

**ASIAN DEVELOPMENT BANK**

**TAR:SRI 34323**

**TECHNICAL ASSISTANCE**

**TO THE**

**DEMOCRATIC SOCIALIST REPUBLIC OF SRI LANKA**

**FOR PREPARING THE**

**RURAL ELECTRIFICATION AND NETWORK EXPANSION PROJECT**

**December 2003**

## **CURRENCY EQUIVALENTS**

(as of 1 December 2003)

Currency Unit	–	Sri Lanka rupee/s (SLRe/SLRs)
SLRe1.00	=	\$ 0.0103
\$1.00	=	SLRs96.35

## **ABBREVIATIONS**

ADB	–	Asian Development Bank
CEB	–	Ceylon Electricity Board
LECO	–	Lanka Electricity Company (Pte) Ltd.
MOPE	–	Ministry of Power and Energy
MW	–	megawatt (1,000,000 watts)
RSL	–	Regaining Sri Lanka
TA	–	technical assistance

## **NOTES**

- (i) The fiscal year (FY) of the Government and its agencies ends on 31 December.
- (ii) In this report, "\$" refers to US dollars.

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## I. INTRODUCTION

1. During the 2003 Country Program Confirmation Mission to Sri Lanka, the Government of Sri Lanka (Government) confirmed its request for Asian Development Bank (ADB) technical assistance (TA) to prepare the rural electrification and network expansion project.<sup>1</sup> The TA is included in the 2003–2005 country strategy program. A fact-finding mission visited Sri Lanka in May 2003 and reached an understanding with the Government regarding the scope, approach, and implementation and financing arrangements for the TA.

## II. ISSUES

2. The power sector in Sri Lanka is undergoing reforms and restructuring in order to become financially and technically sustainable, and thereby ensure an uninterrupted supply of electricity to meet the national demand at all times. ADB is assisting the Government in the restructuring process<sup>2</sup> and is encouraged by the Government's commitment to reforming the power sector. This restructuring is part of a larger undertaking by the Government as stated in its recent document, *Regaining Sri Lanka (RSL)*,<sup>3</sup> which outlines the economic policies and sector activities of the Government. The RSL calls for substantial increase in economic growth, and, through increased activities in the major sectors, the increased economic growth should be obtainable. The prerequisite for increased economic activities is an equal development of the country's infrastructure to ensure that the economy has room and basic utilities in place to grow.

3. Sri Lanka's power sector has two particular areas that need to be addressed to meet the challenges outlined in RSL: (i) ensuring sufficient generation of electricity, and (ii) increasing the electrification of the nation. Other activities, such as expansion of the transmission and distribution network facilities, are considered to be routine matters as every economy grows. Regarding the need for additional power generation, an ADB study concludes that sufficient power generation capacity is available for 2003–2006. For 2007–2009 the Government is currently in the bidding phase of the 300 megawatts (MW) Kerewalipitiya power station. In addition, the government requested for expression of interest (EOI) for a 3x300 MW base load generation facility of which the first phase of 300 MW should become operational in 2009. The Government received 34 expressions of interest. The next step for the Government is to issue the request for proposals, which is likely to take place after concluding a related TA from the United States Trade Development Agency. However, sufficient power generation will be a prerequisite for the loan project.

4. Over the last decade the Ceylon Electricity Board (CEB) and the Government have placed a high priority on expansion of the national electricity network to reach most of the population. The Government's current goal is to have 80% of the population connected to the grid by 2010. When ADB started its lending for rural electrification, about 40% were connected, and at the end of 2002, CEB estimated that 63% were connected. Furthermore, the Government and CEB have been able to secure funding for rural electrification projects from bilateral and multilateral sources to reach 72% of the population by the end of 2005. Although the progress of electrification indicates strong commitment, Sri Lanka needs to focus on the details related to rural electrification. CEB has primarily been focusing on its ability to expand the national grid to an increasing number of villages in the countryside. This has resulted in less attention to the actual percentage of households within each newly electrified village. Rough

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<sup>1</sup> The TA first appeared in *ADB Business Opportunities* (Internet edition) on 4 June 2003.

<sup>2</sup> ADB. 2002. *Report and Recommendation of the President to the Board of Directors on a Loan to the Democratic Socialist Republic of Sri Lanka for the Power Sector Development Program*. Manila.

