000)	35
3.1.2 Engineering Survey (2000)	36
3.1.3 Affected Persons (AP) Census (100%) and 25% Socio-Economic Survey (2000/2001)	36
3.1.4 Updating Census Information	37
3.2 Social Assessment	37
3.2.1 General Land Use and Tenure in the Project Area	38
3.2.2 Socio-Economic Characteristics	43
3.2.3 Vulnerable Groups	47
3.2.4 Replacement Cost Survey	49
4 OBJECTIVES, POLICY FRAMEWORK, AND ENTITLEMENTS	50
4.1 Resettlement Objectives and Principles	50
4.2 Legal and Policy Framework	51
4.3 Cambodian Law and Policy	51
4.3.1 National Constitution	52
4.3.2 Land Law	52
4.3.3 Electricity Law	54

4.3.4	Decrees	54
4.4	ADB and World Bank Policy and Directives	55
4.5	Consistency Between Cambodian Law and Bank Policy	56
4.6	Eligibility and Entitlements	57
4.6.1	Eligible Parties	57
4.6.2	Non-Eligible APs and Cut-off Date	58
4.6.3	Entitlements Matrix	58
5	CONSULTATION, GRIEVANCE REDRESS AND PARTICIPATION	67
5.1	Consultation and Public Participation	67
5.1.1	Objectives of Public Consultation and Information Dissemination Program	67
5.1.2	Public Participation	67
5.1.3	Public Participation and Consultation in Resettlement	67
5.1.4	Public Participation in Project Monitoring and Ex-Post Evaluation	71
5.1.5	Disclosure:	71
5.2	Complaints and Grievances	74
5.2.1	Grievance Redress Committee (GRC)	74
5.2.2	Function	74
5.2.3	Steps Involved	75
6	RELOCATION AND REHABILITATION	77
6.1	Replacement Land and Houses	77
6.1.1	Transmission Towers and Poles	77
6.1.2	Substations	78
6.1.3	House Land	78
6.1.4	Replacement Houses	78
7	INCOME RESTORATION STRATEGY	80
7.1	Income Losses	80
7.1.1	Substation Land	80
7.1.2	Structure Relocation	80
7.1.3	Trees	80
7.1.4	Temporary Disturbance	82
7.2	Strategy for Income Restoration	82
8	INSTITUTIONAL FRAMEWORK	84
8.1	Implementation Organisation and Responsibility	84
8.2	Implementing Agency	84
8.3	Interministerial Resettlement Committee	84
8.4	Commune Councils	86
8.5	Project Management Office Numbers 1 & 2	86
8.6	Organizational Charts	87
8.7	Design and Construction Contractor	90
8.8	Project Implementation Consultant	90
8.8.1	RAP/Environmental Coordinator (the RPEC Consultant)	91
8.8.2	RAP/Environmental Coordinator (Local Counterpart)	92
8.8.3	Geographic Information System (GIS) and Database Specialist	92

8.9	Complaints and Grievance Committee	92
8.10	Independent Monitoring Organisation	92
8.11	Capacity Building/Institutional Strengthening	93
9	RESETTLEMENT BUDGET AND FINANCING	95
9.1	Basis of Compensation Cost Estimate	95
9.1.1	Business Impact.	95
9.1.2	Temporary Construction Impacts.	95
9.2	Compensation Cost Estimate	96
10	IMPLEMENTATION SCHEDULE	101
11	MONITORING AND EVALUATION	104
11.1	Monitoring and Evaluation	104
11.1.1	Internal Monitoring	104
11.1.2	Monitoring Indicators	104
11.1.3	Staff for Conducting Internal Monitoring	105
11.1.4	External Monitoring and Evaluation	105
11.1.5	Post Implementation Evaluation Study	105
11.1.6	Monitoring and Evaluation Reports	106

Appendix	Title
A	ADB's Policy on Involuntary Resettlement World Bank Operational Directive OD 4.12 - Involuntary Resettlement
B	GIS Database
C	Affected Persons Census
D	Questionnaires
E	Data Collected from Replacement Cost Survey
F	Draft Public Information Booklet
G	Estimate of Compensation Costs, Based on Replacement Cost Study
H	Terms of Reference for Independent Monitoring Organization (IMO)
I	Terms of Reference for RAP Environmental Coordinator (RPEC)
J	Terms of Reference for Trees Cost Assessment and Income Impacts and Remediation Study
K	Terms of Reference for Substation Land Fill Study

A B B R E V I A T I O N S , A C R O N Y M S E T C

Currency Equivalents

Currency Unit	=	Riel [R]
US\$1.00	=	4,000 (approx)
R 1,000	=	US\$ 0.25

Weights and Measures

km	=	Kilometre (0.6214 miles)
kV	=	Kilovolt (1,000 volts)
kVA	=	Kilovolt-Ampere
MVA	=	Megavolt-Ampere (1,000 kVA)
MVAr	=	Megavolt-Ampere reactive
kWh	=	Kilowatt-hour (1,000 watt-hour)
GWh	=	Gigawatt-hour (1,000,000 kilowatt-hour)
MW	=	Megawatt (1,000 kilowatt)
MBTU	=	Million British Thermal Units (0.23 of MWh)

Abbreviations and Acronyms

ABC	=	Aerial Bundled Conductors
ACSR	=	Aluminium Conductor Steel Reinforced
ADB	=	Asian Development Bank
AP	=	Affected Person?
ASL	=	Above Sea Level
CBD	=	Convention on Biological Diversity
CIF	=	Cost Insurance Freight
COI	=	Corridor of Impact
EA	=	Environmental Assessment
EAC	=	Electricity Authority of Cambodia
EDC	=	Électricité du Cambodge
EdF	=	Électricité de France
EIA	=	Environmental Impact Assessment
EMF	=	Electrical and Magnetic Field
EMP	=	Environmental Management Plan
ERP	=	Emergency Rehabilitation Project
ESAA	=	Electricity Supply Association of Australia
EVN	=	Electricity of Vietnam
GDP	=	Gross Domestic Product
GHG	=	Greenhouse Gas
GMS	=	Greater Mekong Sub-Region
GS1, GS2, GS3	=	Grid Substations Nos 1, 2 and 3
HFO	=	Heavy Fuel Oil
HH	=	Household
HV	=	High Voltage (115 and 220kV)
IBA	=	Important Bird Area
ICB	=	International Competitive Bidding
IDA	=	International Development Association
IEC	=	International Electro-technical Commission
IEE	=	Initial Environmental Examination
IMO	=	Independent Monitoring Organisation
IPP	=	Independent Power Producer

IRC	=	Interministerial Resettlement Committee
JBIC	=	Japan Bank for International Cooperation
LDO	=	Light Diesel Oil
LPG	=	Liquefied Petroleum Gas
LV	=	Low Voltage
MEF	=	Ministry of Economy and Finance
MIME	=	Ministry of Industry, Mines and Energy
MV	=	Medium Voltage (in Cambodia, typically 22kV)
NGO	=	Non-government Organisation
NH	=	National Highway
PAC/F/H	=	Project Affected Communities/Families/Households
PDGMS	=	Power Distribution and Greater Mekong Subregion Transmission Project
PM	=	Particulate Matter
PMO	=	Project Management Office
PPA	=	Power Purchase Agreement
PTA	=	Power Trade Agreement
RCS	=	Replacement Cost Study
REE	=	Rural Electricity Enterprise
RGC	=	Royal Government of Cambodia
RAP	=	Resettlement Plan
RRAP	=	Resettlement and Rehabilitation Action Plan
SAP	=	Severely Affected Person
SIEE	=	Summary Initial Environmental Examination
SWER	=	Single Wire Earth Return
TA	=	Technical Assistance
TSS	=	Takeo Substation
WPP	=	West Phnom Penh

Government Fiscal Year (FY) January 1 – December 31
“\$” - refers to US Dollars

DEFINITION OF TERMS

Resettlement Plan (RAP) is a time-bound action plan with budget setting out resettlement strategy, objectives, entitlement, actions, responsibilities, monitoring, and evaluation.

Affected Person (AP) indicates any juridical person being as it may an individual, a household, a firm or a private or public who, on account of the execution of the Project, or any of its components or sub-projects or parts thereof would have their:

Right, title or interest in any house, land (including residential, agricultural and grazing land) or any other fixed or moveable asset acquired or possessed, in full or in part, permanently or temporarily; or

Business, occupation, work, place of residence or habitat adversely affected; or

Standard of living adversely affected.

Severely Affected Person for this Project is defined as a person who will (a) lose 20% or more of total agriculture/aquaculture land holding, and/or (b) relocate and/or lose more than 50% of their main residential and/or commercial structure, and/or (c) lose 20% or more of total income sources due to the Project.

Land Acquisition means the process whereby a person is compelled by a public agency to alienate all or part of the land s/he owns or possesses, to the ownership and possession of that agency, for public purpose in return for fair compensation.

Replacement Cost means the cost of replacing lost assets and incomes, including cost of transactions. If land, it means the cost of buying a replacement land near the lost land with equal productive potential and same or better legal status, including transaction costs. If structures, the replacement cost is the current fair market price of building materials and required labour cost without depreciation or deductions for salvaged building material or other transaction cost. Market prices will be used for crops, trees and other commodities.

Resettlement Effects mean all negative situations directly caused by the Project/subproject, including loss of land, property, income generation opportunity, and cultural assets.

Relocation means the physical relocation of an AP from her/his pre-Project place of residence.

Rehabilitation means the process to restore income earning capacity, production levels and living standards in a longer term. Rehabilitation measures are provided in the entitlement matrix as an integral part of the entitlements.

Compensation means payment in cash or in kind to replace losses of land, housing, income and other assets caused by a project.

Significant Resettlement Effect means 200 or more people will experience major impacts. "Major" impacts being physical displacement from housing and/or 10% or more of the household's productive, income generating assets lost.

Cut-off Date is the date for determining eligibility for entitlements. This will be the date that the AP Census is completed after detailed design.

EXECUTIVE SUMMARY

INTRODUCTION

This document is a Resettlement Plan (RAP) for the construction of a transmission link between Phnom Penh and the Vietnamese border near the Vietnamese town of Chau Doc. This is part of a feasibility study being carried out for the ADB by consultants APW of Australia. The feasibility study for the transmission link is a component of the ADB's broader Power Transmission Project. The RAP shall form part of the implementation requirements for the Project.

The RAP has been developed to meet the ADB and World Bank's requirements for the Project in relation to resettlement and compensation. It identifies people affected by the project, the nature and degree of the impacts on them, measures taken to minimise the effects and compensation and other assistance to be delivered to affected people for unavoidable impacts.

The RAP will need to be revised and updated during the Project's Design and Implementation Phases, as the Project and its impacts develop and become more precisely defined. This will be done through a Detailed Measurement Survey (DMS) updating the Census and Inventory of Losses data in accordance with the Final Design.

SCOPE OF LAND ACQUISITION AND RESETTLEMENT

Project Description

The ADB and World Bank intend to finance the construction of an electrical transmission interconnection between Phnom Penh and Vietnam. The connection point of the line is ultimately at the Vietnamese town of Chau Doc. However, the scope of this study covers only the section within Cambodia.

The purpose of the transmission interconnection is to improve the electricity supply to Phnom Penh and Takeo, by drawing on the established generation capacity and transmission grid in neighbouring Vietnam. This is part of a broader development of electrical infrastructure in Cambodia, including rural electrification and development of generation capacity and transmission infrastructure in the country.

The Project Area and Transmission Line Route are shown in Figure 2-1.

The main components of the Project are as follows:

ADB Financed:

- 220kV Transmission Line with length of approximately 110km, with steel lattice towers approximately 35 to 45m high and at approximately 350 to 450m spacing. Thus there will be in the order of 370 towers. It is noted that the final design of the transmission line is the responsibility of the Construction Contractor and the location, size and spacing of towers may vary.
- West Phnom Penh Substation (WPP), the termination of the 220kV line coming into Phnom Penh (and incorporating the National Control Centre)
- Takeo Substation (TSS)

World Bank Financed:

- 115kV Transmission Lines to connect West Phnom Penh Substation to the existing Transmission Line around Phnom Penh. This will consist of a pair of lines, each about 9km in length giving a total length of 18km, and use steel or concrete poles rather than lattice towers. The poles are expected to be 21m

high, with a 150 to 200m span. Thus there will be in the order of 100 poles. These poles will be similar in appearance to those on the existing 115kV line around Phnom Penh.

- Updating equipment in the existing Phnom Penh Substations at GS1, GS2, and GS3
- A Grid Extension expanding the existing 22kV lines around Phnom Penh

Both the 220kV and 115kV Transmission Lines incorporate a 30 m right-of-way (COI), covering 15 m either side of the centreline, where settlement and structures will not be permitted and vegetation height restrictions will apply. For the 115kV line, the 30-metre corridor is necessary to provide for future capacity for Phnom Penh. Electricity distribution to selected villages in proximity to the transmission line is also considered, connecting from the WPP and TSS substations.

Project Impacts

The primary social impacts from the transmission line will be the permanent relocation during construction of households and dwellings and other buildings presently located within the COI, and land use restrictions within the COI during operation. Impacts on land and property arise from the need to acquire land, establishment of the COI, and construction and operation of the Project.

Land Acquisition

Overall Impacts. There are no effects on indigenous or other ethnic minorities, as all of the Affected Persons (APs) are of Khmer ethnicity, which make up some 96% of Cambodia's population. Nor are there impacts on cultural property such as temples. Therefore no action is required under ADB's Policy on Indigenous Peoples or World Bank Operational Directive 4.20 or Operational Policy 4.11 Cultural Property.

The total area of land within the 30m COI for both the 220kV and 115kV is approximately 384 ha (30 m x 128.5km), and possibly around 432 ha including parts of parcels of land that extend outside the COI. The inventory identified up to 3,198 PAFs who will experience '*resettlement effects*,' that is will be directly affected by the Project in terms of construction disturbance of agricultural land within the COI and also by the two substations at WWP and TSS. Those APs who may be considered Seriously Affected Persons (SAPs¹) are some 145 on the 220kV COI and 9 on the 115kV COI whose structures (all but one are residences) that will need to be relocated, about 16% within the same plot of land and 84% to another plot of land within the same village and 9 on the 115kV COI. Similarly, 23 APs whose land is being acquired for the WWP and TSS substations may be considered SAPs, bringing the presently verifiable number of SAPs for the project to 168.

For ADB's involuntary resettlement policy, a *significant* resettlement effect means 200 people or more will experience major impacts. "Major" impacts being, according to both ADB and World Bank's 'best practice' threshold for determining whether or not a full resettlement plan is required, physical displacement from housing and/or more than 10% of the household's productive assets.² A *Full Resettlement Plan* is presented here to take into account the possibility that the results of the Detailed Measurement Survey (DMS) will indicate conclusively that the resettlement effects on the entire displaced population are 'significant' according to ADB and World Bank criteria.

¹ The term SAP here refers to a family (see definition p vi)

² Reference ADB's OM50 currently under revision and WB's OD 4.12. Until the final design and actual 'pegging out' of the ROW it is difficult to discern the actual percentage of a given household's productive assets, for example, trees that will be affected.

The ADB and World Bank's best practice for determining severity of impact upon individual households is physical displacement from housing and/or 10% or more of the household's productive, income generating assets lost. A number of APs among those losing an estimated 7,300 economically valuable trees, primarily sugar palm, along the COIs may possibly be considered SAPs although this may only really be determined once the COIs are actually pegged out by the contractors. Many of these in any case are likely to be the owners of residences requiring relocation, as the trees tend to be clustered around built up residential areas.

These estimates are based on the assumption of construction activity being restricted to the COI and substation boundaries. Any additional disturbance outside the defined area will also require compensation. The requirement for, and location of, any access roads or other land requirement such as storage areas, borrow pits, works areas, etc will be determined during the Project's Design and Construction stage. It will be necessary at that stage to identify any other APs and ensure mitigation and compensation measures are provided.

ADB-Financed 220kV Transmission Line and Substations

220kV Transmission Line

Land Acquisition for Transmission Line Towers: The establishment of the 220kV COI will not in itself require '*land acquisition*,' in the sense of alienating APs from their current agricultural use of the land. Rather it is a legal mechanism to allow EDC to have access for the construction and operation of the transmission line, and to have land use controls for the safe operation of the line, such as requiring the removal of trees and structures. Other compatible land uses such as farming of ground crops will be allowed to continue. As a result, for the majority of APs along the transmission line COIs, the land acquisition will have little long-term effect on their current farming of the land.

The area acquired for a tower will usually comprise a small proportion of the plot of land on which the tower is located. Land acquisition at each of the estimated 370 tower sites for the 220kV transmission line has been assumed to be 100 m² (8 m square plus 1 m buffer), totalling 3.7 ha for the entire line, although the actual area will be dependant upon the final design. Among total acquired land, 91 percent will be paddy land. (Note that for the RAP a conservatively small spacing of 300 m has been adopted, so that cost estimates will be upper limits. In all probability, the number of towers will be around 300). The footprint of each tower will only occupy the four footings of the structure, estimated at 4 m² per footing (16m² per tower). The tower footprint area will total 0.5 ha for the 220kV line, with cropping or grazing (but not tree planting) permitted on the remaining acquired land. Accordingly, only one sixth of the total acquired land will have a land use change.

All landowners who will have land acquired for towers will only have a single site acquired. In other words, for the acquisition of 3.7 ha land areas, a total of 370 households and 2,100 persons would be affected (based on 5.7 persons per household). The actual paddy land area acquired for a 220kV tower from an average "small" landholding (2,500 m²) is likely to total only 4% of the total landholding (100 m² of 2,500 m²). Land acquired for a tower on a house block is likely to be a more significant proportion of this household land type. The average yard area is estimated to be 250 m², therefore acquisition of 100 m² for a tower would amount to 40% of the house block.

Of the APs found along the 220kV COI, consisting of a total of some 330 ha,³ some 2,661, or 91%, of cases surveyed in the Census carried out 2000-2001 were APs owning rice farmland. About 4% of APs owned structures that will require relocation. The rest of the AP cases, some 5%, appear to be various forms of public or institutional ownership.⁴

Structure Displacement by 220kV Transmission Line. Some 140 AP structures (all but one are residences) identified in the RCS will need to be relocated, in 38 villages, of 19 communes, in 9 districts within Phnom Penh Municipality and Kandal, Kompong Speu, and Takeo Provinces. A total of 140 households and 800 persons will be affected. There is one commercial-scale chicken farm that will be affected at Krang Chake village, requiring the relocation of a chicken shed within the same site. No other businesses will be affected.

Removal of Trees from within the 220kV COI. Although farming of ground crops such as rice can continue beneath the transmission line, removal of trees from within the 30m COI will be required to prevent the possibility of a tree falling on the transmission line. Individual trees located outside of the COI, which present a danger of falling on the line, will also need to be removed. Some 6,112 trees, about 98% of economic value to AP households, are estimated to be required to be removed from the 220kV COI. Almost 40% of trees reported by APs as within the COI are Sugar Palm. The agricultural system found in upper Takeo has been categorized as a 'Rice and Sugar Palm Complex,' highlighting the importance of sugar palm trees as a necessary crop for providing families with a much needed cash income.

West Phnom Penh and Takeo Sub-Stations

The land acquisition for the substations can be considered to have a serious effect on the APs involved, as the land take may involve a considerable proportion of their agricultural land holdings, though unlike the transmission line no structures *per se* will be affected. Altogether some 4.5 ha of land in 23 plots will be acquired from 23 APs, plus an additional 0.7 ha for access roads to the substations, taking a possible one third of median landholdings, for a total of 5.2 ha. Both areas appear rural but are actually peri-urban, and therefore locational factors may need to be considered in determination of compensation rates, in addition to land productivity.

Land acquisition for the 220kV line, substations and access roads to the substations will total 13.65 ha.

World Bank-Financed 115kV Transmission Line(s)

Land Acquisition for Transmission Line Poles: Land acquisition at each of the estimated 93 pole sites for the 115kV Transmission Line will be 4 m² (2 x 2 m), potentially totalling 0.024 ha (240m²) for all poles within the COI. This amounts to less than 0.1% of the 56 ha COI. It should, however, be noted that actual acquisition may be about half of this amount, as much of the two 115kV lines is located within existing road easements where the placement of poles will have no effect on private landowners. Some 241, or 88%, of cases surveyed in the AP Census carried out 2000-2001 owned rice farmland and another 13 (5%) unspecified, though probably also owners of rice farmland. Two thirds of AP-

³ This is about 86% of the total 432 ha within the 128km ROW (plus extended parcels) for both 220kV and 115kV Transmission Lines, 110km for the 220kV and a total of 18km for the 115kV Transmission Lines (two lines each approximately 9km).

⁴ It may be noted that at least one sociological study of Khmer culture has noted a relative paucity of village communal land. Jan Ovesen, Ing-Britt Trankell, Joakim Ojendal. 1996. *When Every Household is an Island: Social Organization and Power Structures in Rural Cambodia*. Uppsala University: Uppsala Research Reports in Cultural Anthropology, No. 15. p. 67.

owned structures (9 houses) will require relocation. The rest of the AP cases, some 12, or 5%, appear to be various forms of public or institutional ownership.

Structure Displacement by 115kV Transmission Line. The RCS found that, of the 9 AP residents that will need to be relocated, one is on the northern 9km Transmission Line, in Toul Kei Village, Phleung Cheh Roteh Commune, Dong Kor District, in Phnom Penh Municipality. The other 8 are found in 5 villages (Domnak Troyeung, Prey Thom, Prey Tituy, Prey Sor West, and Koul Pung Ror) in two communes (Chaum Chao and Prey Sor, also of Dong Kor District in Phnom Penh Municipality).

Removal of Trees from within the 115kV COI. Some 184 trees, about 100% of economic value to AP households, are estimated to be required to be removed from the 115kV COI. Of course, it is very difficult to know for sure how many of these are actually within the COI and how many simply reported by APs as owned, and this won't be known for sure until the pegging is done by contractors.

Summary of the Main Scope of Resettlement Impacts

Table E-1 provides a summary of the main scope of resettlement impacts. According to the survey and estimate, a total of 634 households and 3,525 persons would be affected by land acquisition and relocation, including 485 households and 2,680 persons to be affected by land acquisition, and 149 households and 845 persons to be affected by removing of their structures. (This does not include all those who might be affected by temporary land occupation and removal of trees.) Among 149 structures to be removed, 3 are American style, 64 as Kantang A1, 49 as Kantang A2, 10 as Pet B1, 18 as Pet B2, 1 as Pet B3, and 4 as others, including one chicken farm, two empty lots and one public pond. The total demolished floor space amounts to 4,987 square metres, averaging 33 square metres per house. Among total acquired land area, 96.3 percent are paddy land and 3.7 percent as residential land or other lands.

TABLE E-1 - SCOPE OF LAND ACQUISITION AND RESETTLEMENT FOR TRANSMISSION COMPONENT

Components	Total land acquired (ha)	Of which paddy land	Affected households	Affected population	Demolished floor spaces (m2)	Relocated households	Relocated persons
220kV Line	3.70	3.37	370	2,100	4682	140³	800
115kV Line	0.04	0.04	100	500	305	9	45
Sub-total	3.74	3.41	470	2,600	4987	149	845
WPP Substation	3.35	3.35	8	45		0	
Takeo Substation	1.85	1.85	7	35		0	
Sub-Total	5.20	5.20	15	80		0	
Total	8.94	8.61	485	2,680	4987	149	845

Notes: 1. These are all subject to verification during the Detailed Measurement Survey process

2. Affected population numbers based on average household sizes

3. One of these is a commercial operation

Temporary Effects during Construction

Likely impacts on APs from crop damage during construction and interference with field preparation and planting, will be dependent on a number of factors, especially the yield of rice (tonnes per hectare) and the market price for the rice. Construction activity may interfere with field preparation, damage crops and affect related farm work, depending on the timing of construction with respect to timing of farm work.

It is possible that construction could be timed to avoid damage, however this will be difficult to manage and may increase the cost of construction. In addition the cost and complexity of monitoring would significantly increase.

Temporary damages can be multiple - for instance damage to fields, bund walls (highly localized and small), communal property, temporary relocation, business loss, and occupation of storage areas - and will be the financial responsibility, as per contract agreement, of the contractor(s). This is important to provide incentive to contractors to keep this damage as minimal as possible.

Cost estimates have also been assessed as an upper limit, because most of the construction activity should occur during the fallow season, when it will not affect crops.

Similarly, compensation for on-going impacts during maintenance activity is not included in the RAP, as this is outside the scope of the Project implementation. Cost of ongoing maintenance is expected to be small, consisting of possible damage to crops and ground while accessing the line. As with the construction phase, this will be built into the Maintenance Contract by requiring the contractor to make good any damage caused.

SOCIOECONOMIC INFORMATION

General Land Use and Tenure

The area through which the transmission line will pass consists mainly of rice fields in very flat terrain with scattered sugar palms, isolated areas of shrub and woodland, village garden crops, numerous scattered villages and houses, temples and road side development of small businesses. Isolated hills occur in the plains, and are generally vegetated with forest or woodland and often topped by a temple (the transmission line route avoids these hills).

The major economic activity in the Project area is rainfed lowland rice farming. Farming families generally live in the nearby village on higher ground and work their fields surrounding the village. Other farming activities include vegetables and tree crops, small-scale livestock production and collecting fish, frogs and crabs in rice fields and channels. The villages are located mostly along roads, with some small businesses also developed along the sides of major roads. Fruit, vegetables and livestock such as cattle, pigs and chickens are raised around the houses.

Very few people in Cambodia have formal legal title to their land. Nevertheless, the Land Law, in terms of possession and use of land, recognizes private property rights. Under the national Constitution and the Land Law, compulsory acquisition of land by the Government is only permitted in the national interest and with just and proper compensation in advance. Ownership of land is largely demonstrated by occupation and use and recognition by the community.

A form of land title exists in the Certificate of Possession and Use of Land. However few Certificates have been issued, with a large backlog of applications filed with the Land Titles Department. In practice the Receipt issued for the application is itself used as evidence of ownership and is passed on when land is sold or ownership otherwise transferred. The 2000 AP Census reported that, of the 3198 APs, 33% had Certificates and 51% had receipts. Field surveys indicate that there is a low level of activity in the land market, although evidence of an active property market has been reported elsewhere. Land transactions in Cambodia may involve only the buyer and seller, with recognition of boundaries by neighbours, and usually do not involve any legal paperwork or authorities. Due to the scarcity of formal land title, a major part of the Project has been to undertake field surveys along the right-of-way to identify land ownership, Project effects and compensation entitlements.

Socio-Economic Characteristics

By far the most common primary occupation was farming (87% of respondents), with rice being the main source of income. This is roughly the same proportion as found for the 2001 AP Census, which listed farming in around 90% of cases and the 698 APs covered by the Socio-Economic Survey. A number of other occupations and income sources were reported, including various paid work and business activities.

Reported annual household incomes ranged from to \$2,737 to only \$13, with a median of \$183 and an average of \$249, from the *Preliminary Socio-Economic Survey* results for 118 APs. Focusing on the 125 APs covered by the more comprehensive Socio-economic Survey along the 220kV COI severely affected due to their house requiring relocation, the highest annual household (HH) income reported was approximately \$2,900. From total household annual income and size of household,⁵ the highest per capita income reported is \$75. Based on the *Poverty Reduction Partnership Agreement between the ADB and Cambodia* (July 2001), the most recent estimate of the poverty line is US\$14 per person per month. Given this, 87% of the 125 most severely affected APs would be classified as at or below the national poverty line.

The 1998 Census literacy rates for the general population in the 176 communes along the COI is nearly 69% for the adult population (over 15 years), 83% for males and 57% for females. In the general population along the Transmission Line COIs, some 35% have not completed their Primary Education (though have some schooling), 22% have completed Primary Education, 9% Lower Secondary, and 2% have a Secondary Education or above.⁶

All APs interviewed in the preparation Census and Socio-Economic Survey identified themselves as ethnic Khmer (no indigenous or other ethnic minorities have been identified in the surveys). Khmer women are reported to have a strong 'matrifocal' role⁷ within Cambodian households, inherit property equally with sons, and play a strong role in the Cambodian economy as small-scale business entrepreneurs, all of which will need to be taken into account in land compensation procedures and in any income restoration strategy devised for the Project's RAP.

Vulnerable Groups

The ADB and World Bank require that particular attention be paid to vulnerable groups among people affected by the project. Vulnerable groups are those who, for a variety of reasons, may be less able to deal with the disturbance caused by the project and adapt to new situations. Examples include the poor, disabled, landless, households headed by women, elderly or children, returnees and indigenous or other ethnic minorities.

Among the 698 APs responding in the *2000-2001 Socio-Economic Survey* (22% of the total APs), some 26% were identified as being among vulnerable groups, viz, 19% of all respondent APs being female-headed households, 4% elderly and without support, 2% disabled, and 2% 'very poor,' 'returnees,' or 'children without parents.' Close inspection found that some of these 'vulnerable' APs were in higher income brackets, for instance 8 of the 131 female-headed households, or as in the case of one 'disabled' was a retired high ranking army officer. More than 90%, however, of those identified as 'vulnerable' would appear to require special aid, and the issue will need close attention at the time of the Detailed Measurement Survey.

⁵ Average household size is 5.1 persons.

⁶ The corresponding percentages for the 127 APs household heads along the 220kV Line who are required to shift their residences are 29% having some schooling, 39% completed Primary School, 19% Lower Secondary, and 13% having a Secondary Education or above.

⁷ An anthropological term defined as being "of or pertaining to residence with the wife's family or tribe," as in when young couples to move in with the bride's parents where the bridegroom would be given work and more broadly in which women have a strong day to day influence over their families.

OBJECTIVES, POLICY FRAMEWORK, AND ENTITLEMENTS

Objectives and Principles

The Project's resettlement and compensation are to be in accordance with ADB and World Bank requirements and Cambodian law⁸. The ADB and World Bank have advised that it is a condition of funding that the Banks' requirements are met in relation to resettlement and compensation.

The Objectives and Principles for resettlement and compensation to be adopted to implement the Banks' policies for the project are as follows:

Resettlement Objectives:

The Resettlement Plan aims to ensure that the losses incurred by affected people are redressed such that Affected Persons share project benefits, are assisted to develop their social and economic potential in order to improve or at least restore their incomes and living standards to pre-project levels and are not worse off than they would have been without the Project.

Resettlement Principles:

- Acquisition of land and other assets, and resettlement of people will be minimized as much as possible by identifying possible alternative project designs, and appropriate social, economic, operational and engineering solutions that have the least impact on populations in the Project area.
- The populations affected by the Project are defined as those who may stand to lose, as a consequence of the Project, all or part of physical and nonphysical assets, including homes, homesteads, productive lands, commercial properties, tenancy, income-earning opportunities, social and cultural activities and relationships, and other losses that may be identified during the process of resettlement planning.
- All APs who will be identified in the project impacted areas as of the date of the updated census and inventory of losses, will be entitled to be compensated for their lost assets, incomes and businesses at full replacement cost and provided with rehabilitation measures sufficient to assist them to improve or at least maintain their pre-project living standards, income earning capacity and production levels.
- All affected populations will be equally eligible for compensation and rehabilitation assistance, irrespective of tenure status, social or economic standing, and any such factors that may discriminate against achieving the objectives outlined above.
- The rehabilitation measures to be provided are: (i) cash compensation for houses and other structures at replacement cost of materials and labour without deduction for depreciation or salvageable materials; (ii) full title to replacement agricultural land for land of equal productive capacity acceptable to the AP; full title to replacement residential and commercial land of equal size acceptable to the AP; or, at the informed decision of the AP, cash for replacement land at replacement cost at current market value; (iv) cash compensation for crops and trees at current market value; and (v) relocation allowances and rehabilitation assistance.

⁸ In case of discrepancy between the Government's procedures and the ADB's requirements, ADB's requirements shall apply.

- There will be no deduction in payments for salvage value, depreciation, taxes, stamp duty, fees, or any other payments
- Sufficient time will be allowed for replacement structures to be built before construction begins
- Temporarily affected land and communal infrastructure will be restored to pre-project conditions.
- The compensation and resettlement activities will be satisfactorily completed and rehabilitation measures in place and all encumbrances removed on a contract area before the Government and ADB will approve commencement of civil works for that contract area.
- The EA will see that institutional arrangements are in place to ensure effective and timely design, planning, consultation and implementation of the land acquisition, compensation, and resettlement and rehabilitation program.
- Existing cultural and religious practices shall be respected and, to the maximum extent practical, preserved.
- Adequate budgetary support will be fully committed and be made available to cover the costs of land acquisition and resettlement and rehabilitation within the agreed implementation period.
- Special measures shall be incorporated in the RAP and complementary mitigation and enhancement activities to protect socially and economically vulnerable groups such as, women-headed families, children and elderly people without support structures and people living in extreme poverty.
- Grievance procedures shall be established and in place and APs informed of them before any resettlement activities begin.
- Details of the RAP shall be distributed to the APs and placed in project and commune offices for the reference of affected people as well any interested groups.
- Appropriate reporting, monitoring and evaluation mechanisms will be identified and set in place as part of the resettlement management system and an external monitor hired before commencement of any resettlement activities.

Other objectives and principles related to implementation of the resettlement and compensation requirements are described in the Entitlements Matrix.

Eligibility and Entitlements

Eligibility

Eligible parties for the purpose of this Project are identified as Affected Persons (APs). This term refers to a collective unit of entitlement, and is used in this document to refer to families, other households, individuals and businesses and any other group affected by the Project. APs eligible for Compensation shall be those who experience negative impacts on their assets or livelihoods as a result of the Project. Measures will be incorporated in Project design to minimise adverse impacts.

APs eligible for Compensation shall include the following:

- For land required to be permanently acquired for the Project (Transmission Towers, Substations, Roads):
 - Owners with Formal Legal Title

- Owners/occupiers, who are eligible for Formal Legal Title under Cambodian law
- APs with other recognised Land Use Rights
- Occupiers who are not eligible for Formal Legal Title
- For permanent removal within the COI, of houses, other structures and improvements, and land based assets such as trees
 - Owners of houses and other structures (whether with land title or not)
- For temporary effects such as disturbance to crops during construction:
 - Farmer/land users within the COI.
- For effects on businesses
 - Owners of businesses
 - Employees who have lost income as a result of the Project.

Types of APs and their proposed eligibility for compensation are detailed in the Entitlements Matrix.

It is an ADB and World Bank requirement that compensation is not restricted to those with Formal or Legal Land Title. All recognised landowners, occupants and users shall be eligible for compensation. In the case of APs living in or using land within the COI of roads or railway lines at the time of the declared cut-off date, APs shall be fully eligible for compensation. Those eligible are identified in the AP Census, prepared as part of the Project.

APs who move into the Project area after the *Cut-Off Date* will not be eligible for land acquisition compensation, though any such APs would be eligible for compensation caused by Construction activities. The cut-off date for determining eligibility for compensation shall be the time at which the AP Census is completed after detailed design and approved by the ADB, World Bank and RGC.

The purpose of the Cut-Off Date is to minimise the incentive for land speculation, and minimise the incentive for people to move into the Project area in the hope of gaining Compensation.

However, it may be possible that some APs may have been missed in the Census. Therefore those who can demonstrate that they are eligible will also be included in the AP Census

Entitlements

The underlying principle for determination of Entitlements is that no one will be made worse off as a result of the Project. Therefore pre-Project living standards are to be maintained or improved as a result of the Project.

The value of compensation paid will be at least equal to the cost of replacement of the asset lost, without reduction for any depreciation or salvaging of materials. In the case of land, the preferred method of compensation is equivalent land, and this shall be available as an option to the APs. However where relatively small areas of land are involved (say less than 20% of the AP's total productive land area), then cash compensation will be acceptable. Full replacement value will be paid to land owners, regardless of whether they hold formal title or not. The Entitlements Matrix summarizes the types of Impacts, APs who will be eligible for compensation, what their entitlements will be, and provides comments on implementation issues. The following measures shall also be provided at implementation:

- As much notice as practically possible will be given to APs
- Payments will be made before Construction commences
- There will be no deduction in payments for salvage value, depreciation, taxes, stamp duty, fees, or any other payments
- Sufficient time will be allowed for replacement structures to be built before Construction begins
- Independent Monitoring will be carried out
- Grievance Procedures will be established.

CONSULTATION, GRIEVANCE REDRESS AND PARTICIPATION

Objectives of Public Consultation and Information Dissemination Program

Information dissemination to, consultation with and participation of APs and involved agencies and Stakeholders reduce the potential for conflicts, minimize the risk of Project delays, and enable the Project to design resettlement and rehabilitation as a comprehensive development program to suit the needs and priorities of the APs, thereby maximizing the economic and social benefits of the investment. Specific objectives of the public information campaign and public consultation are as follows:

- To share fully the information about the proposed Project, its components and its activities, with the APs
- To obtain information about the needs and priorities of the APs, as well as information about their reactions to proposed policies and activities
- To inform about various options for relocation and rehabilitation measures available to the APs
- To obtain the cooperation and participation of the APs and communities in activities required to be undertaken for resettlement planning and implementation
- To ensure transparency in all activities related to land acquisition, resettlement and rehabilitation

Public Participation

In the context of resettlement, public participation includes both the information exchange (dissemination and consultation), and collaborative forms of decision-making (participation). Dissemination refers to transfer of information from Project authorities to the affected population. Consultation, on the other hand, generally refers to joint discussion between Project authorities and the affected population serving as a conduit for transfer of information and sharing of ideas. Public participation is an ongoing process throughout resettlement planning and implementation, not an event. The level of information which is disseminated or the issues on which consultation takes place vary with the progress in the Project process and resettlement activities.

Disclosure

ADB and World Bank require that the Executing Agency disseminate information to affected people. Public disclosure of the RAP is required before the Management Review Meeting (MRM). Public disclosure of the draft RAP must be made to the APs in a form and language that they can understand. This may be in the form of a resettlement information brochure or leaflet, or a summary resettlement plan to be provided to APs in a language they can understand, in an accessible place. The final RAP, if changed, must be made available to the APs before the Staff Review Committee (SRC). The RAP, or its

summary, will also be posted on the ADB's and World Bank's resettlement websites. Summary RPs will also be released, together with Summary Environmental Impact Assessment (SEIA), where relevant, for public disclosure. If the EA decides to disclose to APs by means of a brochure or leaflet, the consultant shall draft such a leaflet to be included in the RAP, together with a schedule for distribution of the brochure/leaflet or summary RAP to the APs.

For the updated RAP, new notices and public meetings will be carried out, in accordance with both ADB and the World Bank policies. A Public Information Booklet has been prepared in both English and Khmer for dissemination among the APs and other Stakeholders, and announcements will be in both English and Khmer language newspapers, as well as by Khmer language radio and TV.

Complaints and Grievances

In order to ensure that AP grievances and complaints on any aspect of the land acquisition, compensation, and resettlement are addressed in a timely and satisfactory manner and that all possible avenues are available to APs to air their grievances, a well defined grievance redress mechanism will be established by the Project, related to its consultation program and the implementation monitoring carried out by the Independent Monitoring Organization (IMO). The Project Management Offices (PMOs) 1 & 2 will establish a Committee for the consideration of complaints and grievances from APs. This Grievance Redress Committee (GRC) will have as members, representatives of the following: PMOs 1 & 2/EDC; IRC at the National Level, where required but usually through Local Authority Resettlement Sub-Committees; Commune Committee Member(s); IMO (Observer role); Local leader in each village/local area.

The community consultation program will provide contact details for submission of complaints and grievances. This will include a phone contact and address for written submissions. However, as this is not a practical means of communication for many people in remote areas, it will also be necessary to establish an appropriate alternative avenue for APs who are illiterate or for whom these are not appropriate avenues. APs will also have the option of contacting the IMO should they wish, the local authority or their local Member of Parliament. There will be no fees or charges required of those wishing to have a complaint heard. If any payments are made then the fee shall be refunded by the Project. Other costs incurred by legitimate complainants will also be refunded by the Project. Follow up checks of this will be included in the scope of the IMO.

RELOCATION AND REHABILITATION

For the whole project, there are three main types of impacts. One is permanent land loss under the transmission line due to the construction of towers or poles. The second type of impacts is permanent land loss due to land acquisition for the construction of two substations and access roads. The third type of impacts is due to removal of structures and attached facilities (including trees) under the COI of transmission lines.

For those affected due to land loss under transmission line, since the acquired land area will be relatively small for each household, averaging 100m² for each tower under 220kV transmission line, and 4m² per pole under 115kV transmission line, cash compensation at market price will be adopted as main approach for resettlement and rehabilitation. In general, the acquired land area is small in relation to the typical size of each piece of land (around 0.25ha or 2,500m²) and total landholding per farming family (around 1ha). Such limited land loss would not pose any serious economic impacts for the affected people. The total area for the 220kV transmission towers will be around 3.7ha and around 0.04 ha for the 115kV poles.

For those affected under two substations, approximately 4.5 ha is required at West Phnom Penh and 1.5ha at Takeo, plus approximately 0.7 for access roads.

However, under such conditions, the ADB and World Bank requirements specify that the preferred form of compensation for involuntarily acquired land is provision of replacement land nearby of equivalent type, size and value with similar access to livelihood opportunities. An exception to the 'land for land' rule is made in the case of small areas of land (say less than 20% of the owner's total productive land holdings), where cash compensation is acceptable. In this case the project affected family's land base, as its primary source of income remains substantially viable. In this case the AP must be provided with independent counselling and advice in the management of their compensation payment and the long-term maintenance or improvement of their livelihood.

Interviews with all affected people indicated that most of them would like to have cash compensation instead of providing replacement land. This is because that with the compensation rates set at 3.5 US dollars per square metre at TSS site and 4.5 US dollars per square metre at WPP site, it is quite easy to purchase replacement farmland in these locations. The adequate compensation rates will also provide opportunities to engage in other income generation activities, which average \$9,300 per family or \$2,477 per person. However, closer to the time of implementation further consultation with these affected people will be carried out in order to determine their individual preferences in relation to provision of land, provision of cash, provision of advice and other assistance to improve the productivity of their remaining land or develop alternative livelihoods.

In the case of replacement land being required for houses that have to be removed from the COI, surveys have so far been unable to locate suitable replacement land. It is required to provide these PAPs with an equivalent standard of housing in the same villages with the same access to livelihood opportunities. The replacement new housing plot could either be provided in kind or in cash. With the provisions of compensation on residential plots based on market prices along the alignment, alternative housing plots could be obtained in the same villages. In order to achieve this it will be necessary to purchase some other land and develop it for housing. This will most commonly involve purchasing either residential land or rice growing land and filling to raise the ground level to enable it to be kept well drained. This land will be purchased by the Project or the APs him or her self from willing sellers. The appropriate action will need to be determined on a case-by-case basis during the Project design stage and with NGOs involved in the Project's income restoration program acting, along with the RAP and Environmental Coordinator (RPEC) as AP advocates in the process. The cost of residential replacement plots is included in the RAP budget, along with a land filling allowance for raising land to an acceptable level for residential purposes.

The need for replacement of houses arises where houses need to be removed from the COI for safety reasons. Replacement houses are to be provided to an equivalent size and standard within the same village, with similar access to resources and facilities such as land, roads and livelihood opportunities. Materials from the existing structure are to be available to the owner for salvage with no deduction from the compensation value. Cash compensation sufficient to replace materials and labour to build replacement houses to an equivalent size and standard will be given to APs that prefer this option, and there will be no deduction for depreciation, taxes, stamp duty, fees or other payments. The land within the COI from which the house has been removed is suitable for other uses such as farming of ground crops and will remain accessible to the original owner. Aside from tower pads, the land will not be required for the Project and therefore will remain the property of the previous occupant. During the RCS questioning, most APs expressed their preference for cash payment for their houses, preferring to organize the relocation and construction of new houses on their own. Where this is not the option chosen, or where vulnerable APs require special assistance, the Project will organize suitable direct assistance, such as providing materials and hiring a contractor, for replacing houses, at an equivalent or better standard.

For those affected due to temporary land occupation, it will be confirmed during DMS or even project implementation. Efforts will be made to minimize such impacts by timing the construction after planting season. The affected people will be paid compensation for all lost income based on average yield and market price for crops, plus cost for restoring land into original conditions. For those who lost trees, particularly valuable economic trees, in addition to the compensation received, they will be provided with income restoration assistance by the project. Consultant will develop the details of such assistance program.

INCOME RESTORATION STRATEGY

Income Loss

Income losses for SAPs caused by substation land acquisition and displacement of structures within the COI, as well as losses due to temporary impacts during Construction are generally covered by the Compensation Entitlements. The requirement of moving trees from the Transmission Line COIs may be the largest direct income loss for individual APs. However, it is very difficult at this stage to assess the income loss, either more broadly or for an individual AP. It is possible, however, to make a general assessment of the income loss that is possibly involved in removing trees from the COI.

Sugar Palm (*Borassus flabellifer*). There are by far more Sugar Palms, *Thnot* in Khmer, likely to be removed from the Transmission Line COIs than any other type of tree, about 40% of all trees along the 220kV Line and around 36% of trees likely to fall within the 115kV Line. Some 488 APs were reported to have about 2,769 Sugar Palm trees possibly affected by the 200kV COI, nearly 6 trees per household where trees owned per household may vary from 10-30, so that conceivable loss is, somewhat theoretically at this point, on the order of 20-60%, depending on final design and actual number of trees requiring to be removed from the COI.

Ovesen et al (1996) have categorized the agricultural system found in upper Takeo as a 'Rice and Sugar Palm Complex,' highlighting the importance of Sugar Palm trees as a necessary crop for providing families with a much needed cash income. The Sugar Palm, tapped for its juice during the dry season, starting in December or January right after paddy harvest and finishing at the time of plantation of the paddy seedbeds in May or June provides about equal or even more income to farmers as rice farming during the wet season. For instance, in Oudong District, Kampon Speu Province, where about 50% of families are palm sugar producers, rice was estimated to produce around US\$190,000 annually, while palm sugar was estimated, depending on selling price (350-600 riels/kg) to earn \$125-220,000 per annum district-wide. Men generally collect the sap and women undertake the more strenuous tasks of collecting wood for cooking the palm syrup and the other tasks involved in processing.

Unfortunately, the price for sugar derived from the palm sugar collapsed in 1999 due to the competition of white sugar and the end of exports to Vietnam. In Oudong District, some 40% of palm sugar producers ceased production, leading to exodus of many to Phnom Penh. Further, concerns have been raised about the pressure on forest resources from palm sugar production, for which about 4 kg of fuel wood is estimated, required to produce 1 kg of palm syrup. Palm Sugar trees take about 20 years to reach maturity for producing sap and produce for up to another 80 years in many cases. Other sources of income from Sugar Palms are: (a) making products from Sugar Palm fibre, for which only the younger trees are suitable, such as brooms and other handicrafts; roofing, and wall materials from the leaves; fruit, which is eaten or used in cooking; rafter material for houses from the less productive trees. Poorer women, heading households that do not have men to climb the trees, often make products from the fibre, especially brooms.

Because of concerns about the long-term viability of palm sugar production in the districts along the transmission line COIs, a number of initiatives are under way to: 1) produce palm vinegar (for sale to Phnom Penh restaurants among other end users) in place of palm sugar, because it does not require cooking; 2) providing support for new handicrafts from the fibre, particularly different kinds of broom to find new market niches; 3) switching to other potentially valuable cash crops, such as cashew nuts, provided sufficient technical support can be afforded households interested in this; and 4) integrating sugar palms more fully into livestock production as an alternative to palm sugar production, particularly pigs, through new ways of preparing livestock feed.

The latter option is being looked at in particular as a way to provide a higher income-generating alternative to palm sugar production and to lessen the pressure on forest reserves that palm syrup cooking involves, as well as reducing the drudgery of women's work that is another feature of the palm sugar production. New types of brooms might be a way to help in particular poor women-headed households, who tend to be more likely engaged in this income generating activity.

Other Economically Valuable Trees

There are about 28 varieties of economically valuable trees that are widely found along the COI, as well as an additional 30 or so miscellaneous variety of such trees owned in very small numbers. Such trees, including the Sugar Palm, are found clustered around built up areas where residences are located and serve a variety of uses, including fruit, leaves used in cooking or animal fodder, or for other purposes, building material, and shade. As with the Sugar Palm, which is also more widely scattered among the rice fields, these various trees, which take long years to develop, represent a considerable income investment for the APs.

It will be, however, a difficult task sorting out the income effects of loss of these trees. Some, such as banana, may remain within the COI given height restrictions only above 3 m, and others represent income based on a variety of factors such as age, health of tree, and so forth.

Income Restoration Strategy

A sugar palm/income restoration program study will be carried out and will be incorporated in the updated RAP. If further investigation identifies a dependence by APs on sugar palm or other productive trees for a significant proportion (20% or more) of their household income, a livelihood rehabilitation program will be designed prior to finalizing the RAP. It is proposed to set up an income restoration strategy/program that is flexible enough to handle a wide range of contingencies, i.e., through the creation of a revolving micro-enterprise loan fund (MLF) that can be accessed by NGOs already working in communities along COI. This will require the active consultation with EDC, with these locally involved NGOs, with the above technical consultant expert on sugar palms and other economic trees (and on various programs being proposed for alternative income generation program based on the proposed MLF). It is estimated that the study will take 1 to 2 months.

INSTITUTIONAL FRAMEWORK

The following organisations and individuals will have key roles in the implementation of the Project and according to their requirements will be the subject of capacity building and institutional strengthening measures, to be integral to the RAP planning and implementation:

- Implementing Agency, EDC
- Interministerial Resettlement Committee (IRC)

- Local Authority Sub-Committees
- Commune Councils
- Project Management Office (PMOs 1 & 2)
- Design and Construction Contractor
- Project Implementation Consultant
- Project Manager
- RAP/Environmental Coordinator (the RPEC Consultant)
 - RAP/Environmental Coordinator (Local Counterpart)
 - Geographic Information System (GIS) and Data Specialist
- Independent Monitoring Organisation (IMO)

The organisation responsible for the implementation of the Project, including the RAP and environmental requirements, is Electricité du Cambodge (EDC). A Royal Decree in March 1996 established EDC as a wholly state-owned, limited liability enterprise. Before 1996, EDC operated as a Government Department under the direction of the Ministry of Industry, Mines and Electricity (MIME). Currently, MIME and the Ministry of Economy and Finance (MEF) jointly own EDC. Hence it is under their overall supervision and joint control. MIME will have overall responsibility for implementation of the Project. The Ministry of Economy and Finance (MEF) will fund the implementation of the RAP, and EDC will, in coordination with relevant agencies, manage and supervise the overall Project, including resettlement activities.

As originally agreed between the World Bank (prior to the ADB's assumption of funding for the 200kV component), MEF and EDC an Interministerial Resettlement Committee (IRC) was established 30 January 2001 for "investigation and assessment of the impact on the structures, households and land properties belonging to the citizens who live within the COI of the Transmission line from Phnom Penh toward the boundary of Viet Nam and Cambodia via Takeo as part of the national Transmission System in the Southern part of Cambodia.

Local Authority Sub-Committees will be established soon after receiving the No Objection Letters from the ADB and World Bank. The Sub-Committee will be headed by the Provincial Governor and members will be the District Governors, Chief of Communes, and head of Villages, along the COI.

During RAP implementation, Commune Councils of the affected communities will play a key role in facilitating and coordinating with the RAP team. They will help to organize public meetings and consultations, guide the RAP team during the Detailed Measurement Survey's (DMS's) revalidating inventory, facilitate in conflict resolution and witness with signature the agreed inventory list of affected assets of each household.

Project Management Offices (PMOs 1 & 2) within EDC will be established to have overall responsibility for the design and construction of the Project including, as agreed in a Memorandum of Understanding (MOU) with ADB and World Bank signed February 2003, the management and implementation of the RAP. The IRC, of which EDC is a member, will be responsible for approving the compensation rates that will be finalized by RPEC together with the EDC and Local Authority Sub-Committees. The PMOs will be established on the same basis as the Project Management Unit (PMU), which is currently in charge of Project preparation, and the PMOs will be set up upon ADB and World Bank approval of the Project(s). The PMOs will be manned on a full time basis and will be dissolved after the Project is handed over to the EDC.

The Design and Construction Contractor will be responsible for ensuring that construction is carried out in a manner that ensures the implementation of the RAP and environmental requirements. This will include preparing a Construction EMP detailing how this will be achieved.

A Project Implementation Consultant will be appointed early in the Project to take overall responsibility for the Project. The Project Implementation Consultant will be responsible for ensuring that the RAP and environmental requirements are fully implemented including ensuring the resolution of any issues that may arise between this and other aspects of the Project.

An RAP/Environmental Coordinator (RPEC) will be appointed to coordinate the activities required under the RAP and implementation of environmental requirements. The RAP Coordinator shall report to the Project Manager Project Implementation Consultant. The RPEC will, among other duties, work in hands on fashion with both EDC and IMO staff for capacity building training.

A Complaints and Grievance Committee, including local village leaders, will be established for the consideration of complaints and grievances from the APs. A procedure shall be set up related to the liaison program with APs, and the implementation monitored by the IMO.

An Independent Monitoring Organisation (IMO) will be appointed to monitor the resettlement and compensation process and implementation of environmental requirements and verify that compensation, resettlement and rehabilitation have been implemented in accordance with the agreed RAP. The IMO will also be involved in the complaints and grievance procedures to ensure concerns raised by APs are addressed.

RESETTLEMENT BUDGET AND FINANCING

The total costs of compensation for the Project, Incremental Administration for IRC Working Group and Summary Fee Cost for IMO are estimated at US\$2,037,991.49 with a 20% contingency.

The compensation rates for the various categories were based from ADB Primary Roads Improvement Project in Cambodia. The said rates were 1999 rates, therefore, a 12% adjustment was applied for various losses (3% increase per year for four years). These are 2003 cost estimates only and will still be adjusted upward at the time of Detailed Measurement Survey to reflect the current market value at the time of compensation.

Below is the summary of RAP Cost Estimates.

Table E-1 RAP Cost Estimates

		Cost Estimates		No. of Units	Cost Estimates (2003)
		1999 Rates (US\$)	2003 Rates (US\$)		
I	Allowances				
	Disruption Allowance (per AP)	40.00	40.00	168.00	6,720.00
	Vulnerable Group (per AP)				
	Widow (per AP)	20.00	20.00	25.00	500.00
	Disabled (per AP)	20.00	20.00	-	-
	Income below \$10/month (per AP)	20.00	20.00	-	-
	Resettlement Allowances (per AP)	40.00	40.00	101.00	4,040.00
	Resettlement Site Devt and Public Facilities	508,500.00	508,500.00		508,500.00

		Cost Estimates		No. of Units	Cost Estimates (2003)
		1999 Rates (US\$)	2003 Rates (US\$)		
	Sub-Total				519,760.00
II	Structures				
	House Type 1 (sq.m.)	4.50	5.04	1,260.00	6,350.00
	House Type 2 (sq.m.)	12.00	13.44	3,396.00	45,642.24
	House Type 3 (sq.m.)	85.00	95.20	242.00	23,038.40
	House Type 4 (sq.m.)	140.00	156.80	-	-
	Gas Stations	3,000.00	3,360.00	-	-
	Digging wells	50.00	56.00	-	-
	Pump wells	50.00	56.00	-	-
	Cemetery	3,000.00	3,360.00	-	-
	Wooden Fences (per meter)	0.75	0.84	-	-
	Concrete Fences (per meter)	4.86	5.44	-	-
	Access Wooden Bridges	4.50	5.04	-	-
	Sub-Total				75,031.04
III	Land				
	A. Transmission Towers 220kV Line		-		
	- Area of Land for Towers (residential)	2.00	2.24	37,000.00	82,880.00
	- Area of land for Corridor of Impact (COI)		-		
	- Agricultural land	0.50	0.56	70,195.00	39,309.20
	- Residential Land	2.00	2.24	163,345.00	365,892.80
	B. Transmission Poles 115kV Line		-		
	- Area of Land for Poles (residential)	2.00	2.24	240.00	537.60
	- Area of land for Corridor of Impact (COI)		-		
	- Agricultural land	0.50	0.56	-	-
	- Residential Land	2.00	2.24	3,450.00	7,728.00
	C. Land for Substations		-		
	- West Phnom Penh Substation Area		-		-
	- Agricultural land	0.50	0.56	48,400.00	27,104.00
	- Residential Land	2.00	2.24	15,000.00	33,600.00
	- Area of Land for Road for WPP (residential)	2.00	2.24	5,000.00	11,200.00
	-Takeo Substation Area		-		
	- Agricultural land	0.50	0.56	46,000.00	25,760.00

		Cost Estimates		No. of Units	Cost Estimates (2003)
		1999 Rates (US\$)	2003 Rates (US\$)		
	- Residential Land	2.00	2.24	20,150.00	45,136.00
	- Area of Land for Road for TS (residential)	2.00	2.24	2,000.00	4,480.00
	Sub-Total				643,627.60
IV	Fruit Trees (per Tree)				
	Bamboo	5.00	5.60	187.00	1,047.20
	Banana	5.00	5.60	872.00	4,883.20
	Coconut	15.00	16.80	512.00	8,601.60
	Ampel	5.00	5.60	94.00	526.40
	Ampel Barang	5.00	5.60	20.00	112.00
	Ampel Toeuk	5.00	5.60	104.00	582.40
	Chan	5.00	5.60	1.00	5.60
	Kamping Reach	15.00	16.80	5.00	84.00
	Kantuot	5.00	5.60	6.00	33.60
	Kawit	15.00	16.80	23.00	386.40
	Knol	20.00	22.40	103.00	2,307.20
	Kokor	5.00	5.60	2.00	11.20
	Kor	5.00	5.60	12.00	67.20
	Krasang	5.00	5.60	152.00	851.20
	Makak	5.00	5.60	2.00	11.20
	Mean	30.00	33.60	15.00	504.00
	Pring	5.00	5.60	208.00	1,164.80
	Sangke	5.00	5.60	3.00	16.80
	Sdao	5.00	5.60	62.00	347.20
	Sleng	5.00	5.60	15.00	84.00
	Soda	10.00	11.20	1.00	11.20
	Tapoung	5.00	5.60	100.00	560.00
	Teab	10.00	11.20	153.00	1,713.60
	Teab Barang	15.00	16.80	8.00	134.40
	Trabek	5.00	5.60	195.00	1,092.00
	Toeuk Dors	30.00	33.60	11.00	369.60
	Eucalyptus	5.00	5.60	223.00	1,248.80

		Cost Estimates		No. of Units	Cost Estimates (2003)
		1999 Rates (US\$)	2003 Rates (US\$)		
	Lemon	15.00	16.80	60.00	1,008.00
	Mango	30.00	33.60	917.00	30,811.20
	Orange	15.00	16.80	26.00	436.80
	Papaya	10.00	11.20	84.00	940.80
	Sugar Cane	1.00	1.12	1,000.00	1,120.00
	Sugar Palm	8.00	8.96	875.00	7,840.00
	Svay Chanty	12.50	14.00	71.00	994.00
	Sub-Total				69,907.60
	Total (I to IV)				1,308,326.44
V	Incremental Cost (IRC Working Group)				300,000.00
VI	Independent Monitoring Organization/Agency				90,000.00
	Total (I to VI)				1,698,326.24
VII	Contingency (20%)				339,665.29
	Total as per 2003 Rates				2,037,991.49

IMPLEMENTATION SCHEDULE

The schedule for implementation of resettlement and compensation activities and environmental requirements is tied to the implementation schedule for the Project as a whole and is shown on a Gantt chart in Section 10 of the RAP.

All compensation and resettlement for each component of the Project must be completed satisfactorily and income restoration measures in place and the construction area free of all encumbrances before commencement of civil works for that component.

MONITORING AND EVALUATION

Internal Monitoring

The objective of internal monitoring and supervision will be to (i) verify that the valuation of assets lost or damaged, and the provision of compensation, resettlement and other rehabilitation entitlements, has been carried out in accordance with the provisions of the resettlement policies of the ADB and World Bank and the RAP; (ii) oversee that the RAP is implemented as designed and approved; and (iii) verify that funds for implementation of the RAP are provided by the Project authorities in a timely manner and in amounts sufficient for their purposes, and that such funds are used in accordance with the provisions of the RAP.

External Monitoring and Evaluation

An Independent Monitoring Organization (IMO) will be required to involve itself in all aspects of RAP implementation and shall have access to all organizations involved and all Project documentation. The IMO will be selected after assessment of submissions

based on cost and methodology proposed and an NGO, experienced in the Cambodian situation, is preferred as the IMO. The selected IMO is expected to begin monitoring as soon as the contract with the Project Supervision Consultants is affected. The monitoring by the external agency will be carried out three times during the implementation of the RAP. First monitoring will be done during the Detailed Measurement Survey (DMS), which is the updating and validating inventory done at the conclusion of Detailed Design, the second one during the compensation payment, and third during/after relocation. The assignment will be under the supervision of the EDC. Participation of Stakeholders in external monitoring is a requirement. The IMO will establish contact with local authority in each district for external monitoring purposes. Special consideration will be taken for female-headed households and vulnerable people during external monitoring. A TOR for the IMO is included as Appendix H.

Post Implementation Evaluation Study

Six months to one year after the end of resettlement activities, the IMO shall conduct an evaluation study of severely affected APs through house relocation from the COI, and loss of substation land, from tree relocation and the vulnerable groups, to determine whether or not the objectives of the RAP in terms of restoration of incomes and living standards have been achieved. The methodology for the evaluation study will be based on the follow up socio-economic survey to determine the impact of the Project on AP income levels and living standards of those severely affected by the Project. This survey will be conducted following the same methodology as adopted for the inventory preparation. The survey data thus collected will be compared with the baseline survey information that has been collected during the preparation of the RAP. All data for the evaluation study will be disaggregated by gender. The evaluation will look at whether the displaced and vulnerable household living standards are getting better or worse as a result of the Project. Then the IMO will propose appropriate additional assistance, if any, that may be necessary to achieve the stated objectives.

1 INTRODUCTION

This document is a Resettlement Plan (RAP) for the construction of a transmission link between Phnom Penh and the Vietnamese border near the Vietnamese town of Chau Doc. This is part of a feasibility study being carried out for the ADB by consultants APW of Australia. The feasibility study for the transmission link is a component of the ADB's broader Power Transmission Project. The RAP shall form part of the implementation requirements for the Project.

The RAP is related to the overall environmental assessment for the project (Volume 3 of the *Feasibility Study Report*), and is a key part of the management of social impacts in particular.

The RAP has been developed to meet the ADB and World Bank's Policies on Involuntary Resettlement. It identifies people affected by the Project, the APs (Affected People), the nature and degree of the impacts on them, measures taken to minimise the effects and compensation and other assistance to be delivered to APs for unavoidable impacts.

For this to be successful it is required that the Royal Government of Cambodia (RGC) endorses, and takes "ownership" of, both the intent and detail of the RAP. The Project's implementing agency is Electricité du Cambodge (EDC), within the Ministry of Mines and Energy. The Ministry of Economy and Finance (MEF) will fund the implementation of the RAP, and EDC will, in coordination with relevant agencies, manage and supervise the overall Project, including Resettlement activities. An Interministerial Resettlement Committee (IRC,) of which EDC is a member will be responsible for approving the compensation rates that will be finalized by RPEC together with the EDC/Local Authority Sub-Committees.

The RAP contains the following Chapters, in accordance with the ADB's *Handbook on Involuntary Resettlement*:

Executive Summary

1. Introduction
2. Scope Of Land Acquisition And Resettlement
3. Socio-economic Information
4. Objectives, Policy Framework, And Entitlements
5. Consultation And Grievance Redress Participation
6. Relocation Of Housing And Settlements
7. Income Restoration Strategy
8. Institutional Framework
9. Resettlement Budget And Financing
10. Implementation Schedule
11. Monitoring And Evaluation

The RAP has been developed on the basis of the following:

- ADB's Policy on Involuntary Resettlement
- World Bank Operational Policy (O.P.) 4.12
- RGC Laws

- Discussions with World Bank, EDC and other Royal Government of Cambodian (RGC) agencies, NGO Forum of Cambodia, agencies involved in other recent projects involving resettlement in Cambodia (e.g., road projects)
- Field Inspections
- Policy for Resettlement and Compensation developed for the Project
- Social Assessment
- Affected Person (100% of APs) Census and Inventory of Lost Assets, and Socio-Economic Survey (25% of APs)

The RAP shall form the basis for land acquisition and compensation payments and related activities for the project. Related activities in the feasibility study include:

- Transmission line route selection
- Technical and economic feasibility of the transmission line
- Engineering survey of the transmission line route for preliminary design and social mapping
- Environmental Impact Assessment

The RAP will need to be revised and updated during the Project's design and implementation phases, as the Project and its impacts develop and become more precisely defined. This will be done through a Detailed Measurement Survey (DMS) updating the Census and Inventory of Lost Assets data in accordance with the Final Design.

The scope of this Study is limited to the transmission line and its associated infrastructure, including substations at Phnom Penh and Takeo, within Cambodia. A section of the line will be constructed by the Vietnamese Government from the town of Chau Doc to meet the Line at the border. Resettlement, compensation and environmental issues for that section are the responsibility of the Vietnamese Government, depending on the requirements of any financing bodies.

2 SCOPE OF LAND ACQUISITION AND RESETTLEMENT

This section gives an overview of the project and the potential impacts on the APs.

2.1 PROJECT DESCRIPTION

The ADB and World Bank intend to finance the construction of an electrical transmission interconnection between Phnom Penh and Vietnam. The connection point of the line is ultimately at the Vietnamese town of Chau Doc. However, the scope of this study covers only the section within Cambodia.

The purpose of the transmission interconnection is to improve the electricity supply to Phnom Penh and Takeo, by drawing on the established generation capacity and transmission grid in neighbouring Vietnam. This is part of a broader development of electrical infrastructure in Cambodia, including rural electrification and development of generation capacity and transmission infrastructure in the country.

The Project Area and Transmission Line Route are shown in Figure 2-1.

The main components of the Project are as follows:

ADB Financed:

- 220kV Transmission Line with length of approximately 109 km, with steel lattice towers approximately 35 to 45m high and at approximately 350 to 450m spacing. Thus there will be in the order of 370 towers. It is noted that the Final Design of the Transmission Line is the responsibility of the Construction Contractor and the location, size and spacing of Towers may vary.
- West Phnom Penh Substation (WPP), the termination of the 220kV line coming into Phnom Penh, including National Control Centre
- Takeo Substation (TSS)

World Bank Financed:

- 115kV Transmission Lines to connect West Phnom Penh Substation to the existing Transmission Line around Phnom Penh. This will consist of a pair of lines, each about 9km in length giving a total length of 18km, and use steel or concrete poles rather than lattice towers. The poles are expected to be 21m high, with a 150 to 200m span. Thus there will be in the order of 100 poles. These poles will be similar in appearance to those on the existing 115kV line around Phnom Penh.
- Updating equipment in the existing Phnom Penh substations at GS1, GS2, and GS3
- A Grid Extension expanding the existing 22kV lines around Phnom Penh

2.1.1 Design Criteria COI Easements and WWP and TSS Substations

The 30m-easement width for both the 230kV and 115kV lines), covering 15 m either side of the centreline, has been designed design to increase public safety and line security. Within the 30m strip no permanent buildings or other structures will be allowed and vegetation will be managed to ensure trees are not allowed gCOI up into the conductors and that large trees that may endanger the line are removed. Settlement and structures will not be permitted and vegetation height restrictions to 3m will apply. Design criteria have also been applied to the selection of the WWP and TSS Substations.

2.1.1.1 220kV COI Easement Design Width Criteria

The 230kV easement width has been calculated as follows:-

- 8m between conductors (width of towers)
- 2 x 4m conductor blow out
- 2 x 7m between the blown out conductor and the edge of the easement (nearest possible structure)

The 30 m COI is based, *inter alia*, on the following considerations:

- Access for construction is generally good with the line routed through rice paddy fields adjacent to existing roads and rail.
- Normal foundation conditions exist for the majority of the line length; however Wet Season flooding to the height of the paddy field bund walls will require foundation design to consider buoyancy effects.
- Access to tower sites for construction equipment will require removal of rice paddy bund wall in limited sections and reinstatement following completion of tower construction.
- Flood levels of 3-4m occur during the months July to December over approximately 10km of the line route at the southern (Vietnam) end of the line. Piled foundations could be required for about 30 towers in this section of the line.
- In general, the levee banks of the canals provide close access to tower sites. Some sites will require drainage before construction of foundations commences.
- The Construction Program and costs may vary considerably with the duration and extent of the Wet Seasons. Foundation and tower erection crews may only be able to work during the dry season months of January to June. Tower assembly at the contractors' works can proceed during the wet.
- The Bidding Documents will allow some flexibility in foundations design to suit ground conditions along the route.

2.1.1.2 West Phnom Penh Substation Site Selection Criteria

Termination of the transmission line at WWP substation, rather than the alternative GS2, was selected based on:

- Proximity to the area of significant industrial activities along National Routes 2 and 3
- Location that allows the reservation of Transmission Routes permitting the redistribution of power to other Phnom Penh 115kV Substations and Kampong Cham,
- The new Substation will allow termination of Kirirom 115kV transmission line,
- Easier Transmission Construction, as the route to WPP has higher elevation comparing to Route No 2 and the flooding appears to be less intensive.

Connection to the new WPP substation has been proposed in order to provide for future growth of electricity demand due to industrial development in this area. This area is also not constrained by current development, being predominantly rice fields with industrial development along the main roads. It is the preferred option for electrical system reasons. West Phnom Penh 220/115/22kV Substation. The

115kV connection from WPP to the existing 115kV line will be split across 2 double circuit pole lines. Each line will take a separate route to increase security.

As transmission access to the existing Substations GS1, GS2 and GS3 for new Transmission Lines is very difficult, the new Substation will be integrated with the existing grid by looping it to the 115kV transmission line between GS2 and GS3. Both connections from WPP to GS2 and GS3 will be double circuits of similar design and electrical characteristics as existing 115kV line. The distance of new 115kV transmission extensions (see below) will be two sections of approximately 9km each.

2.1.1.3 Takeo Substation Site Selection Criteria

There are two possible locations for the Substation site at Takeo Town. The first possible site is opposite the junction of National Route 2 and Route 22 to Angk Tasaom, this location is low-lying land adjacent to drains and canals. The second location is 300-500m inland on the southern side of Route 22, halfway between Takeo and Angk Tasaom Town, this region consisting mainly of rice paddies and sugar palms. Even though it may be more flood prone, increasing construction costs, the first site offers better access for construction and appears to create less of a land use impact, and allow for any future line to Kampot. The second site is situated in the middle of rice paddies and the access road and substation itself will consume what appears to be a good farming country.

On the basis of accessibility and land use impact alone the first site was preferred and will be developed. The 95m x 145m site selected is subject to wet season flooding and will require the level raised by several metres by importing base material. The substation site is close to the railway, which may assist in transport of heavy equipment.

2.1.1.4 115kV COI Easement Design Width Criteria

For the 115kV line, the 30-metre corridor is necessary to provide for future capacity for Phnom Penn. The capacity of the 115kV ring around Phnom Penh is limited to 200MVA. Currently, but future demand in Phnom Penh will exceed this figure. Eventually new 220kV circuits into Phnom Penh will be required together with 220/115kV Substations. One possibility for the future is a 220kV into Phnom Penh, and so upgrading 115kV line to 220kV using same easement. While there is not much development along these easements at present, the COI (30m) is easier to negotiate, making it imperative to require a 30m COI for the 115kV line at this time. Despite the above rationale for a 30m COI, the 115kV easement width of 30 metres may be reduced due to residential and land use constraints in different places; however, at present, there is little existing development along the proposed route for the 115kV lines.

2.1.1.5 Tower Design for 220kV and 115kV Lines

It is anticipated that the 230kV and 115kV lines will be stand alone with no coexistent distribution lines. This being the case the lines will not be designed for additional clearance. The following criteria can be adopted for the design of the routes and line.

Criteria	230kV line	115kV line
Easement Width	30 m	30 m
Clearances to:		
Roads (Main and Secondary)	8.0 m	7.6 m
Distribution Lines	3.4 m	2.4 m
Communication Lines	3.7 m	2.4 m
Ground negotiable by vehicle	8.0 m	7.6 m
Ground not negotiable by vehicle	8.0 m	6.7 m
Surface of Water at Maximum Flood	6.7 m	6.7 m
Surface of Navigable Waters	12.0 m	12.0 m
	Or by negotiation with responsible Government department	

These parameters will be confirmed at a later stage by detailed investigation into lightning performance and wind loads for the region. Any changes are likely to be minor and will not significantly change the cost of Construction.

2.1.1.6 Transport of Equipment

Heavy items, such as the 200MVA transformers at WPP, will need transporting by road/rail/river to site. Load ratings and width of bridges along the route require surveying and upgrading works carried out by the Contractor, if required.

2.1.1.7 Rural Electrification

Electricity distribution to selected villages in proximity to the transmission line is also considered, connecting from the WPP and TSS substations.

2.2 PROPOSED TRANSMISSION LINE ROUTE

The proposed route, as shown on Figure 2-1 and in more detail on Figures 2-2 to 2-4, follows National Road 2 from the Vietnam border to the town of Takeo, to a new substation to be located on the outskirts of Takeo town. The line will then follow the railway line north, veering northwest to a new substation (known here as West Phnom Penh (WPP)) to be located to the southwest of Phnom Penh. The transmission line will be offset from National Road 2 and the Railway Line by a distance of several hundred metres. The WPP Substation will be loop connected to the existing 115kV line on the south-western outskirts of Phnom Penh by a pair of 115kV transmission lines, each approximately 9km long.

Both the 220kV and 115kV transmission line alignments were carefully selected after extensive review of social and environmental issues, as well as logistical, economic and financial, and avoided to the maximum extent possible built-up areas. This can be seen in Appendix B, the GIS aerial photographs showing the Project's entire COI. The three primary node points determining the planned alignment for the 220kV line are:

- 1) WPP, as the primary termination node for both the 220kV and 115kV lines
- 2) TSS, for future links to neighbouring load centers and Kampot Province, at 59.1km from
- 3) Interconnection Point at the Vietnamese border, approximately 2km east of Phoum Den, 50.2km from the Takeo Substation

The selected contractor will develop the project design, construction methods and schedule during subsequent stages of design and implementation of the Project. However these have been envisaged as far as possible in order to predict impacts and plan for the management of impacts and implementation of compensation measures. It is envisaged that construction will take place mostly in the dry season over a period of approximately two years.

The transmission line has been designed to Detailed Feasibility level. Final pegging of the route and tower locations will be undertaken by the Design and Construct Contractor, based on the Intersection Points, whose location has been defined. Changes to the existing alignment are unlikely given the comprehensive alignment survey and design that has been completed. The final design of towers, conductors and line clearances will be in accordance with specifications established by this Project. The village distribution lines are only at the Pre-Feasibility Design stage, with detailed design to be finalised by the Design and Construct Contractor.

The Project has been budgeted to cost about US\$50 million covering the cost of the transmission line, two substations, control building and village distribution lines. Compensation and Resettlement costs are an additional US\$ 2.5 million. These estimates do not include taxes and duties, escalation, interest during construction, contingency or the costs of the PIC (including the IMO).

2.2.1 Land Use

Land use along the proposed route is primarily rural, with small areas of urban settlement and light industry mainly occurring near Phnom Penh. The terrain is extremely flat, being predominantly within the greater Mekong flood plain, with minimal cross-slope risk and the difference in height between adjacent tower positions will be no greater than 0.5 metre. The profile between tower positions will also be reasonably flat, affected only by built-up roads, levees and bunds between the rice fields. The line passes through a rural environment predominantly associated with rice cultivation and rotational grazing. Further south in the vicinity of Kirivong District, a wide spread flood plain exists. The region is criss-crossed with a network of linear canals of varying dimensions and most of the associated levees can be accessed with a vehicle.

The local farming system is dominated by rice cropping, with tree crops and gardens established on slightly raised areas around dwellings where the waterlogging or flood hazard is lower. Rural landholdings average 0.4 ha in area, consisting of a house block and paddy area. Settlement areas consist of a mix of dwellings, tree crops, community trees and gardens grown around houses.

Land use within the COI was assessed for six general land classes by interpreting 1:25,000 air photos (1992) (Table 2-1). Privately owned land within the COI (based on the area of paddy, houses/tree crops and grassland) totals approximately 365.1ha (95%).

TABLE 2-1: LAND USE ALONG THE TRANSMISSION LINE COI

Land Class	Distance (km)	COI Area (ha)	% of Route
Paddy ¹	114.2	342.5	88.9
Houses/Tree Crops/Gardens ²	6.9	20.6	5.3
Plantation Trees	3.4	10.3	2.7
Grassland	0.7	2.0	0.5
Riverine Features/Main Canals	2.3	7.0	1.8
Main Roads and Rail	1.0	3.1	0.8
Total	128.5	385.5	

¹ Industrial areas were not mapped as a separate unit, but this land use exists on the northern end of the Route, having been mainly converted from paddy since 1992.

² Includes a small number of businesses.

The majority of the route crosses paddy land (88.9%), the land class selected to minimise resettlement and land use impact when the alignment was selected. The dominant crop is lowland rainfed (wet season) rice, transplanted from June-October and harvested from October-December. This crop is grown without irrigation and had an average yield of 1.9 t/ha in Takeo Province in 2001/02 (Ministry of Agriculture, Forestry and Fisheries, 2002). Lowland irrigated rice (dry season) occurs on the southern end of the route, along approximately 10km of the COI, transplanted November-March and harvested February-May. This area is irrigated from water diverted out of the Preaek Tonloab River weir, and is estimated to comprise only 10% of all paddy land within the COI. Dry season crop yields are higher than wet season yields due to controlled irrigation and additional sunlight; with the average dry season rice yield for Takeo province was 2.6 t/ha in 2001/02 (Ministry of Agriculture, Forestry and Fisheries, 2002).

Flood recession rice grown on the margins between irrigated and rainfed land, as well as floating rice, are also gCOIn in Takeo Province.

Tree crops are mainly gCOIn in house yards, with scattered trees gCOIn in paddy fields. Trees are also gCOIn on Government or community land such as watercourses, but tree density is generally lighter. The main trees gCOIn in villages are coconut, sugar and banana palms, mango, jackfruit, guava, papaya, and eucalypts, whilst bamboo is also common. Tree products include fruit, syrup, building materials and fuel wood, whilst some trees are gCOIn primarily for shade. Some tree crops are gCOIn on paddy bunds, such as sugar palms, but these trees are scattered, not uniformly or densely planted in COIs.

Vegetables, cereals, herbs and spices are commonly gCOIn in house gardens, including eggplant, cassava, sugarcane, maize, beans, peanuts, chillies and lemongrass. Other farming activities include small-scale livestock production (e.g. chicken, duck, pig and cattle raising), whilst fish, frogs and crabs are collected in paddy fields, drains and watercourses.

Grasslands, consisting of grasses and shrubs, are limited in extent, often occurring on slightly higher land that has not been settled. These areas probably established voluntarily during an extended fallow period on these lower quality rainfed paddy fields.

Industrial land use is expanding on the south western outskirts of Phnom Penh, near the two proposed 115kV connection lines to connect the west Phnom Penh substation with the 115kV ring line. Interpretation of the 1992 air photos is not reliable in this area given the development that has occurred over the last decade.

Major rivers and streams crossed by the route, from north to south, are: Preaek Tnaot, Stueng Touch, Stueng Svay Prey and Preaek Anlong Thum. Catchments generally flow in a south easterly direction towards the Bassac River. Wetlands located within 2km of the route, from north to south, include Boeng Thum, Boeng Krachab, Boeng Kanlaeng Chak, Boeng Uo Thom and Preaek Tonloab waterbody.

Road transport in the project area primarily occurs via National Route 2 (NH2), the main arterial route in the area, which runs from the Vietnam border north to Phnom Penh. NH2 is only partly sealed from the border to Takeo, and sealed from Takeo to Phnom Penh, but it is in poor condition with numerous potholes. The section of NH 2 from Takeo to the Vietnam border is to be upgraded under a recently awarded contract. NH 3 is the main arterial road on the northern end of the project area. A network of unsealed feeder roads connect villages to these National Routes.

The other significant man-made feature crossed by the transmission line is the Phnom Penh-Kampot railway line.

2.2.2 Administrative Areas

Cambodia is subdivided into provinces, districts, communes and villages. The 220kV corridor passes through the four provinces of Phnom Penh (Municipality), Kandal, Kampong Speu, and Takeo, though only a short distance through Kamong Speu. The line generally runs adjacent to the Phnom Penh-Kampot railway from the WPP substation site to Takeo, and then runs parallel to NH 2 to the border. Figures 2-5 and 2-6 graphically represent the administrative districts the lines traverse., while Table 2-2 shows the administrative areas the 220kV line passes through, including the 101 individual villages the COI passes through. Table 2-2 also shows the administrative areas the 115kV line passes through -- 3 districts, 6 communes, and 19 villages, within Phnom Penh Municipality. Altogether there are 4 provinces (including Phnom Penh Municipality), 15 districts, 37 communes, and 120 villages impacted by the 220kV and 115kV COIs. The greater majority of the route is located in Takeo Province, with shorter sections in Kandal and Kampong Speu Provinces and the Municipality of Phnom Penh.

The order in which the administrative areas are shown in Table 2-2 is consistent with the Engineering Design drawings, which begin with the 220kV line and then present the northern 115kV line followed by the southern 115kV route, each from the Phnom Penh West Substation (WPP). For consistency, the GIS socio-economic database is also so ordered.

Access along the route, through the various administrative regions is relatively unimpeded, as the corridor follows closely the alignment of an existing railway, National Roads 2 and 3 and minor access roads.

TABLE 2-2: PROVINCES, DISTRICTS, COMMUNES AND VILLAGES CROSSED BY COI, SHOWING SUBSTATIONS (WPP AND TSS) AND IP NUMBERS, FOR 220kV AND 115kV LINES

	PROVINCE	DISTRICT	COMMUNE	VILLAGE
220KV LINE				
WPP	1 Phnom Penh Municipality	1 Dong Kor	1 Phleung Cheh Roteh	1 Kob Pluk
	Phnom Penh Municipality	Dong Kor	Phleung Cheh Roteh	2 Prey Ror Ngeang
IP1	Phnom Penh Municipality	Dong Kor	Phleung Cheh Roteh	3 Krang Ta Banh
	Phnom Penh Municipality	Dong Kor	Phleung Cheh Roteh	4 Phleung Cheh Roteh
	2 Kandal	2 Ang Snoul	2 Beng Thom	5 Ta Chet
	Kandal	Ang Snoul	Beng Thom	6 Beng Thom 3
	Kandal	3 Kandal Stung	3 Deum Rues	7 Deum Rues
	Kandal	Kandal Stung	Deum Rues	8 Tonsay Keach
	Kandal	Kandal Stung	Deum Rues	(Deum Rues)
	Kandal	Kandal Stung	Deum Rues	9 Krang Chake
IP2	3 Kompong Speu	4 Kong Pisei	4 Preah Nipean	10 Russey
IP3				
IP4	Kompong Speu	Kong Pisei	Preah Nipean	11 Prey Toteung
IP5				
	Kandal	5 Kandal Stung	5 Tbeng	12 Ang Kleour
	Kandal	Kandal Stung	Tbeng	13 Chrolong
IP6	4 Takeo	6 Bati	6 Krang Thnung	14 Tbeng
	Takeo	Bati	7 Lumpong	15 Bak Rornors
	Takeo	Bati	Lumpong	16 Tropeang Krorlanh
	Takeo	Bati	Lumpong	17 Poun Phnom
	Takeo	Bati	Lumpong	18 Kandal
IP7	Takeo	Bati	Lumpong	19 Thmor Sor
	Takeo	Bati	Lumpong	20 Pean Meas East
IP8	Takeo	Bati	8 Komar Reachea	21 Khnar Tung
	Takeo	Bati	9 Tropeang Sab	22 Prech
	Takeo	Bati	Tropeang Sab	23 A Cheang
	Takeo	Bati	10 Tropeang Krosang	24 Thlork
	Takeo	Bati	Tropeang Krosang	25 Rolaeng
	Takeo	Bati	Tropeang Krosang	26 Romdoul
	Takeo	Bati	Tropeang Krosang	27 Yeam Khao
	Takeo	7 Somrong	11 Roveang	28 Teuk Ambel
	Takeo	Somrong	Roveang	29 Prey Kcheay
	Takeo	Somrong	12 Chumreas Pen	30 Sneng Romaeng
	Takeo	Samrong	Chumreas Pen	31 Ta Yeung
	Takeo	Samrong	(Roveang)	32 Veay Chneas
	Takeo	Samrong	(Chumreas Pen)	33 Prey Klar
	Takeo	Samrong	13 Samrong	34 Krang Ror Oat
	Takeo	Samrong	Samrong	35 Ta Paun East
	Takeo	Samrong	14 Seung	36 Tropeang Prey
	Takeo	Samrong	Seung	37 Ang Kdey
	Takeo	Samrong	15 Beng Krahn South	38 Ta Som

	PROVINCE	DISTRICT	COMMUNE	VILLAGE
	Takeo	Samrong	Beng Krahn South	39 Beng Krahn
IP9	Takeo	Samrong	Beng Trahn South	40 Mohareach
	Takeo	Samrong	16 Lomchang	41 Svay Prey
IP10	Takeo	Samrong	Lomchang	42 Ta Mung
	Takeo	Samrong	Lomchang	43 Rung
	Takeo	8 Daun Keo	17 Roka Knong	44 Prey Prom
	Takeo	Daun Keo	Roka Knong	45 Chres
	Takeo	Daun Keo	Roka Knong	46 Au Svaychake
IP11	Takeo	Dong Kor	Roka Knong	47 Kseung
TSS	Takeo	Daun Keo	Roka Knong	48 Sambour
	Takeo	Daun Keo	18 Roka Krao	49 Prahote
	Takeo	Daun Keo	Roka Krao	50 Ta Dou
IP12	Takeo	Daun Keo	Roka Krao	51 Tom Nop
	Takeo	Daun Keo	Roka Krao	52 Thmey
	Takeo	9 Treang	19 Roneam	53 Prey Pha Av
	Takeo	Treang	Roneam	54 Kok Khmorng
IP13	Takeo	(Daun Keo)	(Roka Krao)	55 Tropeang Sala
	Takeo	(Daun Keo)	(Roka Krao)	56 So Chan North
	Takeo	10 Treang	20 Prey Sleuk	57 So Chan
	Takeo	Treang	Prey Sleuk	58 Neal
IP14	Takeo	Treang	Prey Sleuk	59 Prey Sandek
IP14A	Takeo	Treang	21 Thlork	60 Krang Roang
	Takeo	Treang	(Prey Sleuk)	61 Prey Mean
	Takeo	Treang	(Prey Sleuk)	62 Phnom Thnok
	Takeo	Treang	(Prey Sleuk)	63 Svay Romdeng
	Takeo	Treang	(Prey Sleuk)	64 Phnom Khleung
IP14B	Takeo	Treang	22 Ang Knur	65 Kor
	Takeo	Treang	23 Prambey Mom	66 Tropeang Leuk
	Takeo	Treang	Prambey Mom	67 Por Nhea Leu
	Takeo	Treang	Prambey Mom	68 Prey Chheuteal
	Takeo	Treang	24 Chy Khmar	69 Yulchake
	Takeo	Treang	25 Trolach	70 Poan
	Takeo	Treang	Trolach	71 Tropeang Chhuk
IP15	Takeo	Treang	26 Smoang	72 Tropeang Chrey
	Takeo	Treang	Smoang	73 Smoang
	Takeo	Treang	Smoang	74 Kompong Chrey
	Takeo	11 Kos Andet	27 Pechorsa	75 Ta Bour
	Takeo	Kos Andet	Pechorsa	76 Prey Thom
	Takeo	Kos Andet	Pechorsa	77 Domnak
	Takeo	Kos Andet	Pechorsa	78 Prey Bye
	Takeo	Kos Andet	Pechorsa	79 Kok Daung
IP16	Takeo	12 Kirivong	28 Ang Prosat	80 Ang Prosat
	Takeo	Kirivong	Ang Prosat	81 Prorchreav
	Takeo	Kos Andet	(Pechorsa)	82 Chong Angkor
	Takeo	Kos Andet	(Pechorsa)	83 Angkung
	Takeo	Kirivong	29 Preah Bat Choamchum	84 Treuy Tomloap
	Takeo	Kirivong	Preah Bat Choamchum	85 Kompong

PROVINCE	DISTRICT	COMMUNE	VILLAGE
IP17	Takeo	Kirivong	Preah Bat Choamchum 86 Pothikveth
	Takeo	Kirivong	Preah Bat Choamchum 87 Poar
	Takeo	Kirivong	30 Kiri Chungkos 88 Chroay Sleng
	Takeo	Kirivong	Kiri Chungkos 89 Chake
	Takeo	Kirivong	Kiri Chungkos 90 Chombok Tim
	Takeo	Kirivong	Kiri Chungkos 91 Deum Beng
	Takeo	Kirivong	Kiri Chungkos 92 Preal
	Takeo	Kirivong	Kiri Chungkos 93 Prey Ta Mao
	Takeo	Kirivong	31 Phnom Den 94 Chhvea
	Takeo	Kirivong	Phnom Den 95 Ta Rung
	Takeo	Kirivong	Phnom Den 96 Thom
	Takeo	Kirivong	Phnom Den 97 Andaung Kean
	Takeo	Kirivong	Phnom Den 98 Toteung
	Takeo	Kirivong	Phnom Den 99 Ta Yeung
	Takeo	Kirivong	Phnom Den 100 Psar
	Takeo	Kirivong	Phnom Den 101 Kandal
IP18	VIETNAM BORDER		

115KV LINES

NORTHERN 115kV LINE

WPPA

	(Phnom Penh Municipality)	(Dong Kor)	(Phleung Cheh Roteh)	(Kob Pluk)
ICA1	(Phnom Penh Municipality)	(Dong Kor)	(Phleung Cheh Roteh)	102 Toul Kei
ICA2	(Kandal)	(Ang Snoul)	32 Kontoak	103 Ang Takeat
	(Phnom Penh Municipality)	(Dong Kor)	33 Chaum Chao	104 Prey Kombot
	(Phnom Penh Municipality)	(Dong Kor)	Chaum Chao	105 Sre Chomroeuv
	(Phnom Penh Municipality)	(Dong Kor)	Chaum Chao	106 Domnak Troyeung
	(Phnom Penh Municipality)	(Dong Kor)	Chaum Chao	107 Prey Lo Ngor
ICA3	(Phnom Penh Municipality)	(Dong Kor)	Chaum Chao	108 Prey Speu
ICA4				
ICA5	(Phnom Penh Municipality)	(Dong Kor)	Chaum Chao	109 Tropeang Rom Chake
ICA6				
ICA7				
ICA8				
ICA9	(Phnom Penh Municipality)	(Dong Kor)	Chaum Chao	110 Toul Pung Ror
	(Phnom Penh Municipality)	(Dong Kor)	Chaum Chao	111 Tropeang Tliong
ICA10				
ICA11				
	(Phnom Penh Municipality) 15 Mean Chey	34 Stung Mean Chey		113 Domnak Thom
ICA12				
ICPA				

SOUTHERN 115kV LINE

WPPB	(Phnom Penh Municipality)	(Dong Kor)	(Phleung Cheh Roteh)	(Kob Pluk)
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	PROVINCE	DISTRICT	COMMUNE	VILLAGE
	(Phnom Penh Municipality)	(Dong Kor)	(Phleung Cheh Roteh)	(Toul Kei)
	(Phnom Penh Municipality)	(Dong Kor)	(Phleung Cheh Roteh)	114 Rokar Kpos
ICB1	(Phnom Penh Municipality)	(Dong Kor)	(Phleung Cheh Roteh)	(Toul Kei)
ICB2				
ICB3	(Phnom Penh Municipality)	(Dong Kor)	35 Pong Teuk	115 Toul Kei 2
ICB4				
ICB5	(Phnom Penh Municipality)	(Dong Kor)	(Chaum Chao)	(Prey Kombot)
	(Phnom Penh Municipality)	(Dong Kor)	(Phleung Cheh Roteh)	(Toul Kei)
	(Phnom Penh Municipality)	(Dong Kor)	(Chaum Chao)	(Sre Chomroeuv)
	(Phnom Penh Municipality)	(Dong Kor)	(Chaum Chao)	(Domnak Troyeung)
	(Phnom Penh Municipality)	(Dong Kor)	(Chaum Chao)	(Prey Lo Ngor)
	(Phnom Penh Municipality)	(Dong Kor)	36 Prey Sor	116 Prey Thom
	(Phnom Penh Municipality)	(Dong Kor)	Prey Sor	117 Prey Tituy
ICB6	(Phnom Penh Municipality)	(Dong Kor)	Prey Sor	118 Thormotray
ICB7				
ICB8	(Phnom Penh Municipality)	(Dong Kor)	Prey Sor	119 Prey Sor West
ICB9	(Phnom Penh Municipality)	(Dong Kor)	Prey Sor	120 Kok Banteay
ICB10				
ICB11	(Phnom Penh Municipality)	(Dong Kor)	(Chaum Chao)	(Toul Pung Ror)
ICB12				
ICPB	(Phnom Penh Municipality)	(Mean Chey)	(Stung Mean Chey)	(Domnak Thom)

2.3 Route Selection

2.3.1 Engineering Survey – Use of GPS

A number of options have been investigated for the transmission line route from Vietnam to Phnom Penh, shown on Figure 2-7. The Project adopted 1:25,000 aerial photography as a backdrop, which is incorporated into a GIS database that includes a wealth of detail that assisted in the route planning and serves as an aid to the description of the social impact as part of the social survey.

The route selection survey utilized state of the art Trimble 4700 RTK Geographic Positioning system (GPS) that incorporated predefined corridor alignments determined from the digital orthophoto coverage and subsequent field review. Parts of the route towards the Vietnamese border were seasonally inundated, and these sections were mapped during the engineering design study by both field survey and photogrammetry. The GPS base station with two rovers was supported by hand held Garmin 12X:L receivers carried by the social survey team as well as by the 1992-93 photo imagery, which required field upgrading and was used as a guide only during the social survey.

Inundated *sraes* (paddy fields) were measured at the bunds and no incursion into the fields permitted unless to occupy an intersection point (IP). The rice plots averaged 0.3 ha in area and were relatively level. Consequently the variation in invert depth within each *srae* was well within the level accuracy of the survey, and no incursion into the productive crop area was required.

Using the GPS receivers, the following features were collected, inter alia, roads and tracks (top, edge of), railways and hard shoulders, all drains, levees and canals (top, toe), ponds (indicative depth where possible), vegetative clusters, fences (solid and makeshift), all buildings (concrete, brick, wood, and thatch), inverts of *sraes* (paddy fields) at edge, major bunds or those strategic to the corridor, maximum water levels (seasonal, anecdotal), important social features (Chinese grave sites, monuments, etc), miscellaneous features (with associated comments), existing power lines, and Unexploded Ordinance (UXO) discoveries.⁹ Major detail not on the centreline but within 15m on either side of the centreline was also collected.

2.3.2 Social Survey – Use of GPS for Field Work and Development of GIS Database

A key feature of the Engineering Survey was its *Minimal Impact Approach*. Here, the corridor and subsequent IPs¹⁰ were recorded by the precision RTK GPS and their special position described by projection coordinates. Consequently, re-occupation of the line will be possible with similar GPS equipment. Because the social survey needed to identify the line, small survey stakes and telltale marker tape nearby discreetly marked positioned crossing points. These stakes were positioned on the centreline at road and canal crossings and at other strategic locations.¹¹ The social survey, assessing the impact of the transmission line on the communities passed through, coincided with the Engineering Survey program. Because of the Minimal Impact policy and the use of GPS technology, very few indicators of the transmission line route were placed or required, so eliminating

⁹ The field survey team found two small areas within the vicinity of the corridor where UXOs were visible, about 14.3km south of IP8 and between IP10 and IP 11, north of Takeo and just south of the village of Lumchang. These are recorded in the Engineering Survey.

¹⁰ These Intersection Points (IPs) are key features along the corridors. These are turning points, where the towers are larger to accommodate additional stress and so also take up more land than the other towers along the ROW. They also serve as key identification points for social survey reference.

¹¹ The positions of the stakes were recorded on the GIS profile for the corridors. The stakes (25 mm x 25 mm x 300 mm) were buried deep enough to ensure they were visible to the trained eye and not easy to remove.

the need to 'broadcast' the corridor routing. This approach has reduced the impact of speculative development and adverse possession along the proposed corridor.

The engineering field survey program facilitated an array of alignment indicators for the teams of social interviewers. Among these were six handheld Garmin 12XL GPS receivers complete with the alignment indicators, easement corridors and coordinated IP positions on 1:4,000 line sheets for guiding the Social Survey Teams along the corridor. The RTK GPS contributed greatly to flexibility, mobility and productivity of the program when compared to conventional survey methods, resulting in both a cost effective Engineering and Social Survey.

The Social Survey Team also used the GPS receivers to record the location of questionnaire entries as logged waypoints to assist in the data integration phase within the GIS program. Spatial data was formatted into the Project GIS (Arch View) and the transmission design environment in TLCADD. The textual data from the Social Survey was formatted into an Excel spreadsheet that was then integrated into the Project GIS, with linked nodes identifying the location of each affected landowner.

The GIS database will help immeasurably in planning and executing the Detailed Measurement Survey (DMS) updating social impact information once the detailed design is completed and the COI is staked out for initiation of the physical works. It will also be an important tool in both internal and external monitoring and evaluation (including ex-post evaluation) allowing the use of spatial mapping combined with socio-economic and Project impact data, including data on the movement of APs affected by relocation.

2.3.3 Route Selection

Prior to the mobilization of the field survey, every effort was made to avoid sensitive features such as pagodas, schools, natural physical obstacles and substantial structures. Apart from considerable field inspections, the primary source of information was the 1992-93 (1:25,000) aerial imagery. The criteria for final route selection were based on two principle issues, namely:

(a) The Requirement to Minimise Cost By:

- Minimising length of line
- Allowing access for construction
- Minimising sharp bends
- Considering flooding and foundation conditions
- Minimising road and rail crossings
- Minimising compensation requirements

(b) The Requirement to Minimise Environmental and Social Impacts By:

- Ensuring separation between the line and culturally sensitive areas such as temples, schools,
- Avoiding urban areas
- Minimising the need to remove/relocate houses and other buildings (in accordance with ADB's Policy on Involuntary Resettlement and World Bank OD4.12 Involuntary Resettlement)
- Avoiding forests, plantations and significant areas of tall vegetation where practicable
- Avoiding national parks, biodiversity conservation areas or similar areas.

There was little in environmental terms to differentiate between the alternative routes. All routes pass mainly through very flat terrain of rice fields and sugar palms. The routes were chosen to minimise the number of houses affected. During the detailed siting and survey of the route, the line was adjusted where practicable to minimise the number of houses affected and to completely avoid sensitive sites such as temples and schools.

Whilst the predominantly rural environment had not been subject to much change since 1992-93, the periphery of the major centres such as Phnom Penh and Takeo has expanded, especially into the west of Phnom Penh near the planned interconnection with the existing 115kV line. The dual circuit 115kV line connecting to west Phnom Penh required close inspection and realignment at a number of locations to avoid new developments.

Route options were analysed and ranked according to the above criteria to select the proposed route. Alternative connection points in Phnom Penh have been considered. The route has been considered in two parts, the:

- Northern section from Phnom Penh to Takeo town
- Southern section from Takeo town to Vietnam border

These are described below and shown on Figure 2-7.

2.3.4 Connection Point in Phnom Penh

Two options for the location of the connection point in Phnom Penh have been considered:

- Option 1: Connection to the existing substation GS2 on the southern side of Phnom Penh
- Option 2: Construction of a new substation to the southwest of Phnom Penh (named "West Phnom Penh" (WPP) in this report). The 220kV line would connect to this substation with a new 115kV line connecting this to the existing 115kV ring main around Phnom Penh.

The first option would have the lowest initial capital cost, as it connects to an existing substation. However, the route to the site is constrained by heavily built up areas along the roads, the Boeng Ansaong Andaet and Boeng Cheung Aek lakes to the south of GS2 and the Tonle Basak river to the east. The area to the north of GS2 is urban area. A transmission line to GS2 would therefore need to come in through heavily built up areas along the NH 2 (with resettlement and compensation issues), or across the lake in order to avoid the built up area (although considered technically feasible, this would have difficulties for foundations and construction conditions).

The second option of connection at a new WPP substation is the least cost option. This option has been proposed in order to provide for future growth of electricity demand due to industrial development in this area. This area is also less constrained by current development, being predominantly rice fields with industrial development along the main roads. This is expected to be the preferred option for electrical system reasons due to the logistics of power supply, overall least cost, easiest construction and better compatibility with long term development needs.

2.3.5 Northern Section: Phnom Penh to Takeo Town

For the northern section of the route from Phnom Penh to Takeo town, the following options were considered:

- Option 1: From WPP along the railway line to Takeo Town.
- Option 2: From GS2, following National Route 2 to Takeo:
 - Option 2A: From GS2, south-west across the Boeng Ansaong Andaet and Boeng Cheung Aek lakes, then across rice fields to the junction of National Routes 2 and 3, then following the eastern side of National Route 2 to Takeo Town
 - Option 2B: As for the previous option, but following the western side of National Route 2.
- Option 3: From WPP to the junction of National Routes 2 and 3, then following National Route 2 to Takeo Town.

The Route Options along National Route 2 would be set back from the road by several hundred metres in order to avoid effects on existing and future road-side development. The route along the railway would be set back approximately 250m to avoid electrical induction effects.

The preferred route is Option 1, following the Railway Line from WPP. This is the shortest distance and least effect on development. It is also at a higher elevation than along National Route 2, resulting in fewer difficulties from flooding for construction and foundations.

The analysis and ranking of Route Options for the section of the Transmission Line from Phnom Penh to Takeo town is summarised in Table 2-3. This was used to guide and assist route selection; it is based largely on judgement and should not be interpreted in purely quantitative terms. Weightings have been given to the criteria, with a smaller number assigned as the weighting indicating a more important criterion. A smaller total weighted score therefore indicates a preferred option.

TABLE 2-3: RANKING OF TRANSMISSION LINE ROUTE OPTIONS
(Northern section: Phnom Penh to Takeo)

CRITERIA	Weighting (see note 1)	From WPP (see Note 1) via railway (See Note 2) (Option 1)		From WPP (see Note 1) via east side of National Road 2 (Option 2A)		From WPP (see Note 1) via west side of National Road 2 (Option 2B)		From GS2 (see Note 1) via east side of National Road 2 (Option 3)	
		Unweighted ranking	Weighted ranking	Unweighted ranking	Weighted ranking	Unweighted ranking	Weighted ranking	Unweighted ranking	Weighted ranking
Access for construction	2	2	4	1	2	1	2	1	2
Distance Phnom Penh to Takeo town (see Note 3)	2	64	11	68	14	66	13	67	13
Minimise sharp bends	4	1	4	1.2	5	1.2	5	1.1	4.5
Flooding conditions	2	1	2	3	6	2	6	4	8
Minimise road or rail crossings (see Note 4)	4	1	4	1.2	5	1	4	1.1	4.5
Avoid urban areas (see Note 5)	3	1	3	2	6	2.5	7	2	6
Avoid villages, houses	3	1	3	2	6	3	9	2	6
Avoid lakes	2	1	2	1	2	1	2	3	6
TOTAL WEIGHTED SCORE (see Note 6)	-	-	33	-	46	-	48	-	50
Notes for table: 1. For weighting, 5=criteria of less importance; 1= criteria of higher importance. 2. WPP= proposed West Phnom Penh substation; GS2= existing GS2 substation. 3. Distance of line has been calculated from Takeo town to substation (either WPP or GS2). Distance of 115kV line to connect from WPP to existing Phnom Penh ring main has been calculated at 50%, reflecting the cost relative to the 220kV line. The weighted score has then been divided by ten to keep it in proportion with the overall score. 4. The number of road or rail crossings has been adjusted to keep the result in proportion to the overall score. 5. Temples and schools will be completely avoided in siting the transmission line. 6. The preferred option is indicated by the lowest total weighted score. This was used to guide and assist route selection; it is based largely on judgement and should not be interpreted in purely quantitative terms.									

2.3.6 Southern Section: Takeo Town to Vietnam Border

The southern section of the transmission line route from Takeo town to the Vietnam border is planned on the basis of a connection to the Vietnam grid at Chao Doc. The following three options have been considered for the transmission line route:

- Option 1: Along National Route 2
- Option 2: Directly across the flooded grassland areas from Takeo town, crossing the border adjacent to Chao Doc
- Option 3: Along the canal running east from Takeo town, past Angkor Borei to the Viet Nam border.

The preferred route for the southern section of the line is Option 1, along National Route 2. The other options are not recommended due to access, construction, foundation conditions and possibly environmental issues. Therefore the route selection for the southern section of the route is a clearer choice.

2.4 PROJECT IMPACTS

The primary social impacts from the transmission line will be the permanent relocation during construction of households and dwellings and other buildings presently located within the COI, and land use restrictions within the COI during operation. Impacts on land and property arise from the need to acquire land, establishment of the COI, and construction and operation of the Project.¹²

2.4.1 Land Acquisition

2.4.1.1 Overall Land Acquisition Impacts

There are no effects on indigenous or other ethnic minorities, as all of the Affected Persons (APs) are of Khmer ethnicity, which make up some 96% of Cambodia's population. Nor are there impacts on cultural property such as temples. Therefore no action is required under ADB's Policy on Indigenous Peoples or World Bank Operational Directive 4.20 or Operational Policy 4.11 Cultural Property.

The total area of land within the 30m COIS for both the 220kV and 115kV is approximately 386 ha (30m x 128.5km) and possibly around 432ha including parts of parcels of land that extend outside the COI. The inventory identified 3,198 PAFs who will experience '*resettlement effects*,' that is will be directly affected by the Project in terms of construction disturbance of agricultural land within the COI and also by the two substations at WWP and TSS. Those APs who may be considered Seriously Affected Persons (SAPs) are some 149 (140 on 220kV COI and 9 on the 115kV COI) whose structures (all but one are residences) that will need to be relocated, about 16% within the same plot of land and 84% to another plot of land within the same village. Similarly, 15 APs whose land is being acquired for the WWP and TSS substations may be considered SAPs, bringing the presently verifiable number of SAPs for both the 220kV and 115kV COIs and associated substations to 164¹³.

For ADB's involuntary resettlement policy, a *significant* resettlement effect means 200 people or more will experience major impacts. "Major" impacts being, according to both ADB and World Bank's 'best practice' threshold for determining whether or not a full resettlement plan is required, physical displacement from housing and/or 10% or more of the household's productive assets.¹⁴ A *Full Resettlement Plan* is presented here to take into account the possibility that the results of the Detailed Measurement Survey (DMS) will indicate conclusively that the resettlement effects on the entire displaced population are 'significant' according to ADB and World Bank criteria.

The ADB and World Bank's best practice for determining severity of impact upon individual households is physical displacement from housing and/or 10% or more of the household's productive, income generating assets lost. A number of APs among those losing an estimated 7,300 economically valuable trees, primarily sugar palm, along the COIs may possibly be considered SAPs although this may only really be determined once the COIs are actually pegged out by the Contractors. Many of these in any case are likely to be the owners of residences

¹² Secondary potential social impacts may include economic benefits from local employment and from the provision of goods and services to the workforce.

¹³ Note that (a) the numbers of SAPs quoted here are the revised numbers consequent to the RCS (2003) and not the original 2000/2001 numbers and (b) in this instance the term AP or SAP refers to a family group, not an individual, in accordance with the definition on page vi.

¹⁴ Reference ADB's OM50 currently under revision and WB's OD 4.12. Until the final design and actual 'pegging out' of the ROW it is difficult to discern the actual percentage of a given household's productive assets, for example, trees that will be affected.

requiring relocation, as the trees tend to be clustered around built up residential areas.

These estimates are based on construction activity being restricted to the COI and substation boundaries. Any additional disturbance outside the defined area will also require compensation. The requirement for, and location of, any access roads or other land requirement such as storage areas, borCOI pits, works areas, etc will be determined during the Project's design and construction stage. It will be necessary at that stage to identify any other APs and ensure mitigation and compensation measures are provided.

2.4.1.2 ADB-Financed 220kV Transmission Line and Substations

(a) 220kV Transmission Line

Land Acquisition for Transmission Line Towers: The establishment of the 220kV COI will not in itself require 'land acquisition,' in the sense of alienating APs from their current agricultural use of the land. Rather it is a legal mechanism to allow EDC to have access for the construction and operation of the transmission line, and to have land use controls for the safe operation of the line, such as requiring the removal of trees and structures. Other compatible land uses such as farming of ground crops will be allowed to continue. As a result, for the majority of APs along the transmission line COIs, the land acquisition will have little long-term effect on their current farming of the land.

The area acquired for a tower will usually comprise a small proportion of the plot of land on which the tower is located. Land acquisition at each of the estimated 370 tower sites for the 220kV transmission line has been assumed to be 100 m² (8 m square plus 1 m outside), totalling 3.7 ha for the entire line, although the actual area will be dependant upon the final design. Among total acquired land, 91 percent will be paddy land. The footprint of each tower will only occupy the four footings of the structure, estimated at 4 m² per footing (16m² per tower). The tower footprint area will total 0.6 ha for the 220kV line, with cropping or grazing (but not tree cultivation) permitted on the remaining acquired land. Accordingly, only one sixth of the total acquired land will have a land use change.

All landowners who will have land acquired for towers will only have a single site acquired. In other words, for the acquisition of 3.7 ha land area, a total of 370 households and 1,850 persons would be affected based on 5 persons per household. The actual paddy land area acquired for a 220kV tower from an average "small" landholding (2,500 m²) is likely to total only 4% of the total landholding (100 m² of 2,500 m²). Land acquired for a tower on a house block is likely to be a more significant proportion of this household land type. The average yard area is estimated to be 250 m², therefore acquisition of 100 m² for a tower would amount to 40% of the house block.

Table 2-4 summarizes the APs found along the 220kV COI, consisting of a total of some 371 ha.¹⁵ Some 2,661, or 91%, of cases surveyed in the Census carried out 2000-2001 were APs owning rice farmland. Some 20 APs owned structures will require relocation. The rest of the AP cases, some 133, or 5%, appear to be various forms of public or institutional ownership.¹⁶

¹⁵ This is about 86% of the total 432 ha within the 128km ROW for both 220kV and 115kV Transmission Lines, 110km for the 220kV and a total of 18km for the 115kV (two lines each approximately 9km).

¹⁶ It may be noted that at least one sociological study of Khmer culture has noted a relative paucity of village communal land. Jan Ovesen, Ing-Britt Trankell, Joakim Ojendal. 1996. *When Every Household is an Island: Social Organization and Power Structures in Rural Cambodia*. Uppsala University: Uppsala Research Reports in Cultural Anthropology, No. 15. p. 67.

TABLE 2-4: TYPE OF LAND AND APs WITHIN 220kV TRANSMISSION LINE COI

Type of Land	Number of APs	Percent	Number of SAPs
Farming	2,661	95	-
Residential		-	127
Government Land	15	0.5	-
Forest Land	15	0.5	-
Public Ponds/Lake	7	-	-
Leased	5	-	-
Company Land	2	-	-
Bush	3	-	-
Other ¹⁷	86	4	-
Total	2,794	100%	127

Note: These numbers were compiled from the 2000/2001 Census. The 2003 RCS identified 140 SAPs

Structure Displacement by 220kV Transmission Line. Table 2-5 indicates the locations along the 220kV COI of the 140 AP structures (all but one are residences) that will need to be relocated, in 38 villages, of 19 communes, in 9 districts within Phnom Penh Municipality and Kandal, Kompong Speu, and Takeo Provinces. The structures are listed as they occur along the chainage from WWP southwards to the Vietnamese border and are identified by IP points along the transmission line.

The removal or relocation of houses and other buildings from within the 30m COI is required for reasons of electrical safety. The requirement to remove buildings generally occurs where the line crosses side roads with strip development on either side of the road and it is impractical to avoid buildings completely.

In some cases it will be possible to relocate buildings on the same plot of land. Even where it is required to relocate to a new plot of land, it is expected that as only a small number of houses are involved at each location, it will be possible to relocate nearby and at least within the vicinity of same village. There is therefore no need for development of a resettlement site with community infrastructure and no concerns with respect to any host population in the resettlement area. At the time of the DMS, when pegging is carried out and building relocation is confirmed, the Project will consult each affected community to identify land availability and how the necessary land would be made available.

¹⁷ This included 46 'Not Owned' and 40 'Unspecified.' Clarification of the meaning of these terms will need to take place at the time of the DMS.

TABLE 2-5: HOUSES TO BE RELOCATED ON THE 220kV COI

	PROVINCE	DISTRICT	COMMUNE	VILLAGE	HOUSES		
					Total	Relocate	Move Back
WPP							
IP1	Kandal	Ang Snoul	Beng Thom	Beng Thom 3	2	1	1
	Kandal	Kandal Stung	Deum Rues	Krang Chake	1		1
IP4	Kg Speu	Kong Pisei	Preah Nipean	Prey Toteung	3	3	
IP5	Kandal	Kandal Stung	Tbeng	Chrolong	3	3	
IP8	Takeo	Bati	Tropeang Sab	Prech	1	1	
	Takeo	Bati	Tropeang Sab	A Cheang	1	1	
	Takeo	Bati	Tropeang Krosang	Thlork	6	6	
	Takeo	Bati	Tropeang Krosang	Rolaeng	5	4	1
	Takeo	Bati	Tropeang Krosang	Romdoul	8	6	2
	Takeo	Bati	Tropeang Krosang	Yeam Khao	5	4	1
	Takeo	Somrong	Roveang	Teuk Ambel	6	5	1
	Takeo	Somrong	Roveang	Prey Kcheay	3	2	1
	Takeo	Somrong	Chumreas Pen	Sneng Romaeng	4	4	
	Takeo	Samrong	Chumreas Pen	Ta Yeung	3	2	1
	Takeo	Samrong	(Roveang)	Veay Chneas	1	1	
	Takeo	Samrong	(Chumreas Pen)	Prey Klar	4	4	
	Takeo	Samrong	Samrong	Krang Ror Oat	1	1	
	Takeo	Samrong	Seung	Tropeang Prey	2	2	
	Takeo	Samrong	Seung	Ang Kdey	5	4	1
	Takeo	Samrong	Beng Krahn South	Ta Som	6	6	
	Takeo	Samrong	Beng Krahn South	Beng Krahn	4	3	13
IP9	Takeo	Samrong	Beng Trahn South	Mohareach	6	6	
	Takeo	Samrong	Lomchang	Svay Prey	2	2	
IP10	Takeo	Daun Keo	Roka Knong	Prey Prom	1	1	
	Takeo	Daun Keo	Roka Knong	Chres	1	1	
	Takeo	Daun Keo	Roka Knong	Au Svaychake	2	2	
IP11	Takeo	Dong Kor	Roka Knong	Kseung	1	1	
TSS	Takeo	Daun Keo	Roka Knong	Sambour	6	6	
	Takeo	Daun Keo	Roka Krao	Prahote	4	2	2
IP13	Takeo	Daun Keo	Roka Krao	Tropeang Sala	1	1	
	Takeo	Daun Keo	Roka Krao	Koh Khmong	1	1	1
	Takeo	Treang	Prey Sleuk	So Chan	1	1	
IP14B	Takeo	Treang	Ang Knur	Kor	4	4	
	Takeo	Treang	Prambey Mom	Tropeang Leuk	1	1	
	Takeo	Treang	Prambey Mom	Por Nhea Leu	16	11	5
	Takeo	Treang	Prambey Mom	Prey Chheuteal	4	3	1
	Takeo	Treang	Trolach	Poan	7	6	1
	Takeo	Treang	Trolach	Tropeang Chhuk	5	5	
IP15	Takeo	Kos Andet	Pechorsa	Ta Bour	2	2	
					139	119	20

Although it is difficult to know exactly how much of a given structure abuts into the COI until the final pegging is carried out, it is currently estimated that approximately 16% of the structures can be moved out of the COI within the same block of land. Therefore other infrastructure on these sites can continue to be used. For the other estimated 84% of the relocated structures, there is not sufficient space to move the house out of the COI within the same block of land. These will therefore require a new block of land and replacement of associated infrastructure. There is one commercial scale chicken farm that will be affected at Krang Chake village, requiring the relocation of a chicken shed within the same site. No other businesses will be affected. This facility was difficult to avoid due to its location in the bend of a river with alternative routes nearby likely encountering difficult foundation conditions and also likely to affect other built up areas in the vicinity, causing a greater number of structures to be displaced.

One type of impact that is often relevant to projects involving resettlement is the impact on the host community that is to receive the resettled people. For this Project, only one village (Por Nhea Leu, in Treang District) has more than a few houses requiring relocation. Apart from this, it will be practicable to relocate houses within the same village, and this is a requirement of the RAP, but as land for land will not be possible it will depend on where APs buy replacement land. Therefore the concept of impacts on host communities does not apply to this Project.

Removal of Trees from within the 220kV COI. Although farming of ground crops such as rice can continue beneath the transmission line, removal of trees from within the 30m COI will be required to prevent the possibility of a tree falling on the transmission line. Individual trees located outside of the COI, which present a danger of falling on the line, will also need to be removed.

Some 7,112 trees, about 98% of economic value to AP households, are estimated to be required to be removed from the 220kV COI (Table 2-6). Of course, it is very difficult to know for sure how many of these are actually within the COI and how many simply reported by APs as owned, and this won't be known for sure until the pegging is done by contractors.

It is difficult to know the economic value of trees for individual AP households without further research. It is clear that each household has a kind of 'horticultural garden' of assorted trees, sugar palm, coconut, mango, papaya and a variety of local trees that provide a wide range of food and other cultural and economic values, including leaves for flavouring of local dishes to roofing materials for domestic use or sale in local markets. Impacts of the COI will be particularly felt in built up areas not only for plots of land where AP residents will be required to move but also in plots the COI crosses where the main residence may not be required to move but a proportion of the families trees will need to be removed from the COI nevertheless.

It is proposed that during the Detailed Design further study of the income value of trees be carried out to assess the income loss from trees along the COI and, as appropriate and feasible, an income restoration strategy devised, using to the extent feasible international and local NGOs to assist in the effort to make up for lost income due to tree loss along the COI, for families that might be more severely affected. It is clear that a number of NGOs are working in the communities the COI crosses, many of them apparently with Khmer women, who have a proven track record in entrepreneurial activity within Cambodia, in various self-help savings schemes. It is very likely that these efforts may provide the basis for an income restoration strategy for loss of trees due to the 220kV COI requirement that trees over 3m will be restricted throughout the operation period.

TABLE 2-6: ESTIMATED TREES TO BE REMOVED FROM 220kV TRANSMISSION LINE COI

	Tree	APs	No. Trees	Percent (Trees)
1	Sugar Palm	488	2,769	39
2	Mango	175	932	13
3	Banana	29	680	10
4	Coconut	96	473	7
5	<i>Deum Krosang</i>	83	257	4
6	Bamboo	88	230	3
7	<i>Deum Ampel</i>	60	189	3
8	<i>Deum Trobek</i>	39	182	3
9	<i>Deum Pring</i>	64	165	2
10	<i>Deum Ankgan</i>	15	161	2
11	<i>Deum Teum Khmer</i>	22	147	2
12	Eucalyptus	22	140	2
13	<i>Deum Sanker</i>	21	115	2
14	<i>Deum Tompong</i>	1	88	1
15	<i>Deum Knul</i>	17	76	1
16	Deum Sdao	34	85	1
17	<i>Deum Sleng</i>	3	53	1
18	<i>Cheu Teal</i>	6	53	1
19	<i>Deum Kor</i>	14	48	1
20	<i>Deum SroKei</i>	3	34	-
21	<i>Svay Chanty</i>	5	26	-
22	<i>Deum Breng Kcol</i>	3	17	-
23	Papaya	5	15	-
24	<i>Deum Trach</i>	5	15	-
25	<i>Deum Mean</i>	4	12	-
26	Orange	2	10	-
27	Lemon	5	8	-
28	Guava	2	4	-
29	Misc (30 Varieties)	52	128	2
	Total Trees		7,112	100

(b) West Phnom Penh and Takeo Sub-Stations

Unlike the transmission line COI, the land acquisition for the substations can be considered to have a serious affect on the APs involved, as the land take involves a considerable proportion of their agricultural land holdings, though unlike the transmission line no structures *per se* will be affected. Altogether some 4.5 ha of land in 23 plots will be acquired from 15 APs, plus an additional 0.7 ha for access roads to the substations, taking a possible one third of median landholdings, for a total of 5.2 ha.

Based on detailed census survey, such land acquisition will affect 23 households and 87 persons. All acquired land areas are farmland. In average, the land acquisition would account for about 30 percent of their total farmland holding, with 37 percent for WPP site and 22 percent for TSS site. Both areas appear rural but are actually peri-urban, and therefore locational factors may need to be considered in determination of compensation rates, in addition to land productivity.

The design of these facilities will be finalised by the contractor incorporating operational and safety requirements. The substations will be designed to allow future expansion, in particular the connection of a 220kV line from Kampot into the Takeo Substation and the duplication of the 220kV line between Takeo and WPP Substations. The substations will be constructed on an earth foundation pad that is at least 0.3 m higher than the annual flood level.

This will require an average of 1.0 m of compacted fill at both sites, amounting to total fill volumes of 45,000 m³ and 15,000 m³ at the WPP and Takeo substation sites respectively. An earth mat will be laid out at each substation, then backfilled. Earth fill may be taken from pond development sites for local households or communities but will probably require payment by the contractors preparing the facility foundations.

WPP Land Acquisition: The West Phnom Penh Substation¹⁸ (WPP) will requiring 3.0 ha of what is currently agricultural rice land (no houses), though while the area is classified in the 1998 Census as rural, it is actually in a peri-urban setting close by industrial development to the south west of Phnom Penh. The WPP will permanently acquire land from 9 APs within Phnom Penh Municipality, at Kob Pluk village, which is within Cheh Roteh Commune, under Don Kor District. This will be about 0.4 ha from each AP. The area of rice land reported among APs surveyed in the Preliminary Socio-economic Survey of 2000-2001 ranged from 8 to 480 are¹⁹ (0.08 to 4.8 ha), with a median of 0.5 ha per land-owning family, so this could take about 80% of an individual AP's rice land holdings. However, most of the APs have multiple holdings of padi land. (Appendix E)

TSS Land Acquisition: The Takeo Substation (TSS) will acquire 1.5 ha of rice land from 7 APs in Sambour Village within Takeo Province, in Roka Knong Commune within Daun Keo District. Although the area appears to be rural in nature, it is classified as urban in the 1998 Census, and so is considered to be a part of Takeo Town. The land take for each AP is only 0.2 ha, about 20% of a median holding. As for WPP, most of those affected have a number of padi lots (Appendix E)

¹⁸ The WPP substation incorporates control facilities and 3 x 200 MVA main transformers at a ratio of 220/115/22 kV, whilst Takeo sub-station incorporates 2 x 16 MVA transformers at a ratio of 220/22 kV.

¹⁹ 1 are = 0.01 hectares (ha) or 100 square metres (m²)

TABLE 2-7: SUBSTATION LAND ACQUISITION

Substation	Land Acquisition (ha)	APs	ha/AP
WWP	3.0	8	0.4
TSS	1.5	7	0.2
Sub Total	4.5	15	0.3
Access Roads	0.7	-	-
Total	5.2	15	0.4

Notes: There are 23 parcels of land involved (11 in WPP and 12 in TSS), but because of multiple ownership only there only 8 APs at WPP and 7 at TSS.

All APs are potential SAPs, but they own multiple plots and the assessment can not be finalised until the detailed design is complete and the DMS carried out.

2.4.1.3 World Bank-Financed 115kV Transmission Line(s)

Land Acquisition for Transmission Line Towers and COI: Land acquisition at each of the estimated 100 pole sites for the 115kV Transmission Line will be 4 m² (2 x 2 m), potentially totalling 0.04 ha (400 m²) for all poles within the COI. This amounts to less than 0.1% of the 56 ha COI. It should, however, be noted that actual acquisition may be about half of this amount, as much of the two 115kV lines is located within existing road easements where the placement of poles will have no effect on private landowners. Some 241, or 88%, of cases surveyed in the AP Census carried out 2000-2001 owned rice farmland and another 13 (5%) unspecified, though probably also owners of rice farmland. Two-thirds of APs owned structures (9 houses) that will require relocation. The rest of the AP cases, some 12, or 5%, appear to be various forms of public or institutional ownership.

Table 2-8 summarizes the APs found along the 115kV COI, owning of a total of some 61 ha. Some 241, or 88%, of cases surveyed in the Census carried out 2000-2001 were APs owning rice farmland and another 13 (5%) unspecified, though probably also owners of rice farmland.

TABLE 2-8: TYPE OF LAND AND APs WITHIN 115kV TRANSMISSION LINE COI

Type of Land	Number of APs	Percent	Number of SAPs
Farming	241	91	-
Residential	-	-	9
Government Land	5	2	-
Chinese Grave	1	0.25	-
Hill	1	0.25	-
Public Pond	1	0.25	-
Other ²⁰	17	6.25	-
Total APs	266	100%	9

Structure Displacement by 115kV Transmission Line. Table 2-9 indicates the locations along the 115kV COI of the 9 AP residents that will need to be relocated. One of these is on the northern 9km Transmission Line, in Toul Kei Village, Phleung Cheh Roteh Commune, Dong Kor District, in Phnom Penh Municipality. The other 8 are found in 5 villages (Domnak Troyeung, Prey Thom, Prey Tituy, Prey Sor West, and Koul Pung Ror) in two communes (Chaum Chao and Prey Sor, also of Dong Kor District in Phnom Penh Municipality. The structures are listed as they occur along the chainage from WWP northwards and southwards along the two lines and are identified by IP points along the Transmission Line.

As with the 220kV Transmission Line, the removal or relocation of houses and other buildings from within the 30m COI is required for reasons of electrical safety. The requirement to remove buildings generally occurs where the line crosses side roads with strip development on either side of the road and it is impractical to avoid buildings completely.

TABLE 2-9: STRUCTURES TO BE RELOCATED ON THE 115kV COI

	Municipality	District	Commune	Village	Houses
115kV Northern Line					
WPPA					
ICA1	Phnom Penh Municipality	Dong Kor	Phleung Cheh Roteh	Toul Kei	1
115kV Southern Line					
WPPB					
ICB5	Phnom Penh Municipality	Dong Kor	Chaum Chao	Domnak Troyeung	3
ICB5			Prey Sor	Prey Thom	2
ICB5			Prey Sor	Prey Tituy	1
ICB8			Prey Sor	Prey Sor West	1
ICB11			Chaum Chao	Toul Pung Ror	1
Total					9
Note: Of these, only three, one each in Toul Kei, Prey Thom and Toul Pong Ror villages can be relocated on the existing block					

²⁰ This includes 13 'Unspecified,' 3 'Not Owned,' and 1 'Empty.' Clarification of the meaning of these terms will need to take place at the time of the DMS.

In three cases it will be possible to relocate buildings on the same plot of land. Even where it is required to relocate to a new plot of land, it is expected that as only a small number of houses are involved at each location, it will be possible to relocate nearby and at least within the vicinity of same village. There is therefore no need for development of a resettlement site with community infrastructure and no concerns with respect to any host population in the resettlement area. At the time of the DMS, when pegging is carried out and building relocation is confirmed, the Project will consult each affected community to identify land availability and how the necessary land would be made available, on a case-by-case basis, after the DMS and once the needs are confirmed. It is anticipated that “cash for land” will be the most practical option and that APs will be able to buy other land within the same village.

Removal of Trees from within the 115kV COI. Although farming of ground crops such as rice can continue beneath the transmission line, removal of trees from within the 30m COI will be required to prevent the possibility of a tree falling on the transmission line. Individual trees located outside of the COI, which present a danger of falling on the line, will also need to be removed.

Some 184 trees, all of which are of economic value to AP households, are estimated to be required to be removed from the 115kV COI. Of course, it is very difficult to know for sure how many of these are actually within the COI and how many simply reported by APs as owned, and this won’t be known for sure until the pegging is done by contractors.

TABLE 2-10: ESTIMATED TREES TO BE REMOVED FROM 115kV TRANSMISSION LINE COI

	Tree	Households	No. Trees	Percent (Trees)
1	Sugar Palm	26	67	36
2	Mango	3	15	8
3	Banana	0	0	-
4	Coconut	5	21	11
5	Deum Krosang	5	20	11
6	Bamboo	2	3	2
7	Deum Ampel	2	4	2
8	Deum Trobek	2	7	4
9	Deum Pring	6	11	6
10	Deum Ankang	0	0	-
11	Eucalyptus	3	11	6
12	Deum Teum Khmer	0	0	-
13	Deum Sanker	2	11	6
14	Deum Tompong	0	0	-
15	<i>Deum Knul</i>	1	12	8
16	Deum Sdao	0	0	-
17	<i>Deum Sleng</i>	0	0	-
18	<i>Cheu Teal</i>	0	0	-
19	<i>Deum Kor</i>	0	0	-
20	Deum SroKei	0	0	-
21	Svay Chanty	0	0	-
22	Deum Breng Kcol	0	0	-
23	Papaya	0	0	-
24	Deum Trach	1	1	-
25	Deum Mean	0	0	-
26	Orange	0	0	-
27	Lemon	0	0	-
28	Guava	0	0	-
29	Misc (30 Varieties)	1	1	-
	Total Trees		184	100%

2.4.1.4 Summary of the Main Scope of Resettlement Impacts

Table 2-11 provides a summary of the main scope of resettlement impacts. According to the survey and estimate, a total of 634 households and 3,525 persons would be affected by land acquisition and relocation, including 485 households and 2,680 persons to be affected by land acquisition, and 149 households and 845 persons to be affected by removing of their structures. (This does not include all those who might be affected by temporary land occupation and removal of trees.) Among 149 structures to be removed, 3 are American style, 64 as Kantang A1, 49 as Kantang A2, 10 as Pet B1, 18 as Pet B2, 1 as Pet

B3, and 4 as others, including one chicken farm, two empty lots and one public pond. The total demolished floor space amounts to 4,987 square metres, averaging 33 square metres per house. Among total acquired land area, 96.3 percent are paddy land and 3.7 percent as residential land or other lands.

2.4.2 Temporary Effects during Construction

There will be a number of temporary effects during construction, including:

- Land and crop disturbance within the COI
- Damage to communal resources such as roads, drainage and irrigation facilities
- Disruption to people and businesses, particularly due to the requirement for relocation
- Effects on businesses including income and employment.
- Access along the COI.
- Areas for storage of materials and equipment.

2.4.2.1 *Land and Crop Disturbance within the COI*

The likely impacts on APs from crop damage during construction and interference with field preparation and planting: will be dependent on a number of factors, especially the yield of rice (tonnes per hectare) and the market price for the rice. Construction activity will damage crops and interfere with field preparation and related farm work, depending on the timing of construction with respect to timing of farm work. Tentative construction fieldwork scheduling along the COI is shown on Table 2-11.

Table 2-11 sets out durations of tasks, but these may not necessarily follow consecutively. For example, a field may be occupied for tower construction for an extended period. Survey and pegging are not particularly disruptive, but once the excavation begins the field (or the portion of the field occupied by the tower) would be unusable during excavation, the period between excavation and foundation concreting, then the period prior to and then during tower erection. Additionally, the contractor will require access to tower sites from the nearest public road, but he will be required to keep to a 3 m wide strip along the centre line of the line. Once the tower is erected the field could return to use, with relatively minor disruption during stringing and tensioning. In the worst instance, this disruption period could extend across a wet season if the excavation and concrete were completed just prior to the onset of floods and the contractor waited until the dry season to erect the tower steelwork.

It is possible that construction could be timed to avoid damage, however this will be difficult to manage and may increase the cost of construction. In addition the cost and complexity of monitoring would significantly increase. Therefore this RAP makes budget provision for payment of compensation for crop damage for all farmers in the COI, with the amount provisional on actual circumstances.

2.4.2.2 *Damage to Fields, Bund Walls, Communal Property, Temporary Relocation, Business Loss, Occupation of Storage Areas, etc.*

Temporary damages can be multiple -- for instance damage to fields, bund walls (highly localized and small), communal property, temporary relocation, business loss, and occupation of storage areas -- and will be the financial responsibility, as per contract agreement, of the contractor(s).

TABLE 2-11: ESTIMATED DURATION OF CONSTRUCTION ACTIVITIES

Activity Likely to Cause Crop Disturbance in COI	Estimated Time
Survey of Tower Plots	
Profiling a Tower Plot	5km per day
Submitting Profile and Tower Schedule	2 days
Approving Tower Schedule	2 days
Arranging Access for Clearing Tower Sites	15 km per week
Tower Foundations	
Excavating Foundations	8 towers per day
Concreting Foundations	6 towers
Backfilling Foundations	15 towers per day
Installing and Testing Tower Earthing	10 towers per day
Tower Erection	
Hauling Steel from Storage Dump to Peg	8 towers per day
Assembling Steelwork	8 towers per day
Erecting Towers (0.2 weeks)	6 towers per day
Inspecting Towers	15 towers per day
Stringing	
Setting up Blocks and Drums	10 km per week
Pulling Pilot Wires	15 km per week
Running Overhead Electrical Wires (OHEW)	15 km per week
Running Conductors	6 km per week
Sagging and Clamping OHEW	15 km per week
Sagging and Clamping Conductors	6 km per week
Installing Jumpers	10 km per week
Installing Anti-Climbing devices	10 days
Inspection	15 days
Fitting Tower Safety Signs	20 days
Cleanup of Sites	20 days
Final Inspection	20 days
Reinstatement of Bund Walls and Erosion Control	15 days

This is important to provide incentive to contractors to keep this damage as minimal as possible. Similarly, compensation for on-going impacts during maintenance activity is not included in the RAP, as this is outside the scope of the Project implementation. Cost of ongoing maintenance is expected to be small, consisting of possible damage to crops and ground while accessing the line. As

with the construction phase, this will be built into the Maintenance Contract by requiring the contractor to make good any damage caused.

Although paying for temporary damage and financial (business) losses and replacing communal and other infrastructure is the responsibility of the contractor(s), damage to fields, bund walls, etc has been estimated for reference, but not for inclusion in the RAP budget. The estimation was based on the farm labour rate for manual earthworks of 3,500R/m³, which converts to the same amount per linear metre for bund walls of 1m height and 1 depth, or approximately US\$30 for a bund wall across the 30m width of the COI. Assuming each field has bund walls traversing the width of the COI and there also walls running longitudinally, an amount of \$50 have been nominated for each farmer for repair of earthworks.

The contractor's responsibility does not include damage to the growing area of the field itself as it is assumed that the ploughing normally done each year by the farmer will address this. The contractor will carry out repairs to other infrastructure. These provisions will be built into the contract requirements. For local public roads, such as village roads damaged by the transport of heavy equipment such as transformers into the substations, it is assumed that about 5 km of road will need to be repaired at a nominal rate of US\$2/linear metre, and this too will be the contractor's responsibility, as per their legal obligations, and not included in the RAP budget.

Compensation and restoration by the contractor will be carefully monitored by the PIC and IMO.

2.4.3 Project Detailed Design Phase

It should be noted that Project impacts described above are based on the current definition of the route to the level of detail required for the Feasibility Study. The Project's Detailed Design Phase will involve specific siting of the route's towers and adjustment. This is likely to result in changes to the location of the transmission line, which will consequently change the particular land, buildings and people directly affected by the Project. It also presents a further opportunity to seek to reduce impacts in the final adjustment of the line. It will therefore be necessary to repeat the AP inventory, or Detailed Measurement Survey (DMS), after the final design has been prepared.

Furthermore, the detailed determination of impacts (including their nature, extent, duration and location) depends on the techniques and schedule adopted by the construction contractor. This can be anticipated to a certain degree on the basis of experience, but is ultimately determined during the tendering and contracting process. Implementation requirements have been included in this RAP, corresponding to the anticipated construction methods. These requirements will be included as part of the tender specification and contracting process. These requirements include:

- Construction activity, including access, to be confined to the COI, using existing roads. No permanent roads to be constructed for access to the COI, though some temporary tracks through paddy and other lands will be required. It is considered that this requirement is practicable, but requires good planning and control by the contractor. However if the construction activity or access impact on land outside of the COI, then compensation will need to be provided to the additional APs who have not been identified in the APs inventory. This will need to be monitored as part of the implementation process.
- Every effort will be made to schedule construction outside of the growing season (including field preparation, planting, harvesting and other agricultural activity) in order to minimise impacts on crops. People farming in the COI

need to be given sufficient notice of the construction schedule so that they are able to manage their farming activities so as to minimise losses and avoid wasting time and resources on planting crops which will be destroyed by construction activity. In addition it needs to be communicated to farmers who will and will not get compensation. For example, farmers just outside the COI who will not get compensation need to understand that they should proceed with their farming as usual.

- Construction will be carried out so as to minimise damage. This will include preparation of a Construction Environmental Management Plan (EMP) including social aspects, incorporation of environmental and social requirements in the contract, and monitoring construction to ensure compliance, and financial penalties on the contractor for non-compliance. Consideration shall also be given to minimising the use of heavy machinery in order to minimise damage (this is also likely to have benefits in terms of employment generation). (The Construction EMP needs to be tailored to the techniques and equipment to be used by the contractor, and vice versa). The preparation of the Construction EMP shall be the responsibility of the construction contractor, and shall be prepared/authorized by a person with qualifications and experience in environmental management for construction projects. The approval of the Construction EMP shall be the responsibility of the PMOs 1 & 2.

The economic cost of these effects has been calculated based on the required mitigation and compensation measures required to ensure APs are able to maintain their pre-project livelihoods.

2.4.4 Measures Proposed to Minimise Project Impacts

A range of measures have been proposed in the Initial Environmental Examination (IEE) (May 2003) to avoid and mitigate adverse bio-physical environmental impacts. These measures include:

- Incorporation of EMP measures into design and construct tender documents.
- Tree clearance within and adjacent to the COI to provide safe conductor clearance will be minimized, with trees pruned in preference to removal where they will survive.
- No permanent access roads will be constructed, with temporary tracks only installed for the duration of construction at each site and primarily located within the COI.
- A crop disturbance allowance will be paid to affected landowners based on the area of crop disturbed, average yield and fair market price for grain.
- Bunds, canals or other features disturbed during construction will be reinstated by the contractor as soon as activities at each site have been completed.
- Construction activities on cropping land will be timed to avoid the disturbance of field crops within one month prior to harvest wherever possible.
- Creating or improving local ponds or drains to win fill material for substation foundations, undertaken with the agreement of local communities.
- Marker balls or similar will be considered in final design at key locations to improve the visibility of conductors and thereby lower the aviation hazard.

- Construction activities involving significant ground disturbance (i.e. substation land forming) will not be undertaken during the monsoon season (mid May to October).
- Substation embankments and other sites with an erosion hazard will be topsoiled and revegetated immediately following site construction.
- Construction activities will only be undertaken during the day and local communities will be informed of the construction schedule in advance.
- Temporary concrete batching plants will be located away from residences where possible.

Measures will also be sought to maximise Project benefits to the communities in the project area, such as through facilitating local employment and training in construction. This is outside the scope of this RAP but effort should be made in association with the design and construction.

3 SOCIOECONOMIC INFORMATION

3.1 DATA COLLECTION

Information is updated from that which was contained in the original RRAP of March 2001²¹. The data for the 2001 RRAP was collected on those aspects of the social environment likely to be affected by the Project. The information was collected through the following:

- Review of relevant available literature
- Discussions with Government and Non-Government Organisations involved in land and development issues in the area
- Preliminary field surveys and interviews in the Project area conducted by the Cambodian counterpart team (R&N Engineering), during August 2000
- Engineering Survey of the route and preparation of maps, during October and December 2000
- An AP Census (100% of APs) and Socio-Economic Survey (25% of APs), prepared during October-November 2000 and January-February 2001

The findings were used in the following aspects of the Project:

- Selection of Transmission Line Route to minimise impacts
- Estimation of total cost of compensation
- Preparation of the Project's Phase I Report
- Development of Policy for Resettlement and Compensation
- Preparation of preliminary Social Assessment report
- Development of RRAP
- Preparation of AP Census and schedule of compensation entitlements

The main content of the earlier, 2001 RRAP, is retained in this updated RAP, based on review and comments by both the ADB and World Bank of the 2001 document made in February 2003. The outline organization has been changed to reflect more closely the ADB's *Handbook on Involuntary Resettlement* (1998) and this RAP relies also on a new field survey conducted April-May 2003 carried out to ascertain if there have been changes along the COI such as new house construction and to determine market (replacement) prices for structures, land and other assets in order to update the RAP budget.

The socio-economic data presented in the 2001 RRAP relied primarily on the 'Preliminary Social Survey' data of 118 households that preceded a longer 100% Census and 25% Socio-Economic Survey that was carried out primarily in October-November 2000 and completed in January-February 2001. These are briefly described below.

3.1.1 Preliminary Social Survey (2000)

A Preliminary Social Survey was carried out in August 2000. The Survey consisted of 118 family and 8 local authority interviews at 28 villages in the vicinity of the proposed route, in

²¹ Australian Power and Water Pty Ltd and Hydro Tasmania. 2001. *Resettlement and Rehabilitation Action Plan (RRAP)*. Volume 4. *Feasibility Study for the First Transmission Link between Phnom Penh and the Southern Region of Cambodia, Phase 2 Report*. The World Bank Cambodia Rural Electrification and Transmission Project (PHRD TF025765).

23 communes, in 9 districts. The locations were selected at random to represent a range of locations along the Route, with a sample size approximately 4% of the APs. As well as providing input to aspects of the Project listed above, the experience was used in the design AP Census (covering 100% of APs) and the Socio-Economic Survey (covering 25% of APs). This includes logistics, resources, staffing timing, administrative and bureaucratic requirements, and design and wording of questionnaires. The findings were reported in a separate *Preliminary Social Assessment Report* of August 2000, which was the basis of the socio-economic data used in the March 2001 RRAP.

3.1.2 Engineering Survey (2000)

An engineering survey was carried out in October 2000 and completed in late December 2000. The survey was interrupted and delayed by flooding in the project area (Cambodia experienced among the worst ever floods in the 2000 wet season). A separate report has been prepared on the engineering survey.

3.1.3 Affected Persons (AP) Census (100%) and 25% Socio-Economic Survey (2000/2001)

An AP Census covering 100% of the APs along the entire COI was carried out in October–November 2000 and completed in January–February 2001, totalling some 3,198 cases.²² Some 2,924 of the APs are affected by the ADB-financed 220kV Transmission Line and associated WPP and TSS substations, while the World Bank-financed 115kV Transmission Line affects the remaining 274 APs.

A Socio-economic Survey designed to cover 25% of the APs was also carried out, though the actual number of respondents was 698 cases, or about 22%. The Census and Socio-Economic Survey followed the Engineering Survey and used the maps produced from it. Unusually severe flooding that year interrupted the Engineering Survey and thus also the Census. Although the data was collected and included on a GIS database CD in Excel format, the analysis was not completed, so the March 2001 RRAP relied primarily on the Preliminary Social Survey of 118 households for its socio-economic description of the Project area.

The fuller socio-economic data, based on the entire Socio-economic Survey actual sample of 22%, contains 698 cases. It covers 127 APs along the 220kV line whose structures will need to be relocated and the rest of the cases are a more random sampling of every 4th household. The Socio-economic survey does not cover the 8 APs along the 115kV line whose structures will need to be relocated. However, it does provide background information for the relevant villages and communes in which these 8 AP households are located, and some additional information on all 135 households was collected during the 2003 updating field survey.

The time and resources for preparing this RAP have not allowed for a full analysis of the 698 cases covered in the 2000-2001 Socio-Economic Survey. However, some of this data is presented here, as abstracted from the existing quite comprehensive database for the survey, especially focusing on the most severely affected, *i.e.*, the APs whose structures will be relocated and those losing land to the substations.

Much of the time that would have been used for analysis of the socio-economic data and presentation in the RAP was put instead into cleaning the database. It is expected, however, that though the present data is in some sense 'preliminary' and useful for resettlement planning purposes, that there will in fact be few changes as a result of the

²² The March 2001 RRAP reported the number of APs at 3,165, or some 33 fewer than the 3,198 here. The latter figure, used in this RP includes cases of Government-owned land as well as families in the definition of AP.

pegging out process during the final engineering design, and further analysis of the data will be appropriate for the RAP and Environment Coordinator (RPEC Consultant) and the IMO at the time of the Detailed Measurement Survey (DMS) to update the pre-Project social-economic baseline profile, in order to establish safeguards for specific vulnerable groups, to design an income restoration program (mostly related to trees lost along the COI), and to serve as a basis for monitoring and evaluation of the RAP's achievement of objectives.

The data has been rationalized and presented in a consistent manner within the GIS, so at that time reports should, with the help of a domestic GIS technical consultant, be supplemented with illustrations. The socio-economic section is also informed by data from the 1998 national census, focusing on the social data abstracted from the districts and communes along the 220kV and 115kV lines, and in areas such as literacy, for instance, this provides a very useful planning background. All data collected been saved on the CD disc with all the other reports etc, submitted to ADB, MIME and EDC.

3.1.4 Updating Census Information

The updating of the Census information for this current RAP involved assigning sequential identification numbers to each of the 3,198 cases (APs) along the COI following the convention of the Engineering Survey design drawings. This follows the chainage from the WWP southwards along the 220kV COI to the Vietnam border and then again from the WWP along the northern 115kV line to its terminus and from the WWP finally along the southern 115kV line to its terminus. This allows analysis and presentation of data for the 220kV and substations (WWP and TSS) and the 115kV lines separately, for ADB and World Bank understanding and review. Note also that the RCS identified some changes to the structures that have to be removed from the transmission line COI. There are now 140 SAPs on the 220kV easement (previously 127) and 9 on the 115kV easement (previously 8). (Section 3.3)

The Census cases had previously been identified by unique 'block numbers' that referred to the interviewing teams' daily case loads but did not bear a strict relationship to the order in which the cases were found along the COI. This case order could be determined, however, from the GIS aerial photograph series.²³ The location and ownership of affected land shown on maps were in the previous RAP included in the *Engineering Survey*, Volume 5, Appendix A. These *Maps Showing Locations of Project Affected Families* now form, more appropriately, along with the updated AP list, with sequential numbering 1-3,198, in a supplementary appendix to the present RAP. The aerial photography 'maps' indicate: Farming Land, Farming/Residential (House); Residential (House); Residential (Land Only), Canals, Chinese Graves, 'Empty' Land, Factories, Forest; Lakes; Public Ponds, Transmission Lines, Roads, Rail, and Drainage features.

3.2 SOCIAL ASSESSMENT

This section in the 2001 RAP was based largely on the preliminary Social Assessment Report prepared on the basis of data collection described above. The Social Assessment focussed largely on issues related to land use and tenure, housing and incomes. This is because these are the aspects of the social environment likely to be affected by the Project due to the need to acquire land for substations and transmission towers, the need

²³ Use of the photographs, with the field survey IN 2000-2001 allowed collection of information on major features, *inter alia*, roads and tracks (top, edge of), railways and hard shoulders, all drains, levees and canals (top, toe), ponds (indicative depth where possible), vegetative clusters, fences (solid and makeshift), all buildings (concrete, brick, wood, and thatch), inverts of *sraes* (paddy fields) at edge, major bunds or those strategic to the corridor, maximum water levels (seasonal, anecdotal), important social features (Chinese grave sites, monuments, etc), miscellaneous features (with associated comments), existing power lines, and Unexploded Ordinance (UXO) discoveries.

to remove buildings and trees from the COI and the disturbance to people, land and crops during construction.

The main findings of the Social Assessment in 2001 were as follows:

- Few people in Cambodia hold formal land title, however land ownership is recognised by occupation. Most people have applied for a Land Occupation and Use Certificate, however none have obtained the Certificate. The Receipt for the Application is often used in practice as evidence of land ownership, and is passed on with transfer of land ownership.
- Most people obtained their land originally by distribution from the authorities, in the years after Khmer Rouge rule.
- Land use is predominantly rain fed lowland rice cultivation in an area of extensive floodplain. Rice farming activities extend from the start of the wet season in May through to harvest at or after the end of the wet from November to February.
- Farmers and their families generally live in villages on higher ground, and travel out to their fields surrounding the village.
- The low earth bund walls between fields mark ownership of rice fields.
- Ownership of farmland in rice growing areas is often fragmented with size of individual field's variable but typically about 0.25ha in area.
- Most people in the Project area own rice land (81% of the 2001 preliminary survey sample), and own a house (86% of the preliminary survey sample).
- The main income is farming for 87% of the 2001 preliminary survey sample.

3.2.1 General Land Use and Tenure in the Project Area

3.2.1.1 Land Use Patterns

The area through which the Transmission Line will pass consists mainly of rice fields in very flat terrain with scattered sugar palms, isolated areas of shrub and woodland, village garden crops, numerous scattered villages and houses, temples and road side development of small businesses. Isolated hills occur in the plains, and are generally vegetated with forest or woodland and often topped by a temple (the transmission line route avoids these hills).

The major economic activity in the Project area is rain fed lowland rice farming. Farming families generally live in the nearby village on higher ground and work their fields surrounding the village. Other farming activities include vegetables and tree crops, small-scale livestock production and collecting fish, frogs and crabs in rice fields and channels. The villages are located mostly along roads, with some small businesses also developed along the sides of major roads. Fruit, vegetables and livestock such as cattle, pigs and chickens are raised around the houses.

Rain fed lowland rice farming is extensively practiced on the floodplain areas of Cambodia. Rice is grown through the wet season, which lasts from around May to November each year. However, the length and intensity of the wet season can vary from year to year. Rice is grown in small fields (typically approximately ¼ ha), each of which is surrounded by low earth bund walls, which retain water during the wet season. Rice fields are prepared for planting once sufficient rain has fallen at the start of the wet season. Seed is planted in nursery beds and seedlings are subsequently transplanted by hand to the main field. Field preparation consists of application of manure or other fertiliser, ploughing and harrowing. These tasks can extend from May through to August. Rice is

harvested at the end of the wet season, and can extend from November to January. Other activities that use the rice fields include grazing during the wet season and fishing during the dry season.

A characteristic of the pattern of landholdings is that rice land is often fragmented with each landholder owning several separate pieces of land. Rain fed lowland rice land is broadly classified into upper (*Srey Leu*), medium (*Srey Kandal*) and lower (*Srey Kraom*) fields. The slight differences in elevation and soil type mean that the fields differ in their productivity and reliability depending on the length and intensity of the wet season. In a particularly heavy or long wet season, the upper fields will be more reliable. On the other hand, if the wet season in a given year is short or has low rainfall, then the lower fields will be more productive. Having fields in each of these types gives farmers greater security in their rice production.²⁴ The land redistribution from 1989 (refer to history of land tenure, below) recognised this in allocating land in each of the categories of low, medium and high fields to give greater food security to farmers. This is further described below under Land and Property Size and Value.

3.2.1.2 **Recent History of Land Tenure in Cambodia**

The system of land tenure in Cambodia has undergone major upheavals in recent years, along with the recent history of the country. Prior to 1975, all land was deemed the property of the King, but people had the right to occupation and use. In 1975 all land was declared the property of the State under the Khmer Rouge. People were relocated and land was worked on a communal basis.

From 1979 under the State of Cambodia (SOC), state ownership of land continued but with people having the right to use land. People were resettled in “solidarity groups” (*krom samaki*), consisting of several families that worked the land communally.²⁵

In 1989 the SOC commenced the reinstatement of private possession and use rights and a free market economy, and introduced the *Land Law* in 1992. The land of each solidarity group was redistributed to families within the solidarity group occupying the land. Each family received a number of parcels of land in different cropping areas, on the basis of the land capability and number of family members (refer also under Land Use Patterns, above, for a brief discussion of different types of rice cropping land).

While the *Land Law*, July 1992 stated that all land belongs to the State,²⁶ it also provided private property rights in terms of possession and use of land and rights of inheritance.²⁷ Compulsory acquisition of land by the Government was only permitted in the national interest and with just and proper compensation in advance.²⁸ The current legislation governing land ownership is the *Land Law*, July 2001. This new *Land Law* has replaced the former *Land Law*, enacted in 1992. The new *Act* contains some provisions that are relevant in relation to a new national resettlement policy that is presently in the process of formulation

Following elections in 1992, the newly established Royal Government of Cambodia (RGC) introduced the national Constitution in 1993, which recognises the right of private land ownership and prohibits land expropriation, except in the

²⁴ Lando RP, Solieng M. 1991. *Without Any Real Advantage: a Baseline Survey of Rainfed Lowland Rice Culture in Cambodia*. IRRI-Cambodia Project Baseline Survey Report No 1, Phnom Penh, Cambodia.

Nesbitt HJ. 1997. *Rice Production in Cambodia*. Cambodia-IRRI-Australia Project.

²⁵ Chandler DP. 1993. *A History of Cambodia*. Silksworm Books.

²⁶ *Land Law 1992* Article 1

²⁷ *Land Law 1992* Article 2

²⁸ *Land Law 1992* Article 3

national interest and with payment of fair and just compensation. This Constitution is still in force.

Land ownership rights prior to 1979 are not recognised in Cambodia. Private possession and use rights to land are recognised in the 1993 Constitution and were also recognized in the Land Law 1992, with provision for land acquisition by Government with fair compensation in advance when required in the national interest. Although there is a process for obtaining formal land title, progress has been slow with very few titles being issued.

3.2.1.3 Land Tenure Mechanisms

Few people hold legal land title in Cambodia. However, land tenure is largely recognised by occupation and recognition by one's neighbours. Boundaries are clearly defined in rice growing areas where each field is marked by a low earth bund wall and cultivated by its owner. This similarly applies to residential land in villages where house lots are generally fenced.

A form of land title exists in the Certificate of Possession and Use of Land. The issue of these Certificates is administered by the Department of Cadastre and Geography within the Ministry of Land Management, Urban Affairs and Planning (formerly the Land Titles Department). The procedure for obtaining a Certificate is that the landholder submits an Application for Possession and Use of Land, to the provincial office of the Department of Cadastre and Geography. The applicant receives a Receipt for the application. However the process has been very slow and very few Certificates have been issued under this procedure. It is reported that as of September 1999, there was a backlog of four million applications filed with the Land Titles Department that had not been processed²⁹. In addition there are reports of disputes over land ownership, relating to more than one Receipt being issued for the same piece of land³⁰. There also appears to be no effective central record or register of land ownership.

Nevertheless, despite these shortcomings, the Receipt is used as evidence of ownership and is passed on when land is sold or ownership otherwise transferred.

A pilot land-titling project has been established under Government Sub-decree³¹ in the Department of Cadastre and Geography, in an effort to develop methods to accelerate the program of issuing land titles. This project is only in its early stages. It is understood that the project has conducted a first pilot titles issuing in Chhouk district of Kampot Province and another district in Takeo Province, and that the World Bank has lent money for titles issuance in eleven other Provinces but that so far there has been no expansion of the project, including progress on the issue of a central record or register of land ownership.

Thus land ownership is locally recognised, but there is no effective central record of ownership or map of land boundaries. Therefore, detailed fieldwork was carried out as part of the 2000-2001 AP to identify landowners along the Transmission Line route who may be affected by the Project and be eligible for compensation. Based on this fieldwork, the GIS database already prepared by the Project, and indicated in Annex I contains, through the AP Census, the status of each AP's paperwork regarding their land and registration numbers where available, and this will provide a basis for upgrading the Project records at the time of the DMS.

²⁹ Van Acker F. 1999. Land Tenure: Hitting a Stone with an Egg? Cambodia Development Review, Volume 3, Issue 3, September 1999. Cambodia Development Resource Institute.

³⁰ Oxfam GB (undated). The Application Process for Land Occupation and Use Right Certificate.

³¹ Sub-decree Number 11 ANKR/BK (22 March 2000). Sub-decree on the Procedure of Establishing Cadastral Index Map and Land Register.

3.2.1.4 **Land Tenure in the Project Area, 2000-2001 Preliminary Socio-Economic Survey Findings**

Land tenure in the Project area has been investigated through field surveys and interviews with government and non-government organisations operating in the Project area.

Discussions with the national and provincial land title offices and non-government organisations involved in agricultural development indicated that very few landholders in the Project area held any form of land title.

The pattern of land tenure in the project area generally reflects that identified for the country as a whole. A preliminary assessment was carried out involving interviews with organisations and individuals in the project area.

From the preliminary field surveys of 2000, it was reported that the great majority (77 or 75% of 102 respondents) obtained their land by distribution from authorities. This reflects the redistribution of land commencing from 1989, as discussed above. Of the remaining, 5 bought their land, 7 inherited, and other responses were unclear. The reported period of ownership ranged up to 21 years, with a median time of 17 years. This probably reflects the time of resettlement of people in 1979 following the Khmer Rouge period.

The updating Survey carried out in April-May 2003 indicates that, there is a market for buying and selling land, even though on a low level of activity, and with most people tending to stay on their land for the long term.³² Land transactions in Cambodia may involve only the buyer and seller, with recognition of boundaries by neighbours, and usually does not involve any legal paperwork or authorities³³. A Receipt for an Application for Possession and Use of Land may be used as evidence of ownership and change hands with the land transfer. The 2000 AP Census reported that, of the 3198 APs, 33% had Certificates and 51% had receipts.

Applications for Possession and Use of Land were reported to have been lodged, and Receipts for these held, by 91 (77%) of 118 respondents in the 2000-2001 Preliminary Socio-economic Survey. No respondents had actually obtained a *Certificate of Possession and Use* as a result of this process. This reflects the general situation in the land-titling program described above. The lack of legal land title has been cited as a factor in people losing their land in Cambodia through 'land grabbing' and in the high incidence of land disputes in the country.³⁴

Occupation of potentially public land (roadside, wetland or forest) was identified by 11 (10%) of the respondents in the 118 households 2000-2001 Preliminary Socio-economic Survey. However, there was some confusion about this as other answers from these same respondents indicated that they considered themselves the owners of the land in question (8 of these held Receipts for Applications for Possession and Use of Land). Only 9 (8%) of 118 respondents reported sharing their land with others. Land disputes were reported by 6 (5%) of 118 respondents. Of these, 3 reported seeking to resolve the dispute at the village level, and 3 at the district level.

³² Sik Boreak. 1999. Land ownership, Sales and Concentration. Cambodia Development Review, Volume 3, Issue 4, December 1999. Cambodia Development Resource Institute.

³³ Kato E. 1999. Landlessness in Kompong Reap. Cambodia Development Review, Volume 3, Issue 3, September 1999. Cambodia Development Resource Institute.

³⁴ Sik Boreak. 1999. *Ibid*.

3.2.1.5 **Land and Property Size and Value, 2000-2001 Preliminary Socio-economic Survey Findings**

Rice land was reported as owned by 95 of 118 responses (81%) in the 2000-2001 Preliminary Socio-economic Survey. Of those that did not own rice land, only one owned other farmland and 14 owned a house plot). The area of rice land reported ranged from 8 to 480 *are*³⁵ (0.08 to 4.8ha), with a median of 0.5ha per land-owning family. Other farmland was reported as owned by 20 of the 118 responses (17%). The area of this land ranged from 10 to 600 *are* (0.1 to 6ha), with a median of 0.28ha per land-owning family.

House and associated land was reported as owned by 101 of 118 respondents (86%). Of the 17 who reported not owning house land, 8 (47%) did own rice land, and 2 (12%) of these also owned other farmland.³⁶ The area of house land reported was a median of 625m² (0.06ha) per family owning house land.

It was reported that 35 (30%) of the families' land holdings were fragmented or divided into smaller blocks, with individual blocks ranging in size from 8 to 100 *are* (0.08 to 1ha). This reflects the division of rice land into upper, medium and lower fields as described above. Discussions with an agricultural development non-government organisation in Takeo and with the Department of Cadastre and Geography had indicated rice land in the area is typically divided into pieces of land of 0.25 to 0.5 ha.

House construction was found from the surveys to be mostly of wood or thatch walls with iron or tile roof. Wall material was reported as wood by 71 (66%) of 108 respondents and thatch by 25 (23%). Roof material was reported as corrugated iron by 41 (40%) respondents, tile by 45 (42%), thatch by 17 (16%). A median house size of 30m² was reported. The number of rooms in each house ranged from 1 to 4, with a median of 1 room.

Land and property values reported varied widely, presumably due to the low level of activity in the property market (as stated above, under Land Tenure in the Project Area, only 5% of respondents in the preliminary survey reported having bought their land, while 75% reported obtaining their land by distribution from authorities). It may also be that the value of land sales may be under-reported for reasons of security or taxation. The following were reported in the preliminary survey with respect to property values:

- Land values reported for rice land were in the range of \$0.20 to \$20 per m², with a median of \$2.50/m² for 75 responses.
- Land values reported for other farm land were in the range of \$0.30 to \$12.50 per m², with a median of \$1/m² for 13 responses.
- Land values reported for house land were in the range of \$0.12 to \$75 per m², with a median of \$1.65/m² for the 75 responses.
- The main criteria influencing land value was reported as proximity to a main road by 87 respondents.
- House replacement cost reported ranged from \$120 to \$20,000 (or \$6,000 if the highest figure is considered an outlier). The median reported house cost is \$1,200.

Section 3.3 has more detail on the data collected in the 2003 RCS and village and household surveys.

³⁵ 1 *are* = 0.01 hectares (ha) or 100 square metres (m²)

³⁶ It is not clear at this time if these were tenants. This will be further investigated at the time of the DMS.

3.2.1.6 **Importance of Sugar Palms in Takeo Province's Economy**

It is worth noting that the agricultural system found in upper Takeo has been categorized as a 'Rice and Sugar Palm Complex,' highlighting the importance of sugar palm trees as a necessary crop for providing families with a much needed cash income.³⁷ This is important to the RAP, as Takeo Province has by far the greatest number of APS, with approximately 71% (91km) of the total route located in Takeo Province:

In several rice-growing areas, subsidiary crops play an important role. In the upper part of Takeo (for instance), the rice cultivation is mainly rainfed lowland rice, produced on poor sandy soils. These soils, however, are quite suitable for the sugar palm tree, which is an important cash crop providing many families with necessary cash incomes in an economy known as the 'rice and sugar palm complex.' It has been estimated that the value of sugar production from 20 palm trees corresponds roughly to the value of rice produced on 1 ha. In 1993, rice production in Cambodia averaged around 1.3 tons per hectare. Food consumption is equivalent to 260-270 kg of paddy per inhabitant per year. In Takeo, one of the particular parts of the country where the soil is especially poor and the population pressure high, around fifty percent of families failed to produce enough rice for their own consumption.

3.2.2 **Socio-Economic Characteristics**

3.2.2.1 **Occupations and Incomes**

By far the most common primary occupation was farming (87% of respondents), with rice being the main source of income. This is roughly the same proportion as found for the 3,198 AP Census, which listed farming in around 90% of cases and the 698 Socio-Economic Survey. A number of other occupations and income sources were reported, including various paid work and business activities, *inter alia.*, some 6 drivers (including motors); 2 Buddhist monks; 3 merchants; 4 construction labourers; 5 village chiefs, deputy chiefs, or political party heads; 4 builders; 2 army personnel; and 1 NGO staff.

Reported annual household incomes ranged from to \$2,737 to only \$13, with a median of \$183 and an average of \$249, from the *Preliminary Socio-Economic Survey* results for 118 APs.³⁸ Focusing on the 125 APs covered by the more comprehensive Socio-economic Survey along the 220kV COI severely affected due to their house requiring relocation, the highest annual HH income reported was approximately \$2,900.

From total household annual income and size of household,³⁹ the highest per capita income reported is \$75, as indicated in the following table. Based on the *Poverty Reduction Partnership Agreement between the ADB and Cambodia* (July 2001), the most recent estimate of the poverty line is US\$14 per person per month. Given this, and keeping in mind the caution usually associated with collecting accurate rural income figures, some 70% of the 125 most severely

³⁷ Jan Ovesen, Ing-Britt Trankell, Joakim Ojendal. 1996. *When Every Household is an Island: Social Organization and Power Structures in Rural Cambodia*. Uppsala University: Uppsala Research Reports in Cultural Anthropology, No. 15. pp 22-24.

³⁸ The March 2001 RP noted: "...the survey team reported that most people surveyed were not sure what their incomes were. Also it was felt that there was significant sensitivity about income related questions with the interviewees, due to concern about security.' Despite this, there was a high percentage of households reporting their income in the 25% AP Socio-Economic Survey that followed the Preliminary Socio-Economic Survey. The *median* is highest number of occurrences. The *average* is obtained through dividing the total income by number of cases.

³⁹ Average household size is 5.1 persons.

affected APs would be classified as at or below the national poverty line. The budget's 20 percent contingency (Section 9.2) will cover the need to include APs who are below the poverty line as vulnerable and entitled to rehabilitation assistance. The DMS will verify the exact numbers, and Government's loan commitment to cover all RAP costs, whatever they turn out to be once DMS is finalized, will ensure that costs will be covered for this purpose.

TABLE 3-1: ANNUAL HH AND PER CAPITA INCOME REPORTED BY 125 SEVERELY AFFECTED APs, STRUCTURES TO BE RELOCATED⁴⁰

Annual HH Income	No. APs	Percent (%)	Per Capita Monthly Income	No. APs	Percent (%)
> \$1400	10	8	\$50+	2	1
\$1,300-1,390	6	5	\$30+	3	2
\$1,200-1,290	3	2	\$20+	17	14
\$1,100-1,199	5	4	\$15+	16	13
\$1,000-1,099	5	4	\$14 and below	87	70
\$900-999	5	4			
\$800-899	5	4			
\$700-799	10	8			
\$600-699	16	13			
\$500-599	12	10			
\$400-499	11	9			
\$300-399	11	9			
\$200-299	17	13			
\$100-199	3	2			
< \$100	6	5			
	125	100%			100%

Source: 2003 Comprehensive Socio Economic Survey

3.2.2.2 *Household Head Age, Education, Literacy*

The household head was identified as the father/husband in 90 of the 99 responses to this question (91%) in the 2000-2001 Preliminary Socio-Economic Survey of 118 APs. The remaining 9 (9%) identified the mother/wife (not necessarily single, widowed, or divorced). This is low in comparison to that reported in the 1998 national census⁴¹, which indicates that 25.7% of households nationally are headed by females, 25.4% in Kandal Province and 26.5% in Takeo Province. The high levels in Cambodia are due to loss particularly of young men during the years of conflict. From 1998 Census data for some 176 communes on either side of the 220kV and 115kV COIs, the percentage of female headed

⁴⁰ Two non-respondents, so total APs requiring their house to be relocated equals 127 APs.

⁴¹ National Institute of Statistics, Ministry of Planning. 1999. *General Population Census of Cambodia 1998*, Final Census Results. The 176 communes chosen were, from Takeo Province all communes; for Kandal Province only those communes in Angsnourl and Kandal Stung districts; in Kompong Speu Province, only the communes of Kong Pisei district; and for Phnom Penh Municipality, the communes of Mean Chey and Dankao districts.

households was reported at 28%. The average sex ration was 91.4, at 681,753 females to 622,459 males.⁴²

Of the 698 APs surveyed by the comprehensive, 22% sample survey, some 131 AP were reported as headed by women, around 19% of all surveyed households. Likewise, of the 127 APs to be severely affected by relocation of their house from the COI, 24 households were reported to be female headed, or around 19%. While these percentages are still lower than expected, they are closer to the Provincial levels than the data presented in the March 2001 RRAP. In fact, the figure of 19% for female headed households tallies well with the combined 1998 Census data for 176 communes along the Project COI for widows (12.3%) and divorced and separated females (5%), which together are 17.3% of the female population.

The household heads were reported as having a median age of 44 years in the Preliminary Socio-economic Survey of 188 APs, and median level of education of seven years. The spouses of the household heads were reported as having a median age of 41 years, and median level of education of four years.

The following table profiles the education of the 127 most severely affected APs along the 220kV COI, those who would have to relocate their dwellings.

TABLE 3-2: EDUCATION LEVEL⁴³ OF HEAD OF HOUSEHOLD – FOR 127 DISPLACED RESIDENCES COMPARED TO GENERAL POPULATION, 176 COMMUNES ALONG PROJECT COI (1998 CENSUS DATA), OCT 2000

Province	Primary Not Completed		Primary		Lower Secondary		Secondary or Above		Not Stated		Total	
	No.	%	No.	%	No.	%	No.	%	No.	%	No.	%
Phnom Penh	-	-	-	-	-	-	-	-	-	-	-	-
Kandal	2	33%	0	-	2	33%	2	33%	0	-	6	100%
Kompong Speu	-	-	-	-	-	-	-	-	-	-	-	-
Takeo	25	21%	49	41%	22	18%	14	11%	11	9%	121	100%
Total	27	20%	49	39%	24	19%	16	13%	11	9%	127	100%
Communes ⁴⁴		35%		22%		9%		2%				

The table would indicate that head of these severely affected APs (127 required to relocated their residences) have a level of education somewhat above that of the general population from data compiled for the 176 communes along the Project's COI, with almost 40% having a primary education compared to 22% for the general population, nearly 20% having a lower secondary education (9% for the general population) and 13% a secondary education (2% for the general population).

⁴² Data compiled from National Institutes of Statistics. 2000. *1998 Census WinR+ Population Database*. Phnom Penh: Ministry of Planning. May (Funded by UN Population Fund).

⁴³ Education Level: Primary Not Completed = Grades 1 to 5; Primary = Grades 6 to 8; Lower Secondary = Grades 9 to 11; Secondary School or Higher = Grades 12 to 16.

⁴⁴ 176 Communes along the ROW, using 1998 Census figures.

The 1998 Census literacy rates for the general population in the 176 communes along the COI is nearly 69 % for the adult population (over 15 years), 83% for males and 57% for females.

3.2.2.3 ***Ethnicity and Special Role of Khmer Women in the Cambodian Society and Economy***

Virtually all of the APs along the Transmission Line COIs are reported to be Khmer. Two aspects of the role of Khmer women in Cambodian society and economy are relevant to the RAP. One is that women inherit property, including land, the same way that men do, and therefore there will need to be maximum consultation with women in the AP households with regards to information about compensation and also assurance that they are adequately represented when compensation is actually awarded to households. Ovesen et al (1996) have noted:⁴⁵

Kinship among the Khmer is conventionally recognized as *cognatic*, i.e., descent is traced through both males and females...[There is] a tendency towards *matrifocality* among the rural population, a tendency which stems from the influential socio-economic position of the adult woman (wife/mother) in the household – which bestows upon her the duty to provide for her family – and from the pre-eminence of *uxorilocal* residence, i.e., the preference that a newly married couple should live with or nearby the bride's parents.

Daughters and sons are not only equally recognized in the kinship system, they also have equal rights to shares in the property and inheritance. The traditional system of use rights of land in Cambodia made it possible for the land to be inherited within the family of cultivators. Parents often made the transfer of land to children after the marriage of children, with equal parts transferred to daughters and to sons. It was common for the son-in-law to move in with the family of the wife and to work for the father-in-law for a certain period of time before the married couple established its own household. Among the rural Khmer population, there is...a preference for *uxorilocal* residence, that is, a married couple will prefer to live with or nearby the wife's parents, insofar as it is practically feasible. Due to the traditional *matrifocality* in the rural society, younger daughters usually inherited the better part of the rice fields, as a compensation for caring for parents in their old age.

The second aspect of women's role in the Cambodian economy is the important role they have as economic decision makers in Khmer households and as

⁴⁵ Ovesen et al (1996), pp. 53-55. Note that *matrilocality* is an anthropological term defined as being "of or pertaining to residence with the wife's family or tribe," as in when young couples to move in with the bride's parents where the bridegroom would be given work. A *matriarchy* in its traditional sense is a "form of social organization in which the mother is head of the family and in which descent is reckoned in the female line, the children belonging to the mother's clan." All societies and cultures of the 19th century and earlier were *patriarchial*, at least in the public domain. A form of matriarchy, better described as "*matrifocality*", was well known in various cultures, such as the Scottish matriarch who ran her household with a loving but iron rule. There were also the proverbial Jewish mothers who micro-managed the minute details of their family's lives, creating an eternal source of material for Jewish comics like Jackie Mason. Although they may vary in significance and influence, matrilineal patterns existed within all traditional communities and are worthy of study and analysis. http://www.mts.net/~delplett/book/chapter_nine.html; http://www.mts.net/~delplett/book/chapter_nine.html;

entrepreneurs in the market. Again, Ovesen et al (1996) on role of women in the Cambodian economy:⁴⁶

[In a] traditional Khmer world order [with] little room for a class of professional traders and merchants.... Women and people who were not 'pure' Khmer, notably Chinese immigrants, have traditionally largely occupied the economic niche for merchants. Already in Ankor times, Khmer women were engaged in trade to a significant degree...Even nowadays, relatively few Khmer men engage in trade but in recent years, Khmer women have to an increasing degree entered business life in the cities and towns, to the extent that the number of Khmer female traders in Phnom Penh is said to equal or even surpass that of ethnic Chinese. There is a certain irony in the fact that the traditionally subordinate role and inferior cosmological status of women in Khmer culture has in the present economic climate made it possible for many of them to assert themselves economically with a vengeance.

Married women have a strong position with regard to decision-making and household economy as the keeper of family wealth in most families. During fieldwork, for instance, [it was] observed that every household was in this sense a female-headed household. Observations on Khmer women as resourceful and not hesitant to make use of whatever capacities they have, should be related to the fact of the *matrifocal* bias that social life in Cambodia seems to have favoured in general. Women's' participation in work and economic production, in the rice fields as in the market, give them a lot of both social experience and social influence, though not in any sense social independence.

3.2.2.4 *Infrastructure and Services*

Infrastructure in the Project area is poor. Travel from Phnom Penh to Takeo is via National Route 2 or the railway line, both of which are in poor condition. National Route 2 from Phnom Penh to Takeo is sealed but the pavement has many potholes and broken edges. From Takeo to the Viet Nam border the road is unsealed and very corrugated again with many potholes and broken edges. The road suffered significant additional damage due to flooding in the 2000 wet season, one of the heaviest wet seasons on record.

Outside of the main urban areas of Phnom Penh and Takeo, there is no reticulated electricity supply and domestic water supply is from ponds and wells. However many people do use electricity in the form of car batteries for selected uses including lighting and television.

3.2.3 Vulnerable Groups

Both ADB and World Bank require that particular attention be paid to vulnerable groups among people affected by the project. Vulnerable groups are those who, for a variety of reasons, may be less able to deal with the disturbance caused by the project and adapt to new situations. Examples include the poor, disabled, landless, households headed by women, elderly or children, returnees and indigenous or other ethnic minorities.

Only six families interviewed in the preliminary socio-economic survey of 118 APs identified themselves as belonging to one of the nominated vulnerable groups (one

⁴⁶ Ovesen et al (1996), pp. 33-34; 59-60.

woman head of household, two returnees, and three disabled). As the table below shows, however, the various identified vulnerable groups in the more comprehensive socio-economic survey were over one quarter of the total APs surveyed (698 APs) and almost a third of the severely affected APs, that is those whose structures would be relocated.

This data will need to be reassessed at the time of the DMS, however, as some of these 'vulnerable' households are shown in the database to have among the highest incomes reported, as is the case with one of the female-headed households where the head is listed as a nurse by occupation and one of the 'disabled' is a retired Colonel.

On the other hand, it is also clear that many if not most of those listed as vulnerable among the more severely affected APs will need special assistance. While some 8 of the female-headed households were above the poverty line (at \$14 per capita per month), the rest, or 94%, were below this poverty line.

TABLE 3-3: VULNERABLE GROUPS IDENTIFIED IN 2000/2001 SOCIO-ECONOMIC SURVEY, FOR OVERALL SURVEYED APS AND FOR 127 SEVERELY AFFECTED APS (DUE TO HOUSE RELOCATION)

Types of Households ⁴⁷	Overall		Severely Affected APs	
	Number of Households	Percent of Total (698)	Number of Households	Percent of Total (127)
Female Headed	131	19	24	19
Very Poor	3	.5	0	0
Returnees	2	.5	0	0
Elderly	20	4	5	4
Disabled	13	2	7	6
Children	10	1	3	2
	179	26%	39	31%

One study has characterized the situation of poor widows in the Cambodian society in the following terms:⁴⁸

The term 'widow' is applied locally to include also single or unmarried women with children and women who are abandoned or divorced, the so called 'part time widows,' *memei pdei leng*. The way these women are treated in the village suggests that they are in a way 'degendered' and therefore depersonalised and made socially invisible....If we take into consideration that households of poor widows constituted about one third of the village population and contained a large number of children and young persons, the implications for the peace and development process are important. Most of these women, moreover, were returnees and had been given poor land that yielded little. Their houses and gardens were located in the periphery of the village, where they lived more or less as social outcasts, with the shame of poverty and without proper means of basic subsistence or adequate social conditions and with not even a minimum of participation in public life and decision-making.

3.2.4 Replacement Cost Survey

An extensive survey of the APs was undertaken in April 2003. This survey was only of the households that were to have their residence moved for the construction of the transmission lines and those who would lose land for the substation construction. These were all considered to be Severely Affected.

Information gained in the earlier surveys was checked and further questions asked, particularly on value of structures.

⁴⁷ Elderly were said to be 'without support' and Children, 'without parents.'

⁴⁸ Jan Ovesen, Ing-Britt Trankell, Joakim Ojendal. 1996. *When Every Household is an Island: Social Organization and Power Structures in Rural Cambodia*. Uppsala University: Uppsala Research Reports in Cultural Anthropology, No. 15. pp 61-62.

4 OBJECTIVES, POLICY FRAMEWORK, AND ENTITLEMENTS

4.1 RESETTLEMENT OBJECTIVES AND PRINCIPLES

The Project's resettlement and compensation are to be in accordance with ADB and World Bank requirements and Cambodian law. The ADB and World Bank have advised that it is a condition of funding that the Banks' requirements are met in relation to resettlement and compensation.

The Objectives and Principles for resettlement and compensation to be adopted to implement the Banks' policies for the project are as follows:

(a) *Resettlement Objectives:*

The Resettlement Plan aims to ensure that the losses incurred by affected people are redressed such that Affected Persons share project benefits, are assisted to develop their social and economic potential in order to improve or at least restore their incomes and living standards to pre-project levels and are not worse off than they would have been without the Project.

(b) *Resettlement Principles:*

- Acquisition of land and other assets, and resettlement of people will be minimized as much as possible by identifying possible alternative project designs, and appropriate social, economic, operational and engineering solutions that have the least impact on populations in the Project area.
- The populations affected by the Project are defined as those who may stand to lose, as a consequence of the Project, all or part of physical and nonphysical assets, including homes, homesteads, productive lands, commercial properties, tenancy, income-earning opportunities, social and cultural activities and relationships, and other losses that may be identified during the process of resettlement planning.
- All APs who will be identified in the project impacted areas as of the date of the updated census and inventory of losses, will be entitled to be compensated for their lost assets, incomes and businesses at full replacement cost and provided with rehabilitation measures sufficient to assist them to improve or at least maintain their pre-project living standards, income earning capacity and production levels.
- All affected populations will be equally eligible for compensation and rehabilitation assistance, irrespective of tenure status, social or economic standing, and any such factors that may discriminate against achieving the objectives outlined above.
- The rehabilitation measures to be provided are: (i) cash compensation for houses and other structures at replacement cost of materials and labour without deduction for depreciation or salvageable materials; (ii) full title to replacement agricultural land for land of equal productive capacity acceptable to the AP; full title to replacement residential and commercial land of equal size acceptable to the AP; or, at the informed decision of the AP, cash for replacement land at replacement cost at current market value; (iv) cash compensation for crops and trees at current market value; and (v) relocation allowances and rehabilitation assistance.
- There will be no deduction in payments for salvage value, depreciation, taxes, stamp duty, fees, or any other payments

- Sufficient time will be allowed for replacement structures to be built before construction begins
- Temporarily affected land and communal infrastructure will be restored to pre-project conditions.
- The compensation and resettlement activities will be satisfactorily completed and rehabilitation measures in place and all encumbrances removed on a contract area before the Government and ADB will approve commencement of civil works for that contract area.
- The EA will see that institutional arrangements are in place to ensure effective and timely design, planning, consultation and implementation of the land acquisition, compensation, and resettlement and rehabilitation program.
- Existing cultural and religious practices shall be respected and, to the maximum extent practical, preserved.
- Adequate budgetary support will be fully committed and be made available to cover the costs of land acquisition and resettlement and rehabilitation within the agreed implementation period.
- Special measures shall be incorporated in the RAP and complementary mitigation and enhancement activities to protect socially and economically vulnerable groups such as, women-headed families, children and elderly people without support structures and people living in extreme poverty.
- Grievance procedures shall be established and in place and APs informed of them before any resettlement activities begin.
- Details of the RAP shall be distributed to the APs and placed in project and commune offices for the reference of affected people as well any interested groups.
- Appropriate reporting, monitoring and evaluation mechanisms will be identified and set in place as part of the resettlement management system and an external monitor hired before commencement of any resettlement activities.

4.2 LEGAL AND POLICY FRAMEWORK

There is no specific government policy relating to the details of resettlement and compensation in Cambodia, other than general requirements for compensation to be provided. A Policy has been developed for the project taking into account relevant Cambodian, ADB and World Bank laws and policies. This section describes the legal and policy background to the Policy.

4.3 CAMBODIAN LAW AND POLICY

Cambodian law relating to resettlement and compensation includes:

- Constitution
- Land Law
- Electricity Law
- Decrees and sub-decrees

4.3.1 National Constitution

The National Constitution of 1993 prohibits land expropriation, except in the national interest and with payment of fair and just compensation.

4.3.2 Land Law

Cambodia has experienced severe social, economic and political disruption during the past 20 years. In 1975, all private property was abolished and all records were destroyed. After 1979, when people began to return to the urban areas and due to the lack of defined property rights, began occupying vacant land and structures, a system based on usufruct rights was established. In rural areas, the Government assisted groups of families to form units based on the collective ownership of land and assets with a village head. Land was distributed according to fertility.

Private possession and use rights to land are recognised in the 1993 Constitution and were also recognized in the Land Law 1992, with provision for land acquisition by Government with fair compensation in advance when required in the national interest. Although there is a process for obtaining formal land title, progress has been slow with very few titles being issued.

The current legislation governing land ownership is the Land Law, July 2001. This new Land Law has replaced the former Land Law, enacted October 1992. The new Act contains some provisions that are relevant in relation to a new national resettlement policy that is presently in the process of formulation.⁴⁹

Article 5: "No person shall be deprived of their ownership unless this action is for the public interest consistent with formalities and procedures provided by laws and regulations, and after just and fair compensation is provided."

Article 6: "...All transfers or changes of rights of ownership shall be made under the rules of general procedures of sale, succession, exchange, or donation, or by the court decision."

Article 19: "Any person having titles or real situation under the influence of Article 19 of this law cannot claim for any compensation or cost for maintenance or development made under immovable property which is illegally possessed. Any illegal and intentional or deceitful acquisition of the public domain of the State or public legal entity shall be punished as provided in Article 259 of this law. For possession of public domain that damages or delays work in favor of the common interest, especially the possession of land necessarily reserved for maintaining roads, the penalty shall be double. In all case where the offender does not cease his or her possession within the period of time determined by the competent authority, the authority can proceed to evict that offender."

Article 259: "Infringement upon the public domain shall be punished with a fine from 5,000,000 Riels (five million Riels) to 50,000,000 Riels (fifty million Riels) [between US\$1,250 and US\$12,500] and/or imprisonment from one (a) to five (5) years. The perpetrator has an obligation to immediately vacate such public domain. The perpetrator has no right to any indemnity for works or improvement made on such public property. In the event that the current occupant of public property prior to this law taking effect has documents as a proof and certificate that s/he purchased

⁴⁹ Dirksen Flipse Doran and Le (Cambodia) Co, Ltd. 2001. *Cambodia Resettlement Policy and Practices: Review and Recommendations (ADB RETA 5935), Draft Final*, prepared for Ministry of Economy and finance, RGC. Phnom Penh. October.

it from a person, [the occupant] may report to competent authority to enforce legal measures on such person who sold public property illegally and for his/her own interest [and the occupant is] injured by such act. In any event, such injured party has no right to possess the public property.'

Ministry of Economy and Finance Decree No. 961 (April 6, 2000): An Order declares that, in order to implement Prakas No. 6 (below), the RGC will not spend the national budget to make payments for structures or other items located on the RGC claimed rights of way.

Royal Government of Cambodia's Prakas No. 6 (September 27, 1999): an Order issued by RGC entitled "Measures to Crack Down on Anarchic Land Grabbing and Encroachment," prohibits private ownership on State lands. In particular, it requires a cessation to encroachment on public and private properties as well as State lands, including public gardens, reserved lands for roads and rail sites. This Order directs the municipal provincial authorities, and the Royal Cambodian Armed Forces, National Police and Military Policy, and all relevant ministries and institutions, to participate in solving problems of anarchic land grabbing and encroachments.

It is noted that under this new Land Law, those who have illegally occupied a right of way or public properties are not entitled to any compensation or social support, regardless of their being an AP or member of a vulnerable group. This is also in accordance with Decision No 961 (above, wherein the RGC informs that it will not make payments for structures or assets on a right of way. Moreover, under the new Land law, persons having assets on a right of way are to be punished more heavily if a failure to relocate results in delays of works of public interest. Thus, this provision is in direct contrast to both the ADB and World Bank's Involuntary Resettlement policies being implemented in Cambodia.

This has been a serious issue with regards to multilateral agency-financed roads projects in Cambodia but is not likely to be a serious consideration for the transmission line COI, which by in large does not follow within a, as yet, State-owned COI or cross substantial areas of public property.⁵⁰

While the individual's rights to ownership and compensation are protected in the new Land Law, there is now clearly defined mechanism for land acquisition and amounts of compensation. The national-level Ad-Hoc Committee on Resettlement determines entitlements, land values and appropriate compensations. Under these circumstances, individuals have no right of appeal and are obliged to sell their assets at the values determined by the Government. As of December 2002, legislation governing the expropriation of land was expected go before the parliament. This will set up the processes to be followed and give guidelines for compensation

⁵⁰ Note that for the RAP for National Road 51 (WB IDA Credit No. 3181-KH), for example, the issue is a serious one and is highlighted in the resettlement planning: "Although the RGC has made claims to various widths of ROW for various types of roads, it has not widely publicized the ROW claimed, has not mapped or demarcated the ROW so that the public will know to what extent such a claim is being made, and has failed to disseminate information on this matter to those most concerned, i.e., the public which may be encroaching on a claimed, but unmarked and unpublicised, ROW." RGC. 2002. *Rehabilitation of National Road 51, Cambodia: Resettlement Action Plan (World Bank IDA Credit No 3181-KH), Final Draft Report*. Implemented by Ministry of Public Works and Transport Project Implementation Unit 1, Prepared by The Green Group, December 10. Based on similar grounds, the NGOs Legal Aid of Cambodia and NGO Forum on Cambodia have challenged non-payment of compensation to APs on an ADB-financed roads project, reference: The Working Group on Development Banks of the NGO Forum on Cambodia. 2000. *Report on Field Survey of People Affected by National Highway 1 Improvement Project – Neak Leung to Bavet*. Phnom Penh. June 2; and Legal Aid of Cambodia and NGO Forum on Cambodia. 2002. *Report on Compensation for Three Groups of People Affected by National Highway 1 Improvement Project – Neak Leung to Bavet*. Phnom Penh. February 14.

4.3.3 Electricity Law

The *Electricity Law* of January 2001 covers right of easement in Article 55:

A licensee⁵¹ may lay, put in position, construct, or install, under or over any land, such electrical facilities and equipment as are necessary to satisfy its electric power supply services responsibilities under this Law.

The licensee shall take reasonable commercial efforts to acquire necessary rights of entry, rights of way, and/or easements through negotiations with the owners of the lands and by paying appropriate compensation.

In the event a licensee is unable to obtain such rights through reasonable commercial efforts, and the need arises to acquire easement compulsorily, the Authority, upon request by the licensee, may certify the acquisition to be in the public interest, to enable the relevant authority of the Government to proceed with the compulsory acquisition of the easement or land for the Licensee.

4.3.4 Decrees

Prime Ministerial Edict, 27 September 1999, Measures to Eliminate Anarchical Land Grabbing, declares public land on the verge of roads and railways that must not be occupied, as follows:

- National Road 2, 3, 6 and 7: 25m from centreline
- National Road 1, 4, 5: 30m from centreline
- National Road 11, 22, 64, 78: 25m from centreline
- Provincial roads: 20m from centreline
- Commune roads: 15m from centreline
- Not applicable in towns
- Railways 20m from centreline in urban areas, 30m in rural areas, 100m where there is threat of avalanche or in old growth forest.

Thus the edict does not recognise private ownership in these zones adjacent to roads and railways. However the ADB and World Bank require that any people relocated from such areas for the Project shall be eligible for compensation. The ADB Policy is that *“The absence of formal legal title to land by some affected groups should not be a bar to compensation and that particular attention should be paid to the needs of the poorest affected persons including those without legal title to assets...and appropriate assistance provided to help them improve their status,”* and the World Bank’s Policy, in Op 4.12, para 15/16, that *“Displaced persons who have no recognizable legal right or claim to the land*

⁵¹ The term ‘Licensee’ is covered in, among others, Articles 3, 5, 6 and 32: The Ministry of Industry, Mines and Energy shall be responsible for the organizing and policy management, strategies and planning of the Royal Government on the electricity power.... The Electricity Authority of Cambodia is a legal public entity that receives the right from the Royal Government of Cambodia as an autonomous agency to control the service of electricity and manage the supply and usage of electricity...The Authority shall ensure that the provision of electric power services shall be governed by principles of efficiency, quality, continuity, adaptability and transparency...Each supplier of electric power services in the Kingdom of Cambodia is required to be licensed, and shall be subject to the provisions of their license, the rules and procedures of the Authority, and requirements of the laws of the Kingdom of Cambodia...The Licensee shall mean a person to whom the Authority has granted a valid license under this law. The National Transmission Licensee shall issue to the State power company that has the exclusive right to provide transmission service within the whole of Cambodia (except in the territory served by Isolated Systems...).

they are occupying are provided resettlement assistance in lieu of compensation for the land they occupy, and other assistance⁵², as necessary to achieve the objectives of the policy, if they occupy the project area prior to a cut-off date established by the borrower and acceptable to the Bank. Persons who encroach on the area after the cut-off date are not entitled to compensation or any other form of resettlement assistance."

4.4 ADB AND WORLD BANK POLICY AND DIRECTIVES

The ADB and World Bank require that land acquisition and resettlement be minimised as much as possible, and that compensation/resettlement be carried out so as to maintain or improve standards of living of project- affected people.

ADB and World Bank policies in relation to resettlement and compensation are set out in ADB's Policy on Involuntary Resettlement and World Bank Operational Policy (O.P.) 4.12: Involuntary Resettlement⁵³, attached as appendices to this report. The objective of the Banks' policies is that the displaced population should receive benefits from the project. The Banks' policy objectives are summarised as follows⁵⁴:

- Involuntary resettlement should be minimised
- Resettlement plans should be developed
- Community participation in planning and implementing resettlement should be encouraged
- Resettlers should be integrated into host communities
- Affected people should be compensated and assisted in rehabilitation, to ensure they are no worse off than before.

Other ADB policies related to resettlement and social impacts are as follows:

- Policy on Indigenous Peoples

No action is required under ADB's Policy on Indigenous Peoples as none of the people interviewed in the preparation the social assessment or the APs inventory identified themselves as belonging to any indigenous or other ethnic minority.

- Policy on Gender and Development
- Policy on Environmental Assessment

Environmental assessment has been carried out as part of the Feasibility Study (Volume 3) and this study (the companion volume *Initial Environmental Examination*).

Other World Bank policies and directives related to resettlement and social impacts are as follows:

- OD4.20 Indigenous Peoples

No action is required under Operational Directive 4.20 as none of the people interviewed in the preparation the social assessment or the APs inventory identified themselves as belonging to any indigenous or other ethnic minority.

- OP4.01 Environmental Assessment

Environmental assessment has been carried out as part of the feasibility study (refer Volume 3).

⁵² Resettlement assistance may consist of land, other assets, cash, employment, and so on, as appropriate.

⁵³ See www.adb.org and www.worldbank.org

⁵⁴ World Bank OD4.30 paragraph 3

- *OP4.11 Cultural Property*

No action is required under Operational Policy 4.11 as the siting of the project has been such as to avoid cultural property such as temples and graves.

4.5 CONSISTENCY BETWEEN CAMBODIAN LAW AND BANK POLICY

At present there is no resettlement policy in Cambodia. As a result, the RAP is guided by the ADB and World Bank's policies on Involuntary Resettlement (see Appendix A).

Table 4-1 compares RGC policy with that of ADB and World Bank.

Cambodian law requires that land can only be compulsorily acquired where it is in the national interest and that in such case fair compensation must be paid in advance. This is consistent with the Bank's policies, which go beyond this and have further more specific requirements. Although Cambodian law does not recognise private ownership in certain cases, such as in existing COIs, this does in any case not prevent compensation being provided to meet with the Banks' policies, through other means than direct compensation under the law.

TABLE 4-1: SUMMARIZED COMPARISON BETWEEN THE LAWS OF CAMBODIA AND THE BANKS' POLICIES RELATED TO INVOLUNTARY RESETTLEMENT

Resettlement Policy, Land Law and Legislation in Cambodia	Banks' Policies on Involuntary Resettlement
At present there is no Resettlement policy. However, some provisions in the new Land Law are relevant.	Involuntary Resettlement Policy is applied to all development programs, resulting in (i) relocation or loss of shelter; (ii) loss of assets or access to assets; or (iii) loss of income sources or means of livelihood.
<i>Article 5</i> [Land Law]: "No person shall be deprived of their ownership unless...for the public interest...and after just and fair compensation is provided."	The Banks' policies provide that compensation for lost assets must be made on the basis of replacement cost.
<i>Article 6</i> [Land Law]: "...All transfers or changes of rights of ownership shall be made under the rules of general procedures of sale, succession, exchange, or donation, or by the court decision."	Customary and formal rights are recognized equally in providing assistance and in devising criteria for entitlements and procedures for compensation and other resettlement assistance.
<i>Article 19</i> [Land Law]: "...any illegal and intentional or deceitful acquisition of the public domain of the State or public legal entity shall be punished..."	The absence of formal legal title to land by some affected groups should not be a bar to compensation and that particular attention should be paid to the needs of the poorest affected persons...and appropriate assistance provided to help them improve their status. The ADB Policy is that "The absence of formal legal title to land by some affected groups should not be a bar to compensation and that particular attention should be paid to the needs of the poorest affected persons including those without legal title to assets...and appropriate assistance provided to help them improve their status," and the World Bank's Policy, in Op 4.12, para 15/16, that

	“Displaced persons who have no recognizable legal right or claim to the land they are occupying are provided resettlement assistance in lieu of compensation for the land they occupy, and other assistance ⁵⁵ , as necessary to achieve the objectives of the policy, if they occupy the project area prior to a cut-off date established by the borrower and acceptable to the Bank. Persons who encroach on the area after the cut-off date are not entitled to compensation or any other form of resettlement assistance.”
The RGC will not spend national budget to make payments for structures or other items located on the RGC claimed rights of way.	When Involuntary Resettlement is avoidable under a Bank-financed project, the responsibility rests with the borrower country to follow the Banks’ policies. Where there is conflict with the Borrower’s policies and laws, the Banks’ policies shall be applied, as per the RAP. The RAP is viewed as a legal commitment in this regard.
Prakas No. 6 defines that the right of way is 25 m from each side of National Roads, with all two-digit roads being National Roads.	Prakas No. 6 is not applicable in the Transmission Line COI.

4.6 ELIGIBILITY AND ENTITLEMENTS

4.6.1 Eligible Parties

Eligible parties for the purpose of this project are identified as Affected Persons (APs). This term refers to a collective unit of entitlement, and is used in this document to refer to families, other households, individuals and businesses and any other group affected by the project. APs eligible for compensation shall be those who experience negative impacts on their assets or livelihoods as a result of the Project. Measures will be incorporated in Project design to minimise adverse impacts.

APs eligible for compensation shall include the following:

- For land required to be permanently acquired for the Project (transmission towers, substations, roads):
 - Owners with Formal Legal Title
 - Owners/occupiers, who are eligible for Formal Legal Title under Cambodian law
 - APs with other recognised Land Use Rights
 - Occupiers who are not eligible for Formal Legal Title
- For permanent removal within the COI, of houses, other structures and improvements, and land based assets such as trees

⁵⁵ Resettlement assistance may consist of land, other assets, cash, employment, and so on, as appropriate.

- Owners of houses and other structures (whether with land title or not)
- For temporary effects such as disturbance to crops during construction:
 - Farmer/land users/owners of infrastructure within the COI
- For effects on businesses
 - Owners of businesses
 - Employees who have lost income as a result of the Project.

Types of APs and their proposed eligibility for compensation are detailed in the Entitlements Matrix.

It is an ADB and World Bank requirement that compensation is not restricted to those with Formal or Legal Land Title. All recognised landowners, occupiers and users will be eligible for compensation.

In the case of APs living in or using land within the COI of roads or railway lines, APs shall be fully eligible for compensation.

Those eligible are identified in the AP Census, prepared as part of the Project.

4.6.2 Non-Eligible APs and Cut-off Date

APs who move into the Project area after the *Cut-Off Date* will not be eligible for land acquisition compensation, though any such APs would be eligible for compensation caused by Construction activities. The cut-off date for determining eligibility for compensation shall be at the time of undertaking the AP Census that will take place after Detailed Design and pegging of the COI and substation sites.⁵⁶ This will be done at the same time as the official Detailed Measurement Survey/Inventory of Losses, which will be the basis for compensation, and at which time APs and local authorities or their representatives on the Survey Teams will sign the Survey Forms agreeing to Detailed Measurement Survey/Inventory of Losses for each AP, after detailed design and pegging. A formal indication of the completion of this process will be the approval by the ADB, World Bank and RGC.

The purpose of the Cut-Off Date is to minimise the incentive for land speculation, and minimise the incentive for people to move into the Project area in the hope of gaining compensation.

However, it may be possible that some APs may have been missed in the Census. Therefore those who can demonstrate that they are eligible will also be included in the AP Census.

4.6.3 Entitlements Matrix

The Entitlements Matrix (Table 4-2) summarizes the types of impacts, APs who shall be eligible for compensation, what their entitlements shall be, and provides comments on implementation issues.

⁵⁶ WB footnote 21 to para 16 of OP4.12 further defines cut-off date: "Normally this cut-off date is the date the census begins. The cut-off date could also be the date the project area was delineated, prior to the census, provided that there has been an effective public dissemination of information on the area delineated, and systematic and continuous dissemination subsequent to the delineation to prevent further population influx."

TABLE 4-2: ENTITLEMENT MATRIX

Type of Impact	Type of Eligible Person	Compensation Entitlement	Notes on Implementation
1. LAND ACQUISITION			
1.1 Permanent acquisition of arable land (required for transmission towers, substation and roads).	<ul style="list-style-type: none"> Owners with formal legal title, of land required to be acquired for the Project Owners/occupiers, eligible for formal legal title under Cambodian law. Owners/Occupiers with other evidence (land use certificates, applications for land use rights etc) of ownership/use rights Others recognised locally as having ownership/use rights. Occupiers of land owned by others, whether squatters, tenants, or renters 	<ul style="list-style-type: none"> Compensation: preferably as equivalent replacement land nearby, including the cost of land fill if needed, or cash equivalent to replacement cost at the current market rate for buying same. (If less than 20% of total productive landholding affected, then cash is acceptable). Impact on viability of remaining land, due to fragmentation or reduced size, also needs to be considered. Therefore where the remaining land is not viable for its current use, compensation shall be provided for the entire parcel of land. Full Replacement Value of structures and improvements. Severely affected farmers eligible for income rehabilitation assistance (agricultural extension assistance to increase productivity on remaining land or training in a new livelihood) and cost of living allowance during the transition period. 	<ul style="list-style-type: none"> Replacement value shall be agreed at implementation stage, through consultation. Land replacement or payment shall be made before construction begins, with sufficient time allowed for re-establishment of affected people. No distinction between titled and non-titled land holders Replacement land to be free from taxes, registration and transfer costs
	<ul style="list-style-type: none"> Owners of land, not used by themselves Agricultural labourers 	<ul style="list-style-type: none"> Market value of land Cash compensation equivalent to 3 months salary and assistance in obtaining alternative employment. 	

Type of Impact	Type of Eligible Person	Compensation Entitlement	Notes on Implementation
1.2 Permanent acquisition of residential or commercial land (required for transmission towers, substation and roads).	<ul style="list-style-type: none"> Owners with formal legal title, of land required to be acquired for the Project Owners/occupiers, eligible for formal legal title under Cambodian law. Owners/Occupiers with other evidence (land use certificates, applications for land use certificates, etc) of ownership/use rights Others recognised locally as having ownership/use rights. Occupiers of land owned by others, whether squatters, tenants, or renters 	<ul style="list-style-type: none"> Compensation: in cash at full replacement cost or, at AP's choice, where more than 8 houses in one village want to locate to a group site, replacement land of a plot of standard size on a fully serviced resettlement site. When the affected premises are larger than the replacement plot, cash compensation at replacement cost to cover the difference in size a. Impact on viability of replacement land, due to fragmentation or reduced size, also needs to be considered. Therefore where the remaining land is not viable for its current use, then compensation shall be provided for the entire parcel of land. Full Replacement Value of structures and improvements. 	<ul style="list-style-type: none"> Replacement value shall be agreed at implementation stage, through consultation. Land replacement or payment shall be made before construction begins, with sufficient time allowed for re-establishment of affected people. No distinction between titled and non-titled land holders Replacement land to be free from taxes, registration and transfer costs

Type of Impact	Type of Eligible Person	Compensation Entitlement	Notes on Implementation
2. REMOVAL OF STRUCTURES, TREES, ETC (NOT NECESSARILY INVOLVING LAND ACQUISITION)			
2.1 Removal of houses and other structures from ROW (required to be removed for safety reasons) – where house <i>can</i> be relocated on same block of land	<ul style="list-style-type: none"> Owners of houses and other structures (well, pond, fence, latrine, shed, kiosk or shop, etc) (whether with land title or not) 	<ul style="list-style-type: none"> Full Replacement Value of structures (no reduction for depreciation or salvage value) Where structure only partly within ROW, but whole structure needs to be moved, then compensation shall be due for whole structure Reinstatement of equivalent improvements and infrastructure including other buildings, fences, walls, ponds, etc. Relocation Expenses and Cost of Living Allowance during the transition period 	<ul style="list-style-type: none"> Replacement Value shall be agreed at Implementation Stage, on basis of formula for type of house and area, and a competent technical survey Materials shall be available for salvage by owner, with no reduction in payment Replacement or payment shall be made before construction begins, with sufficient time allowed for re-establishment Any Permits needed for building shall be arranged by Implementing Agency AP retains ownership of the affected land, but with restricted use Sufficient time shall be allowed for re-establishment of houses and infrastructure before construction begins

Type of Impact	Type of Eligible Person	Compensation Entitlement	Notes on Implementation
2.2 Removal of structures from ROW – where house cannot be relocated on same block of land, requiring owners to relocate to another residence.	<ul style="list-style-type: none"> Owners of houses and other structures (well, pond, fence, latrine, shed, kiosk or shop, etc) (whether with land title or not) 	<ul style="list-style-type: none"> Full Replacement Value of structures (no reduction for depreciation or salvage value) plus: <ul style="list-style-type: none"> Equivalent Replacement Land within the same village as a priority, or if replacement land cannot be provided, cash sufficient to buy replacement land, or cost thereof. Land to be equivalent in terms of area, access, within same village, above flood level, etc Where structure only partly within ROW, but whole structure needs to be moved, then compensation shall be due for whole structure Reinstatement of equivalent improvements and Infrastructure including other buildings, fences, wells, ponds, etc. Relocation Expenses and Cost of Living Allowance during the transition period 	<ul style="list-style-type: none"> Replacement Value shall be agreed at Implementation Stage, on basis of formula for type of house and area, and a competent technical survey Materials shall be available for salvage by owner, with no reduction in payment Replacement or payment shall be made before construction begins, with sufficient time allowed for re-establishment Any Permits needed for building shall be arranged by Implementing Agency AP retains ownership of the affected land, but with restricted use Sufficient time shall be allowed for re-establishment of houses and infrastructure before construction begins
2.3 Removal of rented houses from ROW	<ul style="list-style-type: none"> Tenants paying rent on houses owned by others. 	<ul style="list-style-type: none"> Relocation Expenses and Cost of Living Allowance during the transition period. Three months' rent allowance 	<ul style="list-style-type: none"> Sufficient time shall be allowed for re-establishment of houses and infrastructure before construction begins. Assistance shall be provided to ensure that an equivalent replacement house acceptable to the Affected Person is obtained.

Type of Impact	Type of Eligible Person	Compensation Entitlement	Notes on Implementation
2.4 Cost of Living Allowance during the transition period	<ul style="list-style-type: none"> All relocating households and farmers losing 20% or more of their total productive landholding 	<ul style="list-style-type: none"> Cost of Living Allowance during the transition period US\$40 or equivalent to 40kg of rice per household for three (3) months, whichever is greater 	<ul style="list-style-type: none"> Cost of Living Allowance shall be paid on a monthly basis in advance during the transition period.
2.5 Relocation costs of salvaged materials and personal possessions.	<ul style="list-style-type: none"> Relocating households and businesses. 	<ul style="list-style-type: none"> Cash payment of \$40 per household 	<ul style="list-style-type: none"> This amount is reportedly sufficient to transport possessions from Phnom Penh to Takeo, and should therefore be sufficient to transport within or between villages
2.6 Special assistance for socially or economically vulnerable households	<ul style="list-style-type: none"> APs belonging to vulnerable groups, including households who are very poor (earning less than \$14 per month), headed by the aged, women, disabled, or otherwise vulnerable, such as ethnic minorities 	<ul style="list-style-type: none"> A US\$20 allowance plus additional cash and other assistance as needed, based on identified needs and priorities. Households with more than one factor of vulnerability being entitled to a \$20 allowance for each factor. For example, households that are very poor and headed by a woman would be entitled to \$40, etc. 	
2.7 Removal of trees and standing crops from ROW (required to be removed for safety reasons)	<ul style="list-style-type: none"> Owners of trees and standing crops 	<ul style="list-style-type: none"> Full Replacement Value, for type, size, age and productive value of trees or crops or replacement of trees by planting at cost Owners severely affected by loss of 20% or more of household income due to loss of trees shall be entitled to income restoration assistance, through a revolving micro-enterprise loan fund and assistance to increase productivity on remaining land or to learn a new livelihood. 	<ul style="list-style-type: none"> Trees shall be available for salvage by owner, with no reduction in payment An Income Restoration Strategy is being designed in coordination with existing livelihood programs already in operation in the project area.

Type of Impact	Type of Eligible Person	Compensation Entitlement	Notes on Implementation
3. BUSINESS IMPACTS			
3.1 Removal and relocation of business premises from the ROW	<ul style="list-style-type: none"> Owner of business 	<ul style="list-style-type: none"> As above for replacement of houses, structures and infrastructure 	<ul style="list-style-type: none"> As above for removal of houses, structures and infrastructure
3.2 Lost business income while business interrupted during re-establishment period	<ul style="list-style-type: none"> Owner of business unable to carry out normal activities during the transition period 	<ul style="list-style-type: none"> Business allowance equivalent to the lost business income during the transition period while businesses are being re-established A lump sum amount will be provided to small shops equivalent to actual income lost, to be determined through consultation with AP A lump sum amount will be provided to large businesses according to their business income statement. 	<ul style="list-style-type: none"> Payment shall be made before construction begins
3.3 Cost of relocation	<ul style="list-style-type: none"> Owner of business 	<ul style="list-style-type: none"> Cash payment of \$40 	<ul style="list-style-type: none"> Payment shall be made before relocation begins
3.4 Lost salaries and wages while business interrupted during re-establishment period	<ul style="list-style-type: none"> Employees of business that is interrupted. 	<ul style="list-style-type: none"> Payment of allowance equivalent to lost salary/wage income during the transition period of US\$40 or equivalent to 40kg of rice per employee in the business for three (3) months, for business that will be required to close down during the relocation period. 	<ul style="list-style-type: none"> Payment shall be made before relocation begins

Type of Impact	Type of Eligible Person	Compensation Entitlement	Notes on Implementation
4. TEMPORARY CONSTRUCTION IMPACTS			
4.1 Damage to crops during construction (temporary impact).	<ul style="list-style-type: none"> Owners of Crops 	<ul style="list-style-type: none"> Compensation for lost production in cash at market price (value of lost production within ROW) for the period of construction). This will be a minimum of one harvest where damage occurs during growing season. 	<ul style="list-style-type: none"> Every effort will be made to schedule construction outside of growing season (including field preparation, planting, harvesting and other agricultural activity).
4.2 Interference with farmers' ability to prepare fields and plant crops	<ul style="list-style-type: none"> Owners of crops (person using the field), including those whose ability to prepare fields and plant crops is impeded 	<ul style="list-style-type: none"> Payment for repair of damage, at replacement cost 	<ul style="list-style-type: none"> Construction will be carried out so as to minimise damage. This will include preparation of a Construction Environmental Management Plan (EMP), including social aspects, incorporating environmental and social requirements in the contract, and monitoring to ensure compliance, and financial penalties on the EDC or contractor for non-compliance. Consideration will also be given to minimising the use of heavy machinery (this is also likely to have benefits in terms of employment generation)
4.3 Damage to fields, and associated infrastructure including bund walls, drains and channels	<ul style="list-style-type: none"> Person using the field 	<ul style="list-style-type: none"> Repair of damage, or cost of repair at replacement cost in cash 	<ul style="list-style-type: none"> Construction will be required by Contract to stay within ROW
4.4 Damage to any other assets or infrastructure during construction (including communally owned resources such as roads, drainage and irrigation facilities)	<ul style="list-style-type: none"> Owners of the assets or infrastructure damaged 		<ul style="list-style-type: none"> Contractor will be responsible for these costs, liable through supervising engineer.

Type of Impact	Type of Eligible Person	Compensation Entitlement	Notes on Implementation
5.0 ONGOING IMPACTS DUE TO MAINTENANCE ACTIVITIES			
5.1 Damage to crops during maintenance activities	<ul style="list-style-type: none"> Owners of crops disturbed or damaged 	<ul style="list-style-type: none"> Compensation for lost production (value of lost production within ROW for the period of construction) 	<ul style="list-style-type: none"> Every effort will be made to schedule construction outside of growing season (including field preparation, planting, harvesting and other agricultural activity) Maintenance will be carried out so as to minimise damage. This will include preparing an Environmental Management Plan (EMP) for the ongoing operation of the line, including social aspects, incorporating environmental and social requirements in the contract, and monitoring to ensure compliance, and financial penalties on the EDC or contractor for non-compliance. Consideration will also be given to minimising the use of heavy machinery (this is also likely to have benefits in terms of employment generation) Maintenance activities will be required by contract to stay within the ROW EDC or contractor will be responsible for these costs, liable through supervising engineers
5.2 Interference with farmers' ability to prepare fields and plant crops	<ul style="list-style-type: none"> Owners of crops (person using the field) 		
5.3 Damage to fields, and associated infrastructure including bund walls, drains and channels	<ul style="list-style-type: none"> Person using the field 	<ul style="list-style-type: none"> Payment for repair of damage, at replacement cost 	
5.4 Damage to any other assets or infrastructure during maintenance (including communally owned resources such as roads, drainage and irrigation facilities)	<ul style="list-style-type: none"> Owners of any other assets or infrastructure damaged 	<ul style="list-style-type: none"> Repair of damages, or cost of repair 	

5 CONSULTATION, GRIEVANCE REDRESS AND PARTICIPATION

5.1 CONSULTATION AND PUBLIC PARTICIPATION

5.1.1 Objectives of Public Consultation and Information Dissemination Program

Information dissemination to, consultation with and participation of APs and involved agencies and Stakeholders reduce the potential for conflicts, minimize the risk of Project delays, and enable the Project to design resettlement and rehabilitation as a comprehensive development program to suit the needs and priorities of the APs, thereby maximizing the economic and social benefits of the investment. Specific objectives of the public information campaign and public consultation are as follows:

- To establish a clear, easily accessible and effective complaints and grievance procedure
- To share fully the information about the proposed Project, its components and its activities, with the APs
- To obtain information about the needs and priorities of the APs, as well as information about their reactions to proposed policies and activities
- To inform about various options for relocation and rehabilitation measures available to the APs
- To obtain the cooperation and participation of the APs and communities in activities required to be undertaken for resettlement planning and implementation
- To ensure transparency in all activities related to land acquisition, resettlement and rehabilitation
- To assist APs relocating to replacement houses

5.1.2 Public Participation

In the context of resettlement, public participation includes both the information exchange (dissemination and consultation), and collaborative forms of decision-making (participation). Dissemination refers to transfer of information from Project authorities to the affected population. Consultation, on the other hand, generally refers to joint discussion between Project authorities and the affected population serving as a conduit for transfer of information and sharing of ideas. Public participation is an ongoing process throughout resettlement planning and implementation, not an event. The level of information which is disseminated or the issues on which consultation takes place vary with the progress in the Project process and resettlement activities.

5.1.3 Public Participation and Consultation in Resettlement

5.1.3.1 Project Preparation

During the RRAP preparation phase of the Project, information on the Project was provided to APs during the preparation of the census and inventory of APs/Impacts (covering 100% of APs) and Socio-Economic Survey (covering 25% of APs). This involved the Cambodian counterpart team holding small meetings in villages with APs, village leaders and others, in groups and on a one-to-one basis. The Project was explained with particular emphasis on the nature of the impacts and the compensation entitlements. Care was taken to keep the information within context and to ensure that people understood the limitation of the impact. This

particularly applies to the limited extent of the land acquisition requirement, that permanent land acquisition is only required for the transmission towers, substations and access roads to substations. Photos were shown to illustrate that after construction, farming can continue under the transmission line.

During the 2003 preparation of the RAP, consultation consisted of discussion with all severely affected households and landowners about compensation and relocation preferences and options. Discussions were also held with village heads about land availability, recent land transactions and market rates and with contractors and suppliers about replacement costs for structures, materials and labour.

EDC and the Banks have expressed concern that its location may induce land speculation. This includes the possibility of people being attracted to move into the corridor of impact (COI) in order to gain compensation, and more powerful interests displacing people living in the COI in order to profit from compensation or land acquisition. Therefore, a low-key approach has been taken to the community liaison in this initial planning phase. This has been done so that, other than directly affected people, there would be few people with knowledge of the precise location of the COI during the feasibility.

Discussions and consultations about the compensation rates to apply will be carried out by the Executing Agency and Resettlement Consultants and Sub-Committee during Project implementation and a joint agreement reached.

Ongoing community liaison for the Project includes the following:

- Review inventory of APs and impacts, on the basis of the design and detailed siting of the Project
- Confirm identification of APs and compensation entitlements.
- Inform APs about the project, activities, effects, compensation and related provisions and timing.
- Confirm APs' preferences for how replacement land, houses and crop losses are to be provided or purchased
- Provide independent financial advice / counselling for APs to receive significant cash compensation.
- Follow procedure for declaring the COI, acquiring land, requiring houses to be removed, and providing replacement land and houses
- Complaints and grievance procedure
- Construction and relocation of APs to replacement houses.
- Liaison by IMO
- Income restoration measures.

5.1.3.2 Project Design, Planning and Resettlement Implementation

Among the activities that will be carried out during the Project planning, design and RAP implementation are:

Information Dissemination and Training. After finalization and approval of the RAP by the Banks and RGC, the PMOs will provide information to the respective communes on the Project start up. Simultaneously, arrangement for resettlement training workshops for the RAP implementation team and the local authority sub-committee on RAP implementation will be made. Detailed information will be provided on Project policies and implementation procedures.

Public Meetings with APs. After initial training that includes local authorities, arrangements will be made for a series of Public Meetings at strategic locations along the Project COI. APS will be informed of a suitable time and place for the public meetings. These meetings are intended to clarify information that has been given to date and to provide APs with an opportunity to discuss issues of concern and obtain clarification. Adequate time will be given to local authorities to contact and inform APs about the purpose, time and place of the meetings. Both men and women from affected households, as well as other interested community members, will be encouraged to attend. Detailed information about the Project will be presented to the APs at the public information/consultation meetings at the local community level. The meetings will follow the format as below:

- Explanations will be given verbally and in visual format
- Adequate opportunities will be provided for APs to provide feedback and ask questions
- APs will be encouraged to contribute their ideas for AP rehabilitation options
- The RAP Implementation Team will prepare a complete list of all APs present at the meetings
- A complete record of all questions, comments, opinions, and decisions that arise during the information/consultation meetings will be maintained and presented as a report to the Project authorities as well as to the IMO, which will also be present at the meetings.

Relevant information on the following aspects of the RAP will be given to the APs, in the form of a Public Information Booklet in *Khmer*, to be distributed initially after the National Elections and prior to the ADB's Appraisal Mission (scheduled for September or October 2003):

- Project Components
- AP Rights and Entitlements
- Grievance Mechanism and Appeals Process
- Participation of APs in the Grievance Redress Committees (GRCs)
- Responsibilities of IMO
- Right to Participate and be Consulted
- Resettlement Activities
- Organizational Responsibilities
- Implementation Schedule

Inventory Follow-Up visit to APs. through Detailed Measurement Survey (DMS). As a first step for RAP implementation, during the DMS that follows completion of the Detailed Design and the 'staking out' of the COI, the following activities will be carried out:

- Updating of Compensation Rates for different types of Affected Assets
- RAP Implementation Teams will visit each AP to update and confirm the Inventory of Affected Assets (cultivation area affected, area of affected structure, type and number of trees etc.) and to finalize compensation assessment

- Based on the final inventory and compensation assessment, the RAP implementation teams will complete Assets Compensation Forms for each affected household
- In case there is any disagreement on any aspect of the Form, the initial grievances will be recorded and addressed in accordance with the grievance procedures
- During the follow up visit, APs will also be consulted about their preferred options for cash or land for land and for rehabilitation assistance measures although replacement land will only be possible where more than eight households are affected in one area. These preferences will be documented for planning and design of resettlement and appropriate rehabilitation assistance measures

In accordance with *good practice*, each AP will be provided with a copy of their final Assets Compensation Form, in which the AP's affected assets, compensation entitlements and final compensation amounts are recorded. The AP will be asked to sign the form to indicate his/her agreement with the inventory recorded and with entitlements and compensation amounts.

Information to APs about Compensation Payment. A Letter of Notification will be sent to each AP with the time, location and procedures for compensation payment. The APs will also be informed in advance about the documents (letter of authority, identification card, land title, etc.) that they will need to bring with them for compensation payment purposes.⁵⁷ As in rural Khmer society, daughters and sons have equal rights to shares in the property and inheritance,⁵⁸ it will be imperative to include wives in the information sharing regarding compensation for land and in the process for handing over compensation.

Information to APs regarding Relocation and Site Clearance. APs will be consulted and informed about the relocation of replacement land, where this is an option, and the timing of relocation. Households being displaced will be informed about the schedule for the Project COI clearance and start up of tower construction and stringing, or in the case of substations, about site clearance and start up of civil works. Currently, however, it is not anticipated that substation land acquisition will involve the relocation of any houses.

Information to the General Public and to APs About the Beginning and On-Going Schedule of Physical Works. The RAP Implementation Team, through the local authorities, will notify the general public along with APs about the schedule of physical works. Public announcements will be made in village meetings.

Assistance in Receiving Compensation Entitlements. As in rural Khmer society, daughters and sons have equal rights to shares in the property and inheritance,⁵⁹ it will be imperative to include wives and other female household members in the information sharing regarding compensation for land and in the process for handing over compensation. Special assistance will be required for some vulnerable groups, such as female-headed 'widow' households.

⁵⁷ For most, if not all, APs such identification information is already recorded in the GIS database prepared during the feasibility studies

⁵⁸ Ovesen, Ing-Britt Trankell, Joakim Ojendal. 1996. *When Every Household is an Island: Social Organization and Power Structures in Rural Cambodia*. Uppsala University: Uppsala Research Reports in Cultural Anthropology, No. 15. pp 53-55.

⁵⁹ Ovesen, Ing-Britt Trankell, Joakim Ojendal. 1996. *When Every Household is an Island: Social Organization and Power Structures in Rural Cambodia*. Uppsala University: Uppsala Research Reports in Cultural Anthropology, No. 15. pp 53-55.

Assistance during Relocation. Households having to move their houses to new plots, within the same village, will be assisted in relocation to their new sites through relocation allowances and by any other measures, such as provision of transport, required. This will be carried out through local officials and Project staff. Vulnerable households will be given any necessary assistance with relocation and house construction.

5.1.4 Public Participation in Project Monitoring and Ex-Post Evaluation

The IMO will be responsible for monitoring all aspects of resettlement implementation and for providing feedback to the PMOs, IRC and to the donors. The IMO will provide an effective mechanism for participation of affected community members in external monitoring of resettlement. Participation of APs in monitoring will provide Project management with a more accurate reflection of AP reactions and perceptions.


An ex-post evaluation, which will be conducted by the IMO 6-12 months after the completion of all resettlement activities, will require full consultation with the APs. The IMO will, with the assistance of the RAP/Environmental Coordinator (the RPEC Consultant), plan and implement the Ex-Post Evaluation, focusing especially on the achievement of fundamental resettlement objectives, such as restoration of incomes and living standards and especially if follow up plans or remedial actions are to be required.

5.1.5 Disclosure:

ADB and World Bank require that the Executing Agency disseminate information to the APs. Public disclosure of RAP, through distribution of Public Information Booklets describing the most important sections of the RAP, in *Khmer*, will be required before Appraisal.⁶⁰ Public disclosure of the draft RAP must be made to the APs in a form and language that they can understand. This may be in the form of a resettlement information brochure or leaflet, or a summary resettlement plan to be provided to APs in a language they can understand, in an accessible place. The final RAP, if changed, must be made available to the APs before the Staff Review Committee (SRC). The RAP, or its summary, will also be posted on the ADB's resettlement website. Summary RPs will also be released, together with Summary Environmental Impact Assessment (SEIA), where relevant, for public disclosure.

Figure 5-1 is the English language announcement published in March 2002 of the availability of the RRAP and other relevant documents as part of the Environmental Impact Assessment carried out. These, with summary translations in *Khmer*, were made available in EDC's office in Takao town; at Village No. 2 Roka Knung Commune, Daun Kao District and at Village Kam Pong, Prah Bath Chuann Chum Commune, Kriviong District in Takao Province; at MIME 's offices at Doeum Mean Commune, Takhmao District of Kandal Province; and at EDC's offices in Phnom Penh. Open house meetings (Figure 5-1) were held at these locations, and Executive Summaries of the EIA in the *Khmer* language were presented (Illustrations 5-2 and 5-3, which included a summary of the RRAP.

⁶⁰ Currently scheduled for September 2003.



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KINGDOM OF CAMBODIA
MINISTRY OF INDUSTRY, MINES AND ENERGY

ELECTRICITE DU CAMBODGE

Rci 348 EDC

Phnom Penh, 31 January 2002

PUBLIC NOTICE
 Re-Announcement

**NOTICE OF THE AVAILABILITY OF THE PROPOSED ENVIRONMENTAL ASSESSMENT FOR THE
 RURAL ELECTRIFICATION AND TRANSMISSION PROJECT**

The Royal Government of the Kingdom of Cambodia intends to apply for a credit from the World Bank for the Rural Electrification and Transmission Project. Electricité du Cambodge (EDC), a state owned Limited Liability Company would be the Executing Agency for the project.

EDC's consultants Hydro Tasmania of Australia has undertaken the Environmental Impact Assessment (EIA) of the Transmission Line component and Meritec Limited of New-Zealand for the Rural Electrification component of the project. In addition the Consultants have reviewed the land acquisition and resettlement issues associated with the project. Based on this analysis, the Consultants have proposed a Construction Environmental Management Plan (CEMP) and a Resettlement Rehabilitation Action Plan (RRAP) for the Transmission Line component and Resettlement Policy Framework and Procedural Guidelines (RPFP) and Report on Environmental Issues (REI) for the Rural Electrification component of the project.

The EIA, CEMP, RRAP, REI, RPFP reports and also the summaries of EIA, CEMP, RRAP translated in Khmer are available for review at the following locations:

- Electricité du Cambodge-Takeo Unit
 Village No.2 Roka Krung Commune, Daun Keo District, Takeo Province. Tel: 016 885 569
- Department of Industry, Mines and Energy of Kandal Province
 Doeum Mean Commune, Takhmau District, Kandal Province
- Kirivong District, Village Kam Pong, Prah Bath Chuann Chum Commune, Road No 2. Tel: 012 807 697



The original documents in English of EIA, CEMP, RRAP, RPFP and REI reports with summaries in Khmer are available at EDC, Corporate Planning and Projects Department, 2nd floor, Yokunthor Street, Wath Phnom, Daun Penh District, Phnom Penh on weekdays from 8AM to 5PM.

Written comments from the public on the mentioned documents will be accepted from February 12, 2002 to March 12, 2002 and should be sent to Corporate Planning and Projects Department, EDC Phnom Penh.

- Fax: (855) 023-426 938-018 Tel: (855) 023-724 771 Ext-118

An open house public hearing will also be held to inform the public about the project and take comments on the Environmental Assessment of the project. The hearing is scheduled as follows:

Date : Monday, March 18, 2002
 Time : 8AM to 11.30 AM
 Location : Electricité du Cambodge,
 Corporate Planning and Projects Department,
 2nd floor Wath Phnom, Phnom Penh

HEU VANTHAN

FIGURE 5-1: PUBLIC NOTICE OF EIA (RRAP SUMMARY) AVAILABILITY

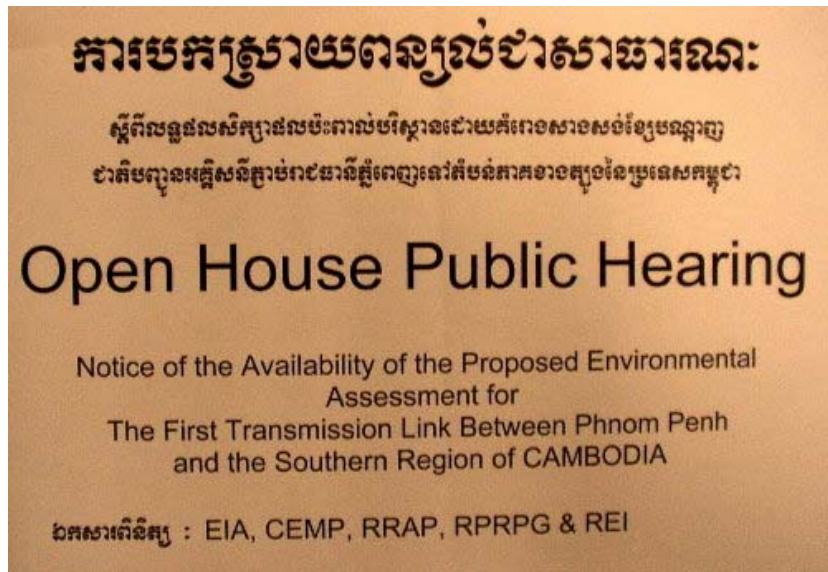


FIGURE 5-2: NOTICE OF EIA (RAP SUMMARY) OPEN HOUSE PUBLIC MEETING

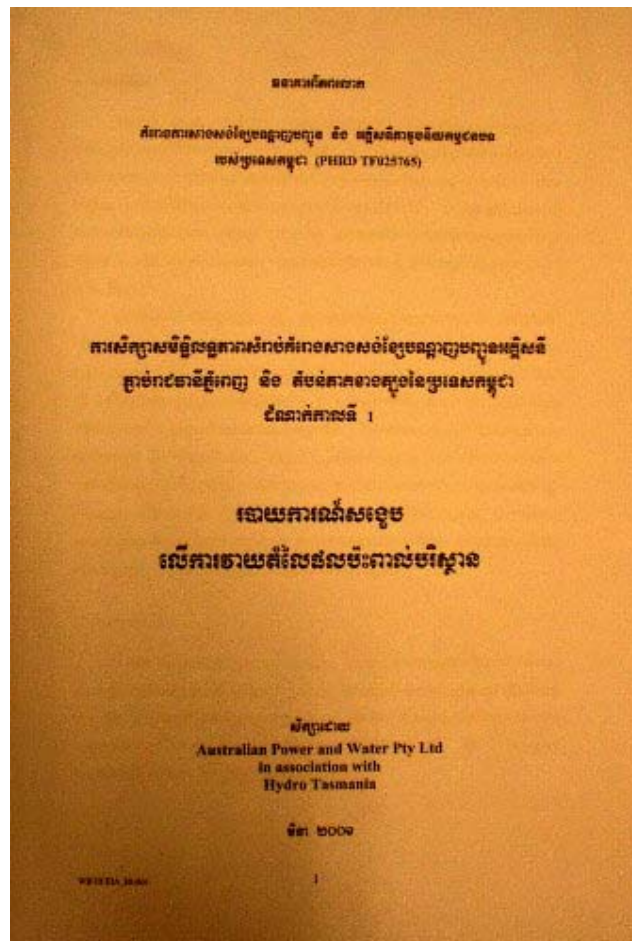


FIGURE 5-3: TITLE PAGE OF EIA (RRAP SUMMARY) EXECUTIVE SUMMARY

For this RAP, new notices will be circulated and further public meetings convened, in accordance with both ADB and the World Bank policies. A *Public Information Booklet* has been prepared in both English and Khmer for dissemination among the APs and other Stakeholders, and announcements will be in both English and Khmer language newspapers, as well as by *Khmer* language radio and TV. A sample brochure is attached as Appendix F to this RAP, together with a draft schedule for distribution of the brochure to the APs.

5.2 COMPLAINTS AND GRIEVANCES

In order to ensure that AP grievances and complaints on any aspect of the land acquisition, compensation, and resettlement are addressed in a timely and satisfactory manner and that all possible avenues are available to APs to air their grievances, a well defined grievance redress mechanism will be established by the Project, related to its consultation program and the implementation monitoring carried out by the IMO.

5.2.1 Grievance Redress Committee (GRC)

The PMOs 1 & 2 will establish a Committee for the consideration of complaints and grievances from APs. This Grievance Redress Committee (GRC) will have as members, representatives of the following:

- PMOs 1 & 2/EDC
- Local Authority Resettlement Sub-Committees
- Commune Committee Member(s)
- IMO
- Local leader in each village/local area
- Local NGO(s).

The External Monitor and any local NGO representing the AP may offer advocacy, advice or expert support, but may not vote.

5.2.2 Function

The functions of the grievance process will be:

- To make all APs aware of the process of the RAP and entitlement policy and of the timetable for implementation;
- To provide support for the APs being relocated on problems arising out of their adjustment to their new environments or relating to any aspect of compensation, resettlement or rehabilitation;
- To record grievances of the APs and categorise and prioritise those grievances that need to be resolved by the Grievance Committee;
- To assist the APs in dealing with the decisions of the Grievance Committee (the Grievance Committee should be given the power to resolve all but the most serious of grievances);
- To report new developments to the aggrieved parties regarding the hearing of their grievances. The decisions of the Grievance Committee will not be contested in any other forum, except in the courts of law.

5.2.3 Steps Involved

The grievance process must be explained to every AP at the time of compensation. The Participation and Consultation Program will provide contact details for submission of complaints and grievances. This shall include a phone contact and address for written submissions. However, as this is not a practical means of communication for many people in remote areas, it will also be necessary to establish an appropriate alternative avenue for APs who are illiterate⁶¹ or for whom these are not appropriate avenues. APs will also have the option of contacting the IMO should they wish, the local authority or their local Member of Parliament.

The process should be as follows:

- (i) As a first stage, APs will present their complaints and grievances to the Village or Commune Resettlement Sub-Committee and, if he or she wishes, to the NGO External Monitor and/or to any NGO working in the Community. The NGO will record the complaint in writing and accompany the AP to the Village or Commune Resettlement Sub-Committee. The Sub-Committee will be obliged to provide immediate written confirmation of receiving the complaint. At the same time, the complaint will be forwarded to the Provincial Resettlement Sub-Committee and the Provincial Grievance Committee.
- If the Village or Commune Resettlement Sub-Committee is unable to resolve the grievance, it will refer the grievance with any relevant information or documents to the Provincial Resettlement Sub-Committee through the PMO, which will advise the Provincial Grievance Committee.
- At this or any subsequent stage the IMO may be asked by the AP or the PMO to carry out a survey and valuation of structures or land which is the subject of dispute and to provide this or otherwise assist in further review or arbitration.
- The Provincial Grievance Committee meets with the aggrieved party and tries to resolve the situation. The Committee may ask for a review of the DMS by the external monitor. Within 21 days of the submission of the grievance the Committee must make a written decision and submit copies to EDC, the IMO, and the AP
- A judgment on the complaint will be made by the Provincial Grievance Committee with the participation of the village head, Commune Chairman and the NGO within 21 days of the written acknowledgement being issued. The Provincial Grievance Committee will provide the AP with its decision within 21 days of the complaint being lodged.
- If the AP is not satisfied with the solution of the Provincial Grievance Committee, the case may be submitted for consideration by the legal system, however, every effort shall be made to avoid this by resolving grievances within the framework of the Provincial administration and the Project, and with the assistance of the EM.
- If the decision is in favour of the aggrieved party, corrective actions must be prescribed in the letter and implemented within 14 days of the decision with interest added for any back payment of compensation.
- If no decision can be agreed to and the settlement of the grievance is essential to the successful implementation of the Project, EDC may ask for arbitration to be undertaken by an independent agency, assisted by any survey or valuation by the EM and with the presence of the EM.

⁶¹ Note, however, that literacy is generally widespread in the Project area. See social characteristics.

- In the event that this procedure does not achieve an agreed resolution of the grievance, MOWRAM may take the matter to court, with the plea that an order for eviction be granted, but must advise the ADB of its intention to take this step one month in advance, and must in any case make payment of the full compensation costs and allowances to which the AP is entitled.
- The grievance procedures do not take away the constitutional rights of any AP him or herself to lodge a complaint with the court at the municipal level. This may be followed by subsequent appeals to the court at the provincial level and national level, but the purpose of the grievance procedure is that citizens, particularly people in the municipal and Commune/village level, will not need to take their complaints to the formal legal institutions and that most complaints will be settled at the lowest level.
- There will be no fees or charges required of those wishing to have a complaint heard. If any payments are made then the fee will be refunded by the Project. Other costs incurred by legitimate complainants will also be refunded by the Project. Follow up checks of this will be included in the scope of the IMO.
- It is recognized that, in many cases, APs do not have writing skills and the possibility of being able to express grievances verbally has been considered, however, APs are encouraged to seek assistance from the EM, other local NGOs or other family members, village heads or community chiefs to have their grievances recorded in writing and to have access to the DMS or other documentation, and to any survey or valuation by the EM, to ensure that where disputes do occur all the details have been recorded accurately enabling all parties to be treated

If no understanding or amicable solution can be reached, or APs do not receive an adequate response from the working group within 15 days of registry of the complaint, s/he can appeal to the respective Provincial authorities and the IMO, which will have liaison with the NGO Legal Aid of Cambodia, which has represented APs interests in resettlement activities in the past. APs will be invited to produce documents supporting their claims. The Provincial authorities and the PMO together will be responsible to address the complaints within 20 days from the day of filing.

6 RELOCATION AND REHABILITATION

6.1 REPLACEMENT LAND AND HOUSES

The ADB and World Bank requirements specify that the preferred form of compensation for involuntarily acquired land is provision of replacement land nearby of equivalent type, size and value with similar access to livelihood opportunities. An exception to the 'land for land' rule is made in the case of small areas of land (say less than 20% of the owner's total productive land holdings), where cash compensation is acceptable. In this case the project affected family's land base, as its primary source of income remains substantially viable. In this case the AP must be provided with independent counselling and advice in the management of their compensation payment and the long-term maintenance or improvement of their livelihood. This may be due to a number of factors such as:

- Inexperience of the PAPs in managing a large amount of money over time. This can result in compensation money being used for other purposes. The PAPs is then left without enough money to purchase replacement land or house and being left without a livelihood or accommodation.
- Rise in the cost of land or building between the calculation of compensation and the purchase of land.
- People being cheated or tricked out of their compensation payment.
- People being pressured to use the compensation payment
- People being pressured to use the compensation payment to repay outstanding debt, at the expense of their long-term livelihood. There is a high level of debt in rural areas in Cambodia
- Robbery
- Other payments

As previously stated, the need for replacement land and houses arises in this Project as follows:

- Permanent acquisition of land for transmission towers, substations and roads
- Remove of houses from COI, in the case where the house cannot be relocated on the same block of land, thus requiring relocation to a new block of land. (In this case the land itself is not required for the Project, but the house and other structures need to be removed from the COI for safety reasons. The land would remain available for other activities such as farming and ground crops.

There thus arises the need to provide suitable replacement land as part of the Project. The provision of 'land for land' is however always a difficult problem in a location where all the useful land is already occupied. Therefore a number of options have been considered to achieve the ADB's and World Bank's objective that the standard of living of PAPs be maintained or enhanced as a result of the Project.

6.1.1 Transmission Towers and Poles

In the case of 220kV transmission line the area of land for each tower is approximately 100m². This is small in relation to the typical size of each piece of land (around 0.25ha or 2,500m²) and total landholding per farming family (around 1ha). For the 115kV line from West Phnom Penh to the existing 115kV line around Phnom Penh, each pole will occupy

approximately 4 m², thus the same principle would apply. Therefore this marginal impact will be compensated in cash at the market price for land. The total area for the 220kV transmission towers and for the 115kV poles will be less than 4 ha.

6.1.2 Substations

For the substations, approximately 3 ha are required at West Phnom Penh and 1.5 ha at Takeo, plus approximately 0.7 for access roads. The land at these sites is used for rice growing with each farmer typically holding a number of scattered blocks of land, each with an area typically in the order of 0.25ha. The substation sites will therefore occupy a part of the land of several farmers, in the order of 50% of the total agricultural land holding of each of the farmers. The land at these locations is already intensively farmed for rice and vacant land is not available. Furthermore, the farmers have expressed their preference for cash.

Village authorities have indicated that land is being bought and sold in their villages. The RAP implementation team will undertake further consultation with these affected people during DMS in order to confirm that options are available to purchase land. In addition, farmers will be provided advice and technical assistance.

6.1.3 House Land

In the case of replacement land being required for of houses that have to be removed from the COI, surveys have so far been unable to locate suitable replacement land. It is necessary to provide these APs with an equivalent standard of housing in the same village and with the same access to livelihood opportunities. In order to achieve this it will be necessary to purchase some other land and develop it for housing. This will most commonly involve purchasing rice growing land and filling to raise the ground level to enable it to be kept well drained. This land will be purchased by the Project where more than eight households will be relocating in one area or the APs him or her self from willing sellers. The appropriate action will need to be determined on a case-by-case basis during the Project design stage and with NGOs involved in the Project's income restoration program acting, along with the RAP and Environmental Coordinator (RPEC) as AP advocates in the process. The cost of residential replacement plots is included in the RAP budget, along with a land filling allowance for raising land to an acceptable level for residential purposes.

6.1.4 Replacement Houses

The need for replacement of houses arises where houses need to be removed from the COI for safety reasons. Replacement houses are to be provided to an equivalent size and standard within the same village, with similar access to resources and facilities such as land, roads and livelihood opportunities. Materials from the existing structure are to be available to the owner for salvage with no deduction from the compensation value. Cash compensation sufficient to replace materials and labour to build replacement houses to an equivalent size and standard will be given to APs, and there will be no deduction for depreciation, taxes, stamp duty, fees or other payments. The land within the COI from which the house has been removed is suitable for other uses such as farming of ground crops and will remain accessible to the original owner.

Aside from tower pads, the land will not be required for the Project and therefore will remain the property of the previous occupant. APs will be given cash payment for their houses and will organize the relocation and construction of new houses on their own. Where more than eight households require houses in one area, the Project will provide a serviced resettlement site, if so preferred by the APs. Where vulnerable APs require

special assistance, the Project will organize suitable direct assistance, such as providing materials and hiring a contractor, for replacing houses, at an equivalent or better standard.

Owners generally construct their own houses with assistance from family and others in the village. With this in mind, costs and allowances will be, for those who choose to build their own homes, as follows:.

- Payment of compensation in cash or materials at full replacement cost at current market value, with no deduction in compensation for depreciation or salvageable materials.
- Allowances for the expense of relocation of family and possessions to a replacement house, based on standard RGC rates.
- Allowances the cost of living and disturbance during the re-establishment period, based on a monthly cost of providing for the family food and living costs determined through percentage of annual income (high end estimate), of US\$40 or equivalent to 40 kg of rice per household for three (3) months, whichever is greater, will be provided to relocating APs.

7 INCOME RESTORATION STRATEGY

7.1 INCOME LOSSES

7.1.1 Substation Land

Severely Affected Persons (SAPs) are identified as the 15 APs losing land to the two substations, WWP (8 APs losing 4.5 ha riceland) and TSS (12 APs losing 1.5 ha riceland). Substation land acquisition will be fully compensated and allowances given for income losses (see Entitlement Matrix, Table 4-2). Severely affected farmers (losing 20% or more of total productive landholding) will be entitled to other rehabilitation assistance, including advice and technical assistance to improve productivity on remaining land or to develop alternative livelihoods. The income restoration program (Section 7.2) applies to substation SAPs as well as to those on the transmission line alignments.

7.1.2 Structure Relocation

Some 145 APs required to relocate their homes from the 220kV and 115kV transmission line COIs (127 APs on the 220kV Line and 18 APs on the 115kV Line), about 40% will likely be able to move to another location on the same plot of land and 60% required to relocate within their village and for whom the Project will have to provide a new plot of land and cost of fill to raise the land for residential purpose. As with land acquisition for substations, all land acquisition along the transmission line COIs will be fully compensated and allowances given for income losses (see Entitlement Matrix, Table 4-2). There is one commercial scale chicken farm that will be affected at Krang Chake village, requiring the relocation of a chicken shed within the same site. No other businesses will be affected.

7.1.3 Trees

The requirement of moving trees from the transmission line COIs may be the largest direct income loss for individual APs. However, it is very difficult at this stage to assess the income loss, either more broadly or for an individual AP. This can be done once the lines are 'pegged out' upon finalization of the design and the carrying out of the Detailed Measurement Survey (DMS) that will update and finalize in the information about APs and the specific Project impacts.

It is possible, however, to make a general assessment of the income loss that is possibly involved in removing trees from the COI. Tables 2-6 and 2-10 indicate the trees so far identified along the 220kV and 115kV COIs. It is a very general estimate of trees that may require relocation.

(a) **Sugar Palm (*Borassus flabellifer*)**

There are by far more Sugar Palms, *Thnot* in Khmer, likely to be removed from the Transmission Line COIs than any other type of tree, about 40% of all trees along the 220kV Line and around 36% of trees likely to fall within the 115kV Line. Some 488 APs were reported to have about 2,769 Sugar Palm trees possibly affected by the 200kV COI, nearly 6 trees per household where trees owned per household may vary from 10-30,⁶² so that conceivable loss is, somewhat theoretically at this point, on the order of 20-60%, depending on final design and actual number of trees requiring to be removed from the COI.

⁶² Kieu Borin. 'The Sugar Palm Tree as the Basis for Integrated Farming Systems in Cambodia,' Second FAO Electronic conference on Tropical Feeds: Livestock Feed Resources within Integrated Farming Systems. Between 9 September 1996 and 28 February 1997. <http://ces.iisc.ernet.in/hpg/envis/sugdoc1104.html> (email: borin@forum.org.kh).

Ovesen et al (1996) have categorized the agricultural system found in upper Takeo as a 'Rice and Sugar Palm Complex,' highlighting the importance of Sugar Palm trees as a necessary crop for providing families with a much needed cash income.⁶³

In several rice-growing areas, subsidiary crops play an important role. In the upper part of Takeo [for instance], the rice cultivation is mainly rainfed lowland rice, produced on poor sandy soils. These soils, however, are quite suitable for the sugar palm tree, which is an important cash crop providing many families with necessary cash incomes in an economy known as the 'rice and sugar palm complex.' It has been estimated that the value of sugar production from 20 palm trees corresponds roughly to the value of rice produced on 1 ha. In 1993, rice production in Cambodia averaged around 1.3 tons per hectare. Food consumption is equivalent to 260-270 kg of paddy per inhabitant per year. In Takeo, one of the particular parts of the country where the soil is especially poor and the population pressure high, around fifty percent of families failed to produce enough rice for their own consumption.

The Sugar Palm, tapped for its juice during the dry season, starting in December or January right after paddy harvest and finishing at the time of plantation of the paddy seedbeds in May or June, provides about equal or even more income to farmers as rice farming during the wet season. For instance, in Oudong District, Kampon Speu Province, where about 50% of families are palm sugar producers, rice was estimated to produce around US\$190,000 annually, while palm sugar was estimated, depending on selling price (350-600 riels/kg) to earn \$125-220,000 per annum district-wide.⁶⁴ Men generally collect the sap and women undertake the more strenuous tasks of collecting wood for cooking the palm syrup and the other tasks involved in processing.

Unfortunately, the price for sugar derived from the palm sugar collapsed in 1999 due to the competition of white sugar and the end of exports to Vietnam. In Oudong District, some 40% of palm sugar producers ceased production, leading to exodus of many to Phnom Penh. Further, concerns have been raised about the pressure on forest resources from palm sugar production, for which about 4 kg of fuelwood is estimated required to produce 1 kg of palm syrup.⁶⁵ Palm Sugar trees take about 20 years to reach maturity for producing sap and produce for up to another 80 years in many cases.

Other sources of income from Sugar Palms are: (a) making products from Sugar Palm fibre, for which only the younger trees are suitable, such as brooms and other handicrafts; roofing, and wall materials from the leaves; fruit, which is eaten or used in cooking; rafter material for houses from the less productive trees.⁶⁶

⁶³ Jan Ovesen, Ing-Britt Trankell, Joakim Ojendal. 1996. *When Every Household is an Island: Social Organization and Power Structures in Rural Cambodia*. Uppsala University: Uppsala Research Reports in Cultural Anthropology, No. 15. pp 22-24.

⁶⁴ Jean Pierre Mahe. 2000. *Marketing Opportunities for the Products of the Sugar Palm Trees in Oudong District*. GTZ and Department of Forestry and Wildlife: Cambodia-German Forestry Project, Phnom Penh, Cambodia. December.

⁶⁵ Khiu Borin. 1996. Sugar Palm (*Borassus flabellifer*): Potential Feed Resource for Livestock in Small-Scale Farming Systems. FAO/TCP/CMB/2254 Project, the International Foundation for Science (B/2353-1) and SAREC (research as partial fulfilment of the requirements for an M.Sc. in livestock-based sustainable farming systems). <http://www.fao.org/ag/AGa/AGAP/WAR/warall/W9980T/w9980e04.htm>

⁶⁶ Borin Khieu*, J.E. Lindberg and T.R. Preston. 1996. *A Study on the Multipurpose Sugar Palm Tree (Borassus Flabellifer) and Its Products for Animal Feeding in Cambodia*. Proceedings of a Workshop on Integrated Farming in Human Development. Tune Course Center, Landboskole, Greve, near Copenhagen in Denmark. <http://www.husdyr.kvl.dk/htm/php/tune96/19Preston.htm>

Poorer women, heading households that do not have men to climb the trees, often make products from the fibre, especially brooms.

Because of concerns about the long-term viability of palm sugar production in the Districts along the Transmission Line COIs, a number of initiatives are under way to: 1) produce palm vinegar (for sale to Phnom Penh restaurants among other end users) in place of palm sugar, because it does not require cooking; 2) providing support for new handicrafts from the fibre, particularly different kinds of broom to find new market niches; 3) switching to other potentially valuable cash crops, such as cashew nuts, provided sufficient technical support can be afforded households interested in this; and 4) integrating sugar palms more fully into livestock production as an alternative to palm sugar production, particularly pigs, through new ways of preparing livestock feed.

The latter option is being looked at in particular as a way to provide a higher income-generating alternative to palm sugar production and to lessen the pressure on forest reserves that palm syrup cooking involves, as well as reducing the drudgery of women's work that is another feature of the palm sugar production. New types of brooms might be a way to help in particular poor women-headed households, who tend to be more likely engaged in this income generating activity

The current status of dependence upon sugar palms by APs is under review and will be confirmed prior to finalising the RAP prior to appraisal. If it is determined that APs are dependent on the sugar palm or other productive trees for a significant proportion (i.e. 20% or more) of their household income, a livelihood rehabilitation program will be designed.

(b) Other Economically Valuable Trees

As can be seen in Tables 2-6 and 2-10, there are about 30 varieties of economically valuable trees that are widely found along the COI, as well as an additional 30 or so miscellaneous variety of such trees owned in very small numbers. Such trees, including the Sugar Palm, are found clustered around built up areas where residences are located and serve a variety of uses, including fruit, leaves used in cooking or animal fodder, or for other purposes, building material, and shade. As with the Sugar Palm, which is also more widely scattered among the rice fields, these various trees, which take long years to develop, represent a considerable income investment for the APs.

It will be, however, a difficult task sorting out the income effects of loss of these trees. Some, such as banana, may remain within the COI given height restrictions only above 3 m, and others represent income based on a variety of factors such as age, health of tree, and so forth.

7.1.4 Temporary Disturbance

In addition to the income losses from permanent land acquisition, there will be income losses from temporary disturbances during implementation. Most of these will be compensated for by the Project, such as crop losses due to construction activities, and by the contractors, as according to contract provisions, where the impacts are directly caused by their activities. It is important for the contractors to take this responsibility so that they will have ample incentive to keep such impacts at a minimum.

7.2 STRATEGY FOR INCOME RESTORATION

A sugar palm/income restoration program study will be carried out and will be incorporated in the updated RAP. If further investigation identifies a dependence by APs on sugar palm or other productive trees for a significant proportion (20% or more) of their

household income, a livelihood rehabilitation program will be designed prior to finalizing the RAP. It is proposed to set up an income restoration strategy/program that is flexible enough to handle a wide range of contingencies, i.e., through the creation of a revolving micro-enterprise loan fund (MLF) that can be accessed by NGOs already working in communities along COI. This will require the active consultation with EDC, with these locally involved NGOs, with the above technical consultant expert on sugar palms and other economic trees (and on various programs being proposed for alternative income generation program based on the proposed MLF). It is estimated that the study will take 1 to 2 months.

The 2000-2001 Socio-Economic Survey noted a number of NGOs and other organizations working in the villages along the COI. Among these are the Lutheran World Service (LWS),⁶⁷ which supports a number of Integrated Rural Development Projects (IRDPs) particularly in Kandal and Takeo Provinces, which together form the greater part of the 220kV COI. The European Union (EU) supported Support Programme for the Agriculture Sector in Cambodia (PRASAC) has undertaken similar project in the COI villages, as have a variety of other organizations, including UNICEF, the World Food Program (WFP), Integrated Pest Management (IMP), Social Fund of the Kingdom of Cambodia, Catholic Relief Services, Pour Thom elderly Association (PTEA), GRET (supporting 'Ennatien Moulethan Tchonebatt, Khmer for 'rural lending,' or EMT, which is doing micro-financing), and AC Lida, which previously was an NGO but now does primarily commercial lending in the COI villages.

Appendix J of this RAP provides a more detailed Terms of Reference for income restoration strategy.

⁶⁷ Part of the Lutheran World Federation (LWF), an international organization representing Christian Lutheran Churches around the world. LWF. 2001. *LWF Cambodia: Annual Report*. Phnom Penh: Cambodia.

8 INSTITUTIONAL FRAMEWORK

8.1 IMPLEMENTATION ORGANISATION AND RESPONSIBILITY

The following organisations and individuals will have key roles in the implementation of the Project and according to their requirements will be the subject of capacity building and institutional strengthening measures, to be integral to the RAP planning and implementation:

- Implementing Agency, EDC
- Interministerial Resettlement Committee (IRC)
- Local Authority Sub-Committees
- Commune Councils
- Project Management Office (PMOs 1 & 2)
- Design and Construction Contractor
- Project Implementation Consultant
- Project Manager
- RAP/Environmental Coordinator (the RPEC Consultant)
 - RAP/Environmental Coordinator (Local Counterpart)
 - Geographic Information System (GIS) and Data Specialist
- Independent Monitoring Organisation (IMO)

8.2 IMPLEMENTING AGENCY

The organisation responsible for the implementation of the Project, including the RAP and environmental requirements, is Électricité du Cambodge (EDC). A Royal Decree in March 1996 established EDC as a wholly state-owned, limited liability enterprise⁶⁸. Before 1996, EDC operated as a Government Department under the direction of the Ministry of Industry, Mines and Electricity (MIME). Currently, MIME and the Ministry of Economy and Finance (MEF) jointly own EDC. Hence it is under their overall supervision and joint control. MIME will have overall responsibility for implementation of the Project. The Ministry of Economy and Finance (MEF) will fund the implementation of the RAP, and EDC will, in coordination with relevant agencies and guidance of the IRC, manage and supervise the overall Project, including Resettlement activities. EDC will establish a permanent Environment and Resettlement Office staffed with qualified social and environmental specialists.

8.3 INTERMINISTERIAL RESETTLEMENT COMMITTEE

As originally agreed between the World Bank (prior to the ADB's assumption of funding for the 200kV component), MEF and EDC an Interministerial Resettlement Committee (IRC) was established 30 January 2001 for "investigation and assessment of the impact on the structures, households and land properties belonging to the citizens who live within the COI of the Transmission line from Phnom Penh toward the boundary of Viet Nam and Cambodia via Takeo as part of the national Transmission System in the Southern part of

⁶⁸ The decree gave EDC the non-exclusive right to generate, transmit and distribute electricity throughout Cambodia.

Cambodia. The ‘*Decision*’ document signed by the Prime Minister appointed the following as members (list includes current replacements):⁶⁹

- 1) H.E. Out Chhorn [replaced by H.E. Neang Leng (MEF)] -- Chairman
- 2) H.E. Governors of the Provinces crossed by the transmission line (Phnom Penh, Kandal, Kampong Speu, and Takeo) – Member(s)
- 3) Mr. Ty Norin, Deputy Managing Director, EDC [Replaced by Mr. Chan Sodavath, Acting Executive Director of Corporate Planning and Projects, EDC] - Member
- 4) Mr. Sam Khand Dy, Director of Department of Ministry of Environment – Member
- 5) Mr. Oum Borith, Deputy Director of the Ministry of Land Management, Urban Planning and Construction – Member
- 6) Mr. Chhay Vanthan, Deputy Director, Industry of the Council of Ministers – Member
- 7) Mr. Victor Jona, Chief of Provincial & Rural Electrification, MIME - Member

The IRC will also oversee the Project’s environmental requirements for the Project, as these relate primarily to impacts on the social environment.

The IRC was assigned the following responsibilities:

- Investigation and assessment of the impact on structures, households, and land properties belonging to the citizens who live within the COI of the Transmission Line from Phnom Penh towards Takeo and to the border of CAMBODIA and Viet Nam as a part of the National Transmission System in the Southern part of CAMBODIA
- Firm up and determine the Compensation Amount for compensating the impact on the structures, households and land properties caused by the above mentioned Project
- Report to the RGC the activities and request for approval if necessary.

The Project Management Offices (Section 8.6) within EDC will have overall responsibility for the design and construction of the Project including, as agreed in a Memorandum of Understanding (MOU) with ADB and World Bank signed February 2003, the management and implementation of the RAP. The IRC, of which EDC is a member, will be responsible for approving the compensation rates that will be finalized by RPEC together with the EDC’s Environment and Resettlement Office and the Local Resettlement Sub-Committee Local Authority Sub-Committees. The Ministry of Economy and Finance will disburse compensation funds to the office of the Provincial Governor for payment to APs.

Local Authority Sub-Committees will be established in each Project Province soon after receiving the No Objection Letters from the ADB and World Bank. The Sub-Committee in each Province will be headed by the Provincial Governor and members will be the District Governors, Chief of Communes, and head of villages, along the COI. The Sub-Committees will assist the PMO resettlement group in:

- Carrying out a public information campaign, public participation and consultation

⁶⁹ The Royal Decree Ref: 09 (*khmer*), dated 30 January 2001 and signed by the Prime Minister, Hun Sen. A project-specific IRC is established for every project, under the chairmanship of MEF. Membership other than the chair and Ministry of Land Management, Urban Planning and Construction, and Ministry of Environment, changes with each project depending on the sector, hence membership of EdC and relevant provincial governors.

- Assist the RPEC/EDC in DMS and finalizing the compensation unit rates
- Finalizing compensation and entitlement forms for each AP
- Payment of compensation and allowances through disbursement from the office of Provincial Governor
- Planning and implementation of all resettlement and rehabilitation activities at the district and commune level
- Establishing the GRC at the commune level
- Addressing all grievances in the communes in accordance with the established procedures
- Maintaining records of all public meetings, grievances, and actions taken to address complaints and grievances

8.4 COMMUNE COUNCILS

During RAP implementation, Commune Councils of the affected communities will play a key role in facilitating and coordinating with the RAP team. They will help to organize public meetings and consultations, guide the RAP team during the Detailed Measurement Survey's (DMS's) revalidating inventory, facilitate in conflict resolution and witness with signature the agreed inventory list of affected assets of each household.

8.5 PROJECT MANAGEMENT OFFICE NUMBERS 1 & 2

Project Management Office (PMOs 1 & 2) within EDC will have overall responsibility for the design and construction of the Project including, as agreed in a Memorandum of Understanding (MOU) with ADB and World Bank signed February 2003, the management and implementation of the RAP. The IRC, of which EDC is a member, will be responsible for approving the compensation rates that will be finalized by the RPEC together with EDC and the Local Sub-Committees. The PMOs will be established on the same basis as the Project Management Unit (PMU), which is currently in charge of Project preparation, and the PMOs will be set up upon ADB and World Bank approval of the Project. The PMOs will be staffed on a full time basis and will be dissolved after the Project is handed over to the EDC. Figures 8-1 and 8-2 show the organizational structures of the two PMOs. An in-house advisor and the Project Implementation Consultant (PIC) will support EDC in the execution of the Project. The official supervision of the contractors will be the responsibility of the Resident Engineers, representing the PIC.

The specific responsibility for land acquisition, compensation payments and resolution of individual grievances lies with the Project Managers for the respective PMOs (1 & 2) for the ADB and World Bank-financed components of the Project. PIC experts, including technical, resettlement, and environment will support the Project Manager. An RAP and Environment Coordinator (RPEC Consultant) will be appointed to coordinate the activities required under the RAP. The RPEC will report to the Project Manager (Project Implementation Consultant). As the RPEC Consultant is a part time function, a Local Counterpart RPEC will be appointed as a full time member of the team.

An Independent Monitoring Organization (IMO) will monitor the work of the above resettlement group. The IMO will monitor the resettlement and compensation process to verify and ensure that the ADB and World Bank's objectives are met. This organization will also be involved in the complaints and grievance resolution procedures to ensure concerns raised by Project Affected Families are addressed. See Section 8.1. for further discussion.

8.6 ORGANIZATIONAL CHARTS

Figure 8-1 indicates the operational interactions between the various entities that will be involved in the Project and the RAP implementation once the Project is approved. Figure 8-2 indicates the overall organizational chart for the Project execution of the ADB 220kV substation and transmission and the World Bank 115kV transmission line, substation and Grid Extension. Figures 8-3 and 8-4 show the PMO 1 and PMO 2 organization, including assignment of RAP implementation responsibilities.

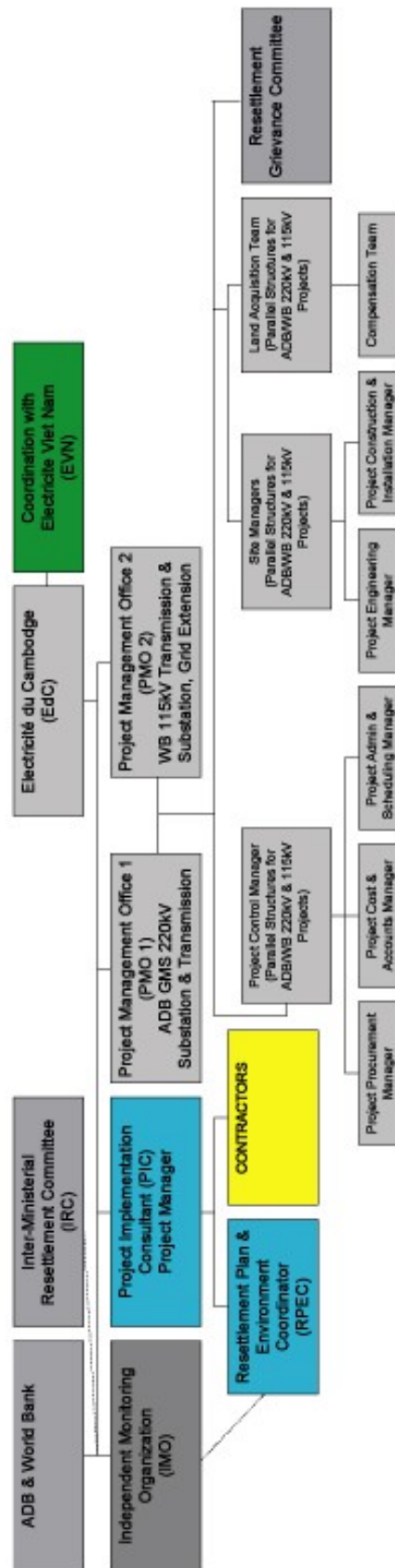


FIGURE 8-1: OVERALL OPERATIONAL INTERACTIONS

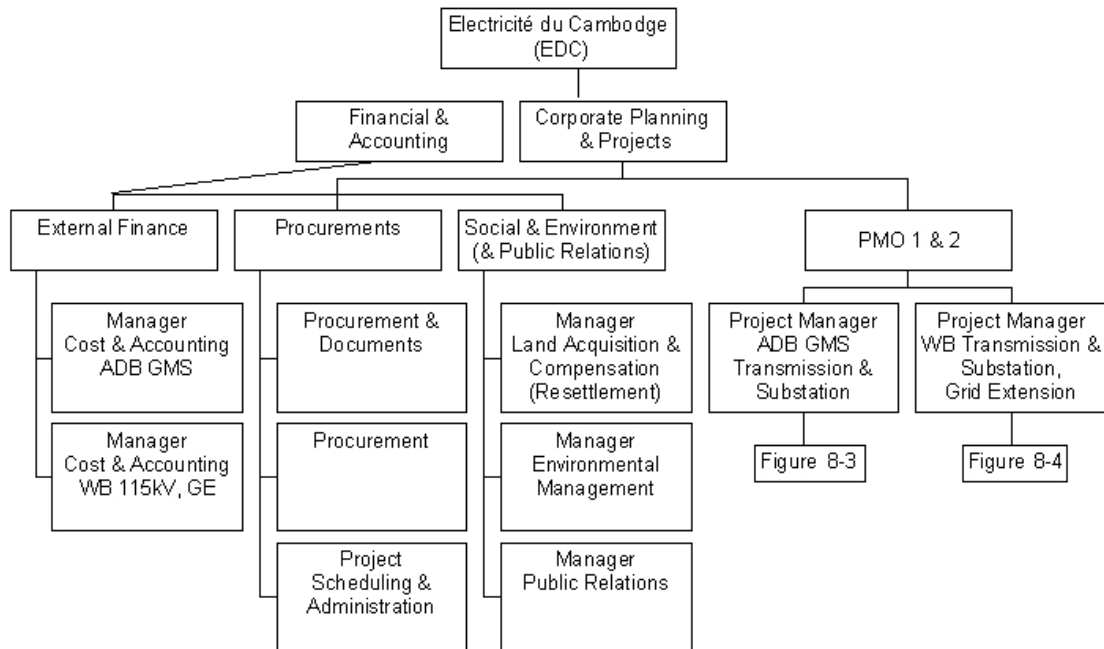


FIGURE 8-2: OVERALL PROJECT MANAGEMENT ORGANIZATION

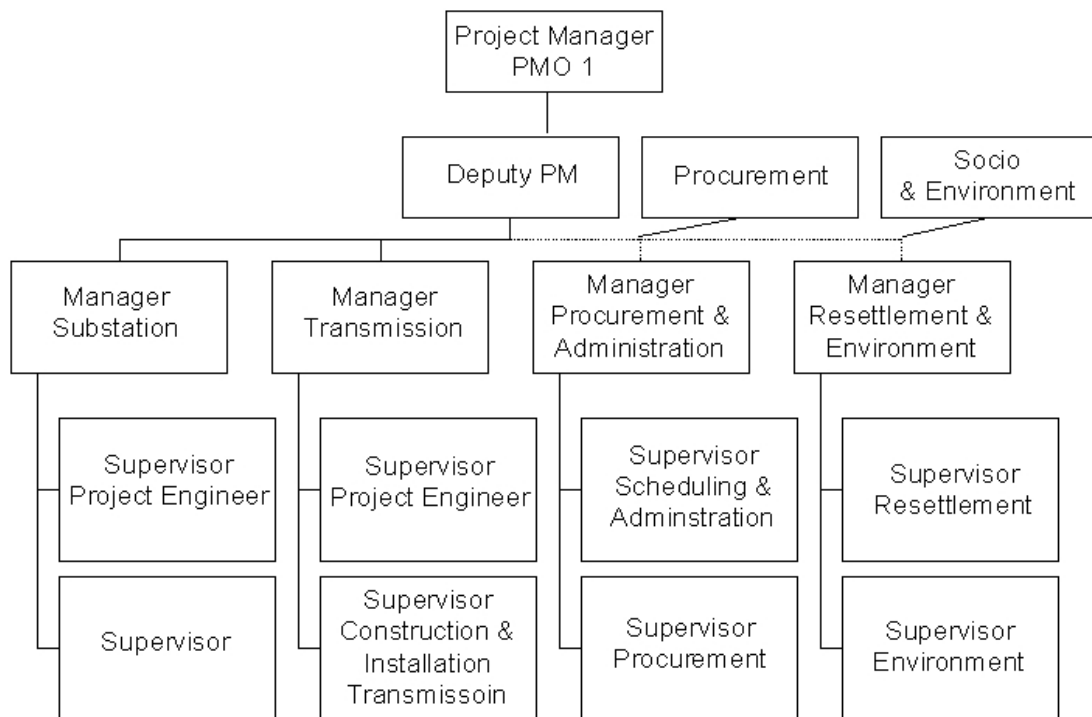


FIGURE 8-3: PMO 1 EXECUTION ORGANIZATION CHART

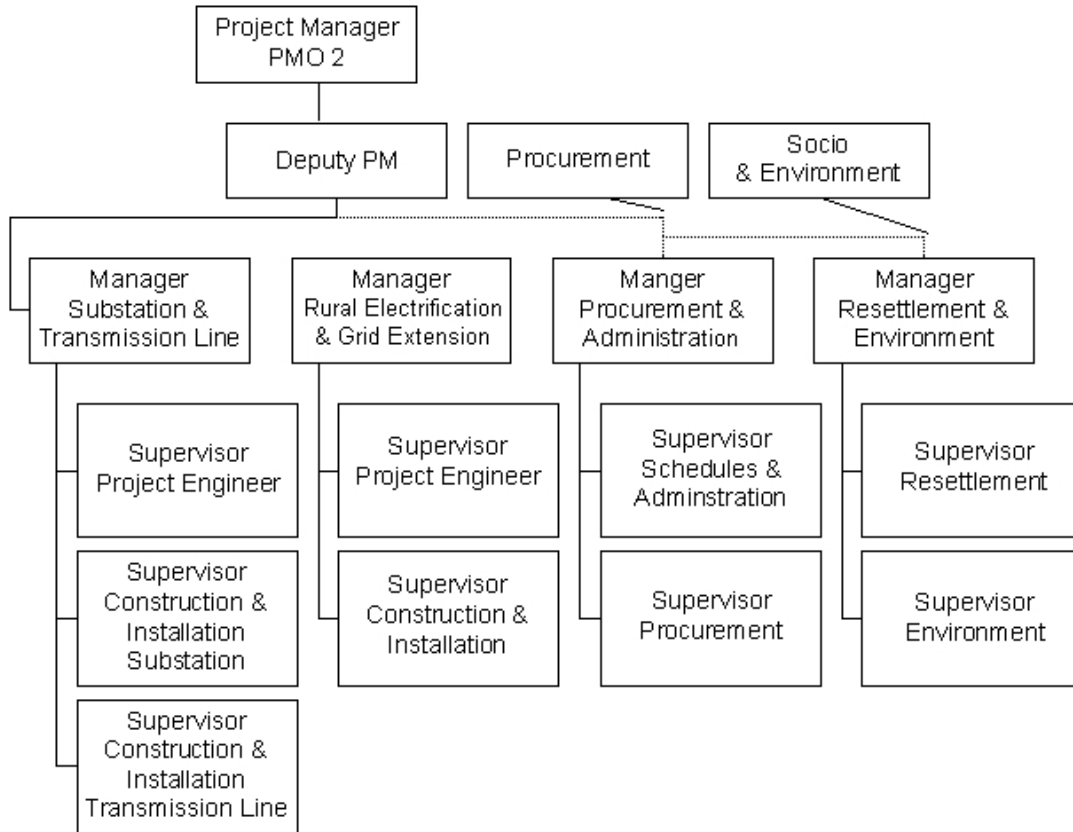


FIGURE 8-4: PMO 2 EXECUTION ORGANIZATION CHART

8.7 DESIGN AND CONSTRUCTION CONTRACTOR

The Design and Construction Contractor will be responsible for ensuring that construction is carried in a manner that ensures the implementation of the RAP and environmental requirements. This includes preparing a Construction EMP detailing how this will be achieved.

The Survey and Design Teams have a responsibility to seek to site and design the Project in such a way as to minimise impacts, consistent with the technical and economic objectives. The RPEC, recruited as part of the PIC team, will participate in finalizing the alignments to minimize resettlement impacts.

8.8 PROJECT IMPLEMENTATION CONSULTANT

A Project Implementation Consultant (PIC) will be appointed early in the Project to take overall responsibility for the Project. The Project Implementation Consultant will be responsible for ensuring that the RAP and environmental requirements are fully implemented including ensuring the resolution of any issues that may arise between this and other aspects of the Project. The PIC will hire and supervise the RPEC. It will also hire and provide technical assistance and logistical support to the IMO as required to do its work.

8.8.1 RAP/Environmental Coordinator (the RPEC Consultant)

An RAP/Environmental Coordinator (RPEC) will be appointed to coordinate the activities required under the RAP and implementation of environmental requirements. The RAP Coordinator shall report to the Project Manager (Project Implementation Consultant, i.e., the 'Project Engineer'). No resettlement activities will begin until after the RPEC and his or her domestic counterpart and GIS/Database specialist have been mobilized.

As most of the implementation social and environmental issues will revolve around involuntary resettlement, the RPEC will need to be a specialist in involuntary resettlement and will provide 'hands on' capacity building training to EDC in implementing the RAP and to both EDC staff and NGO involved in monitoring and evaluation activities. The RPEC shall, among other activities:

- Update, implement and monitor the RAP;
- Establish and implement a resettlement data management system including procedures for the accurate recording of all affected persons by means of DMS and census;
- In coordination with local authorities ensure that APs are informed of their entitlements, and implement information campaigns and stakeholder participation;
- Establish and implement procedures to minimize adverse social impacts from land acquisition and loss of other assets throughout the planning, design and implementation phases (e.g. validation of drainage design to ensure they are appropriate for local conditions).
- Establish and implement procedures for undertaking and completing census and detailed measurement survey (DMS);
- Prepare budget for RAP activities;
- Organize and carry out specific studies, such as *Trees Cost Assessment and Income Impacts and Remediation Study and Substation Land Fill Study*;
- Establish and implement procedures for the coordination of compensation, resettlement, and rehabilitation activities on the various components;
- Design and implement detailed income restoration programs for APs severely affected by loss of income (i.e. by loss of business or loss of 20% or more of household income from affected agricultural land, or trees);
- Supervise the implementation of rehabilitation measures;
- Establish and implement procedures for tracking compliance to Project policies;
- Establish and implement procedures for the prompt implementation of corrective actions and the resolution of grievances in coordination with concerned Government agencies; I
- I coordination with local authorities and the GRC, assure that grievances about resettlement activities are satisfactorily redressed;
- Establish and implement liaison mechanisms to ensure proper technical and logistical support to PMOs, Project Managers and teams, resettlement sub-committees;
- Establish and implement procedures for ongoing internal monitoring; and

- Supervise external monitoring agency activities and ensure that the Terms of Reference are properly and effectively achieved

Successful implementation of the RAP will require close coordination between the PMOs and the Provincial, District and Commune authorities. These together may be deemed to be an *RAP Working Group*, and the RPEC will have the responsibility for facilitating the coordination between these.

8.8.2 RAP/Environmental Coordinator (Local Counterpart)

An RAP/Environmental Coordinator (Local Counterpart) shall be appointed to work with the RAP/Environmental Coordinator (Consultant).

8.8.3 Geographic Information System (GIS) and Database Specialist

The RPEC will be assisted by a domestic Geographic Information System (GIS) and Data Specialist, who will take monitoring information from the EDC and formulate Khmer and English language monitoring reports on the 220kV and 115kV lines, backed by GIS maps, for use by EDC and NGOs, as well as to be forwarded respectively to the ADB and World Bank, who are financing these two Project components.

8.9 COMPLAINTS AND GRIEVANCE COMMITTEE

A Complaints and Grievance Committee will be established for the consideration of complaints and grievances from the APs. A procedure shall be set up related to the liaison program with APs, and the implementation monitored by the IMO. The Committee will have as members, representatives of the following:

- PMO 1&2/EDC
- IRC
- IMO
- Local Leader in each Village/Local Area
- Local NGO

The community consultation program will provide contact details for submission of complaints and grievances. This shall include a phone contact and address for written submissions. However, as this is not a practical means of communication for many people in remote areas, it will also be necessary to establish an appropriate alternative avenue for people who are illiterate or for whom these are not appropriate avenues.⁷⁰ People shall also have the option of contacting the IMO should they wish, the local authority or their local Member of Parliament.

There will be no fees or charges required of those wishing to have a complaint heard. If any payments are made, then the fee shall be refunded by the Project. Other costs incurred by legitimate complainants shall also be refunded by the Project. Follow up checks of this shall be included in the scope of the IMO.

8.10 INDEPENDENT MONITORING ORGANISATION

An Independent Monitoring Organisation (IMO) shall be appointed to monitor the resettlement and compensation process and implementation of environmental requirements to and verify that compensation, resettlement and rehabilitation have been implemented in accordance with the agreed RAP. The IMO will also be involved in the

⁷⁰ Note, however, that illiteracy is relatively low in Cambodia. See socio-economic information section of RP.

complaints and grievance procedures to ensure concerns raised by APs are addressed. This has been adopted for the road projects carried out in Cambodia recently.

It is important that the IMO chosen for this has a good relationship with the government. At the same time it needs to be able to maintain a strong independent position and provide constructive feedback to the project to ensure the objectives are met. The IMO must also have good local knowledge of people in the project area and have, or be able to provide, representation at the local level. Provision shall be made in the project for further capacity building for the IMO, and strengthening ties between the government and NGO sectors. The IMO will be directly hired by and funded under the Project Supervision Consultants and the said IMO will directly report to IRC, World Bank and ADB.

NGO umbrella organisations shall be consulted by the PMOs in the selection of the IMO. The following organisations shall be contacted in this regard:

8.11 CAPACITY BUILDING/INSTITUTIONAL STRENGTHENING

Capacity building and other assistance will be incorporated into the project for the implementing agency and for the IMO. Currently EDC has four engineers who received technical training in 1999 in environmental management under a World Bank TA, during the Phnom Penh Power Rehabilitation Project, to establish its environmental unit. The capacity building was conducted by SMEC and included the 'essential principles of environmental management which are widely accepted in today's world:'

- An environmentally aware and committed workforce
- Workforce Training
- Continuous improvement in environmental performance
- Community involvement
- A safe and clean working environment
- Environmental Assessment and Monitoring
- Waste Minimization
- Best Environmental Practice; and
- Readiness to respond to environmental accidents

Only one of the originally trained engineers is currently working in environmental management activities at EDC. The others are all assigned tasks in other areas within the corporation. The setting up of the resettlement group within EDC will, therefore, require considerable initial training in resettlement and environmental management.

The RAP Coordinator (Consultant) will prepare a Capacity Building Plan early in the implementation of the Project. Training shall be throughout the assignment and will be '*hands on*' including awareness of the social and environment requirements of the Project for all EDC personnel and management whose activities and decisions can affect the social and environmental outcomes of the Project.

For initiating the capacity building activities, the RPEC Consultant will prepare and carry out a 3 day workshop for EDC staff, the IMO and local authorities that will cover, among other things:

- Resettlement Principles and Policy (including those of ADB and World Bank)
- Resettlement Planning Procedures (Including Land Acquisition and Compensation)
- Resettlement Implementation Procedures and Management

- Methodology for Compensation Assessment
- Data Management System (Focus on Existing GIS Database Prepared During Feasibility Studies)
- Public Participation and Community Consultation
- Design and Supervision of both Internal and Independent Monitoring, as well as External Auditing and Post Project Evaluation Methodology
- Specialist Technical Advice, as seen to be required and as appropriate.

This will be followed up by separate workshops held in the Province(s) specifically for the Provincial and District Sub-Committees.

9 RESETTLEMENT BUDGET AND FINANCING

9.1 BASIS OF COMPENSATION COST ESTIMATE

The compensation rates for the various categories were based from ADB Primary Roads Improvement Project in Cambodia. However, the said rates were based on 1999 rates, therefore, a 12% adjustment was applied for various losses (3% increase per year for four years). These are 2003 cost estimates only and will be adjusted upward at the time of Detailed Measurement Survey to reflect the current market value at the time of compensation.

9.1.1 Business Impact.

All affected shops or businesses will be compensated at full replacement cost without deduction for depreciation or salvageable materials for affected structures and other fixed assets. A rate of US\$40 or equivalent to 40kg of rice per household for three (3) months, for business that will be required to close down during the relocation period will be provided in a lump sum amount to any small shops while big businesses have to provide their business income statement. For employees, cash compensation for lost wages for each day they cannot work while business is reorganising at new site.

9.1.2 Temporary Construction Impacts.

Crop damage during construction and interference with field preparation and planting: The rate used for compensation for rice crop damage is dependent on a number of factors, especially the yield of rice (tonnes per hectare) and the market price for the rice.

- a. Rice yields vary with soil type, farming practices (such as irrigation, fertiliser, field preparation) and quality of seed. A rice yield of 2.5t/ha of paddy rice, with one crop per year, has been adopted for the compensation estimate for the wet season lowland rice growing, which is the main form in the project area. There is some dry season recession rice growing practiced in the far southern part of the project area, for which a higher yield of 5t/ha has been adopted.
- b. A crop value of US\$200/t has been used in the cost estimate. A range of prices has been reported, which may be due to variability between times of year.
- c. Construction activity will damage crops and interfere with field preparation and related farm work, depending on the timing of construction with respect to timing of farm work. It is possible that construction could be timed to avoid damage, however this would be difficult to manage and may increase the cost of construction. In addition the cost and complexity of monitoring would significantly increase.
 - i. It is inevitable that the contractor will damage fields, bund walls, etc during construction. However, the contract will require that the contractor make good any damage incurred during construction.
 - ii. The contractor will carry out repairs to other infrastructure. This will be built into the contract requirements. For local public roads, such as village roads damaged by the transport of heavy equipment such as transformers into the substations, it has been assumed that 5km of road will need to be repaired at a nominal rate of US\$2/linear metre.

The estimate has been based on conservative assumptions that construction of every tower will impact the growing season in one year and that the contractor will create a 3 m wide access road the full length of the 220kV line and occupy for one growing season. Realistically, the contractor will carry out the majority of the tasks that will impinge on farm land in the fallow season so that little compensation will be required.

- d. Compensation for on-going impacts during maintenance activity has not been included in the costing as this is outside the scope of the project implementation. Cost of ongoing maintenance would be expected to be small, consisting of possible damage to crops and ground while accessing the line. This should be built into the maintenance contract by requiring the contractor to make good any damage caused.

9.2 COMPENSATION AND INCREMENTAL ADMINISTRATION COST ESTIMATES

The total costs of compensation for the Project, Incremental Administration for IRC Working Group and Summary Fee Cost for IMO are estimated at US\$2,037,991.49 with a 20% contingency.

As mentioned in the earlier paragraph, the compensation rates for the various categories were based from ADB Primary Roads Improvement Project in Cambodia. The said rates were based on 1999 rates, therefore, a 12% adjustment was applied for various types of losses (4% increase per year for three years). These are 2003 cost estimates only and will be adjusted upward at the time of Detailed Measurement Survey to reflect the current market value at the time of compensation.

Table 9-1: RAP Cost Estimates

		Cost Estimates		No. of Units	Cost Estimates (2003)
		1999 Rates (US\$)	2003 Rates (US\$)		
I	Allowances				
	Disruption Allowance (per AP)	40.00	40.00	168.00	6,720.00
	Vulnerable Group (per AP)				
	Widow (per AP)	20.00	20.00	25.00	500.00
	Disabled (per AP)	20.00	20.00	-	-
	Income below \$10/month (per AP)	20.00	20.00	-	-
	Resettlement Allowances (per AP)	40.00	40.00	101.00	4,040.00
	Resettlement Site Devt and Public Facilities	508,500.00	508,500.00		508,500.00
	Sub-Total				519,760.00
II	Structures				
	House Type 1 (sq.m.)	4.50	5.04	1,260.00	6,350.40
	House Type 2 (sq.m.)				

		Cost Estimates		No. of Units	Cost Estimates (2003)
		1999 Rates (US\$)	2003 Rates (US\$)		
		12.00	13.44	3,396.00	45,642.24
	House Type 3 (sq.m.)	85.00	95.20	242.00	121.00
	House Type 4 (sq.m.)	140.00	156.80	-	-
	Gas Stations	3,000.00	3,360.00	-	-
	Digging wells	50.00	56.00	-	-
	Pump wells	50.00	56.00	-	-
	Cemetery	3,000.00	3,360.00	-	-
	Wooden Fences (per meter)	0.75	0.84	-	-
	Concrete Fences (per meter)	4.86	5.44	-	-
	Access Wooden Bridges	4.50	5.04	-	-
	Sub-Total				48,283.24
III	Land				
	A. Transmission Towers 220kV Line		-		
	- Area of Land for Towers (residential)	2.00	2.24	37,000.00	82,880.00
	- Area of land for Corridor of Impact (COI)		-		
	- Agricultural land	0.50	0.56	70,195.00	39,309.20
	- Residential Land	2.00	2.24	163,345.00	365,892.80
	B. Transmission Poles 115kV Line		-		
	- Area of Land for Poles (residential)	2.00	2.24	240.00	537.60
	- Area of land for Corridor of Impact (COI)		-		
	- Agricultural land	0.50	0.56	-	-
	- Residential Land	2.00	2.24	3,450.00	7,728.00
	C. Land for Substations		-		
	- West Phnom Penh Substation Area		-		-

		Cost Estimates		No. of Units	Cost Estimates (2003)
		1999 Rates (US\$)	2003 Rates (US\$)		
	- Agricultural land	0.50	0.56	48,400.00	27,104.00
	- Residential Land	2.00	2.24	15,000.00	33,600.00
	- Area of Land for Road for WPP (residential)	2.00	2.24	5,000.00	11,200.00
	-Takeo Substation Area		-		
	- Agricultural land	0.50	0.56	46,000.00	25,760.00
	- Residential Land	2.00	2.24	20,150.00	45,136.00
	- Area of Land for Road for TS (residential)	2.00	2.24	2,000.00	4,480.00
	Sub-Total				643,627.60
IV	Fruit Trees (per Tree)				
	Bamboo	5.00	5.60	187.00	1,047.20
	Banana	5.00	5.60	872.00	4,883.20
	Coconut	15.00	16.80	512.00	8,601.60
	Ampel	5.00	5.60	94.00	526.40
	Ampel Barang	5.00	5.60	20.00	112.00
	Ampel Toeuk	5.00	5.60	104.00	582.40
	Chan	5.00	5.60	1.00	5.60
	Kamping Reach	15.00	16.80	5.00	84.00
	Kantuot	5.00	5.60	6.00	33.60
	Kawit	15.00	16.80	23.00	386.40
	Knol	20.00	22.40	103.00	2,307.20
	Kokor	5.00	5.60	2.00	11.20
	Kor	5.00	5.60	12.00	67.20
	Krasang	5.00	5.60	152.00	851.20

		Cost Estimates		No. of Units	Cost Estimates (2003)
		1999 Rates (US\$)	2003 Rates (US\$)		
	Makak	5.00	5.60	2.00	11.20
	Mean	30.00	33.60	15.00	504.00
	Pring	5.00	5.60	208.00	1,164.80
	Sangke	5.00	5.60	3.00	16.80
	Sdao	5.00	5.60	62.00	347.20
	Sleng	5.00	5.60	15.00	84.00
	Soda	10.00	11.20	1.00	11.20
	Tapoung	5.00	5.60	100.00	560.00
	Teab	10.00	11.20	153.00	1,713.60
	Teab Barang	15.00	16.80	8.00	134.40
	Trabek	5.00	5.60	195.00	1,092.00
	Toeuk Dors	30.00	33.60	11.00	369.60
	Eucalyptus	5.00	5.60	223.00	1,248.80
	Lemon	15.00	16.80	60.00	1,008.00
	Mango	30.00	33.60	917.00	30,811.20
	Orange	15.00	16.80	26.00	436.80
	Papaya	10.00	11.20	84.00	940.80
	Sugar Cane	1.00	1.12	1,000.00	1,120.00
	Sugar Palm	8.00	8.96	875.00	7,840.00
	Svay Chanty	12.50	14.00	71.00	994.00
	Sub-Total				69,907.60
	Total (I to IV)				1,308,326.24
V	Incremental Cost (IRC Working Group)				300,000.00
VI	Independent Monitoring Organization/Agency				90,000.00

		Cost Estimates		No. of Units	Cost Estimates (2003)
		1999 Rates (US\$)	2003 Rates (US\$)		
	Total (I to VI)				1,698,326.24
VI	Contingency (20%)				339,665.25
	Total as per 2003 Rates				2,037,991.49

Note: These are 2003 cost estimates only and will be adjusted upward at the time of Detailed Measurement Survey to reflect the current market value at the time of compensation.

10 IMPLEMENTATION SCHEDULE

The implementation of the resettlement and compensation actions and environmental requirements shall be part of the overall implementation of the project. The process for implementation of resettlement and compensation activities includes the following steps:

- (a) Formation of IRC for the project (refer to Section 8.1 for description of the membership of this committee).
- (b) Appointment of staff, consultants and contractors as described in Section 8.1.
- (c) Develop training plan for capacity development in the implementing agency and the IMO and other relevant organisations (refer to Section 8.11).
- (d) Appointment of IMO (consult NGO Forum on Cambodia on selection) (refer to Section 8.1).
- (e) Formation of a Grievance Committee for the project (refer to Section 5.2). This would include representation from the IMO and affected communities.
- (f) Confirmation of project effects based on the detailed engineering survey, design and construction plan to be carried out. In this phase, review the transmission line alignment and design to further reduce the impact, particularly in regard to the need to remove houses.
 - Preparation of Construction EMP by the Design and Construction Contractor, detailing how the Contractor will achieve the requirements of the RAP and environmental requirements. This shall address the specific project design and construction details of the project.
 - The Construction EMP shall be forwarded to the Bank prior to its implementation.
- (g) Carry out final survey and prepare revised inventory of APs based on the detailed engineering survey, design and construction plan.
- (h) Declaration of cut-off date for inventory of APs. After this time no further people will be accepted onto the list of APs unless they can demonstrate that they were inadvertently missed in the surveys and are genuine.
- (i) Carry out further community consultation in conjunction with the preparation of the revised inventory of APs.
- (j) Revise and finalise the RAP.
- (k) Formal process for acquisition of COI and land. This is based partly on experience in the construction of the 115kV transmission line around Phnom Penh, as there is currently no general procedure for land acquisition for public projects in Cambodia. This should be reviewed prior to implementation if there is any national procedure issued in the meantime.
 - i. Carry out liaison with APs including informing them in person and in writing about the project, effects and compensation and other entitlements and monitoring and grievance procedures. This could be done in conjunction with the final survey and preparation of revised inventory of APs described above.
 - ii. Carry out negotiation and agreement of compensation entitlements with APs. These activities will include involvement of the IMO. Due to the high rate of illiteracy in rural Cambodia it needs to be ensured that APs understand the process.

- iii. For the majority of the transmission line route, the effects are limited to tree removal and temporary construction impacts on cropland. Here it is not necessary to acquire land or remove structures. It is only necessary to establish a COI for the purpose of constructing and maintaining the line and preventing trees and structures from being built under the line. The steps are as follows:
- Notify APs of the project, effects and compensation and other entitlements and monitoring and grievance procedures, as described above.
 - Due to the large number of people and the minor nature of the effects for this category, negotiations about compensation rates would be limited, as they would be based on replacement cost at the current market value. Compensation rates would be set in consultation with the IMO to ensure the pre-project living standards are maintained.
 - APs may appeal against the offer of compensation, within 30 days. If there is an appeal, then negotiation shall be carried out, with IMO as observer. If compensation value cannot be agreed by negotiation then an independent mediator shall be appointed to make a determination. The selection of the independent mediator is to be acceptable to the IMO.
- iv. Voluntary Acquisition Process:
- Issue a formal Notice of Intention (NoI) to acquire land or remove and replace houses or other property. This will be delivered to APs as part of the consultation activities described above, and include communication in person and in writing.
 - Allow 30 days for affected people to seek further information about the project, land acquisition and their entitlements. Land can be acquired by voluntary agreement in this time, based as a minimum on replacement cost at the current market value.
 - Allow a further 30 days in which APs may object to the proposal. Land can be acquired by voluntary agreement in this time.
 - Allow a further 30 days for land to be acquired by voluntary agreement. After this time, institute compulsory acquisition procedures.
 - During the above voluntary acquisition process, negotiations will be carried out which will include the IMO as observer.
 - When land is acquired by voluntary agreement then the compensation package is to be delivered within 14 days.
- v. Compulsory acquisition process:
- This process can commence from 90 days after NoI to acquire land or relocate houses or other property.
 - Issue a formal Notice of Acquisition (NoA) that land is to be compulsorily acquired or houses or other property relocated. This will include the Offer of Compensation (OOC), which will be determined in consultation with the IMO to ensure the compensation package is sufficient to enable the APs to regain their pre-project living standard in accordance with ADB and World Bank requirements. This will be communicated to APs in person and in writing.
 - APs may appeal against the offer of compensation, within 30 days. If there is an appeal, then negotiation shall be carried out, with IMO as observer. If compensation value cannot be agreed by negotiation then an independent

mediator shall be appointed to make a determination. The selection of the independent mediator shall be acceptable to the IMO. The decision shall be accepted by all parties.

- (l) Acquisition of replacement land to compensate for land acquired for substations and for houses to be moved from the COI.
- (m) Provision of monetary compensation where applicable: for small areas of land (less than 20% of landholding), crop losses, and other allowances. This shall be monitored by the IMO.
- (n) Construction of replacement houses and associated infrastructure. Two months notice shall be given to people prior to commencement and three months allowed for construction.
- (o) Relocation of people to replacement houses. Two months to be allowed for this.
- (p) Follow up monitoring by the IMO to ensure objectives met.

The schedules for implementation of resettlement and compensation activities and environmental requirements is tied to the implementation schedule for the Project as a whole and are shown on the following Gantt charts.

11 MONITORING AND EVALUATION

11.1 MONITORING AND EVALUATION

Implementation of the RAP will be regularly supervised and monitored by the EDC through its PMOs 1 and 2. Overall supervision and internal monitoring of RAP implementation will be carried out by the Design and Construction Contractor initially and then with the Project Implementation Consultant, with day to day supervision the responsibility of the RAP/Environmental Coordinator (RPEC), who will report to both and will work day to day in close conjunction with the 'resettlement group' from PMOs 1 and 2, local authorities, and the IRC. For external monitoring an Independent Monitoring Organization (IMO) will be contracted. The contracted IMO will establish contact with local authority sub-committees in each District for external monitoring of RAP implementation. Key stakeholders, represented by APs, and vulnerable groups as members of the contracted IMO, will be involved in the process. Both internal and external monitoring will be important for providing feedback of monitoring findings to management to take necessary action.

11.1.1 Internal Monitoring

The objective of the internal monitoring and supervision is to (i) verify that the valuation of assets lost or damaged, and the provision of compensation, resettlement and other rehabilitation entitlements, has been carried out in accordance with the provisions of the resettlement policies of the ADB and World Bank and the RAP; (ii) oversee that the RAP is implemented as designed and approved; and (iii) verify that funds for implementation of the RAP are provided by the Project authorities in a timely manner and in amounts sufficient for their purposes, and that such funds are used in accordance with the provisions of the RAP. The RPEC will, with his/her domestic counterpart and the GIS/database specialist, provide technical support in designing report formats for the internal monitoring, as well as external monitoring. These will be based on MS Access templates, using Excel databases and GIS for spatial illustrations of progress made, in percentage terms (until 100% of a given objective is completed).

11.1.2 Monitoring Indicators

The main indicators that will be monitored regularly are:

- The AP's entitlements are in accordance with the approved policy and that the assessment of compensation is carried out in accordance with agreed procedures
- Payment of compensation to the APs in the various categories (see Entitlement Matrix, Table 4-2) according to the level of compensation described in the RAP
- Public information and public consultation and grievance procedures are followed as described in the RAP
- Relocation and payment of subsistence and shifting allowances are made in timely manner
- Restoration of public facilities and infrastructure affected by the Project
- Job creation, as feasible (number of persons who need job provision and number who have found job)

- Linkage of satisfactory completion of compensation and resettlement and clearance of all encumbrances and commencement of civil works.

All monitoring data shall be disaggregated by gender

11.1.3 Staff for Conducting Internal Monitoring

The PMOs 1 and 2 staff will be responsible for internal monitoring activities. They will collect information from the respective commune regularly. Based on this data collection, they will maintain a database of resettlement monitoring information in the PIU, which will be successively updated every month, under close supervision and technical assistance of the RPEC under the Project Implementation Consultant and the Resettlement Consultant and GIS and Database Consultant.

IRC will be responsible for monitoring timely and accurate disbursement of funds to Provincial Governors and APs.

11.1.4 External Monitoring and Evaluation

An Independent Monitoring Organisation (IMO) shall be appointed to monitor the resettlement and compensation process and implementation of environmental requirements to verify that compensation, resettlement and rehabilitation have been implemented in accordance with the agreed RAP. The IMO will also be involved in the complaints and grievance procedures to ensure concerns raised by APs are addressed.

It is important that the IMO chosen for this has a good relationship with the government. At the same time it needs to be able to maintain a strong independent position and provide constructive feedback to the project to ensure the objectives are met. The IMO must also have good local knowledge of people in the project area and have, or be able to provide, representation at the local level. Provision shall be made in the project for further capacity building for the IMO, and strengthening ties between the government and NGO sectors. The IMO will be hired and funded under the budget of the Project Supervision Consultants supervising engineer Project Manager. The said IMO will directly report to IRC, ADB and World Bank.

11.1.5 Post Implementation Evaluation Study

Six months to one year after the end of resettlement activities, the IMO shall conduct an evaluation study of severely affected APs (house relocation and substation land) and the vulnerable groups among the affected population to determine whether or not the objectives of the RAP in terms of restoration of incomes and living standards have been achieved. The methodology for the evaluation study will be based on the follow up socio-economic survey to determine the impact of the Project on AP income levels and living standards of those severely affected by the Project. This survey will be conducted following the same methodology as adopted for the inventory preparation. The survey data thus collected will be compared with the baseline survey information that has been collected during the preparation of the RAP. All data for the evaluation study will be disaggregated by gender. The evaluation will look at whether the displaced and vulnerable household living standards are getting better or worse as a result of the Project. Then the IMO will propose appropriate additional assistance that may be necessary to achieve the stated objectives.

The IRC will have focal persons in each district to be accessible to APs for hearing and assisting with grievances and participating on GRCs.

11.1.6 Monitoring and Evaluation Reports

11.1.6.1 Monitoring Reports

The outputs of the RAP monitoring will include:

A brief methodological Inception Report submitted to the PMO and a copy to the ADB and World Bank (individually for 220kV and 115kV) within one month of beginning the assignment and

Final Monitoring Reports submitted to the PMO with copies to the ADB and World Bank within 2 weeks of the monitoring period.

11.1.6.2 Evaluation Report

The output of the evaluation study will be in the form of a brief report. The draft report will be submitted to the Project Implementation Consultant and to PMOs 1 and 2 with copies to the ADB and World Bank for review within 3 months from the date of the evaluation initiation. The reports will be revised and finalized taking into consideration the comments and suggestions by the ADB and World Bank