<sup>3</sup> Government of Sri Lanka. 2002. *Regaining Sri Lanka – Connecting to Growth: Poverty Reduction Strategy*. Colombo.

indications show that 45–65% of households within a village are connected to the grid. The TA will collect information about the socioeconomic parameters in the villages that (i) have recently been connected, (ii) are about to be connected, and (iii) could be connected in the future. The objective is to structure financial and technical facilities so that the village electrification can reach 80–85% of the households. The population that is being connected at the later stages of village electrification is likely to be the poorer groups. The poorer households gain relatively more from being connected, in terms of health benefits, lower purchases of substitute energy items, the ability of additional income from work at home, and educational benefits for the children. Sri Lanka needs to address this issue; however, reliable data is required to develop an appropriate approach.

### **III. THE TECHNICAL ASSISTANCE**

#### **A. Purpose and Output**

5. The TA will establish the technical, economic, and social feasibility of the rural electrification and network expansion project and provide the new distribution companies with capacity for preparing similar projects for external financing.

6. The TA will carry out socioeconomic household surveys, an engineering feasibility study, a financial feasibility study, and a socioeconomic analysis to determine the most viable projects with the largest poverty reduction impact. The studies will include detailed socioeconomic analyses including the ability of customers to pay and an environmental assessment.

#### **B. Methodology and Key Activities**

7. The TA will prepare rural electrification schemes and network expansion through an integrated approach covering the social, economic, financial, and technical components of expanding electrification in Sri Lanka. This will be done by an in-depth assessment of these areas, and using an economic selection model inclusive of a poverty indicator per rural electrification scheme. Particular emphasis will be made to increase the electrification rate in each village that is being, or has been connected to the national grid. Sophisticated data is needed concerning the socioeconomic characteristics of the rural areas. The data collected will be used to assist development of, for example, financial arrangements that are attractive to the village population. Additional individual credit structures need to be developed to attract the “medium poor” to prevail of the electrification of their household.

8. The key activities will be the socioeconomic survey of the rural areas, and the dissemination of the information obtained in terms of infrastructure development, and in particular areas and issues related to rural electrification. The investments in rural electrification need to be repaid over time. The TA will identify areas to reduce investment costs and investigate cost of supply and tariff structures required to cover the investment costs. Linked to the investment cost, is the need to ensure technological efficiencies so that are minimal losses emerge from the rural electrification expansion projects and from existing rural electrification network.

9. In addition to the Government’s economic growth objective, there is a need to ensure that the north and the east, as the peace process progresses, receive proper infrastructure facilities and reconstruction of power supply. To ensure increased efficiency and availability ADB, United Nations Development Programme (UNDP), and World Bank have recently

concluded a Needs Analysis,<sup>4</sup> which has highlighted the investment requirements also for rural electrification. Although the Government and CEB have commenced rehabilitation work on the distribution network, there is a need to fully understand the socioeconomic parameters for the population that is now returning to the conflict areas and their views and expectations in terms of energy. Electricity must be provided to the zone between the conflict and nonconflict areas, which did not receive attention during the conflict, as the terrain is difficult to work in even during peaceful conditions. This is needed to ensure that Sri Lanka has an even geographic distribution of electrification projects, and to emphasize rural economic growth as one of the pillars of national economic growth

10. The tariff linked to rural electrification must and will be analyzed through the TA, in greater detail than most tariff studies in the past as the TA proposes to segregate the rural electrification tariff from the overall retail tariff usually referred to as the average consumer tariff. The structure of the tariff must be defined so that it ensures protection and relief for poor consumers on parity or less compared with substitute energy sources. Should the Government seek to support the rural population or, more specifically, the poorer consumers through subsidies, such financial assistance should be made fully transparent and incorporated through the annual national budget.

11. Not discounting the recent efforts of CEB and Lanka Electricity Company (Pte) Ltd. (LECO) to reduce losses from the distribution network, the distribution loss reduction programs need to be fully implemented. The technical areas of rural electrification cause concerns in terms of quality of the electricity delivered and line losses from the technical solutions adopted. In the case of Sri Lanka there is a need to take stock of the current network consisting of both ageing and more recent assets, analyze its weaknesses, and bring viable solutions for approval and implementation. The TA seeks to address the technical sides of rural electrification and proposes solutions for incorporation into future rural electrification investment projects.

12. The Government's implementation of the power sector reforms will create five new distribution companies that will be involved in rural electrification projects as they all have rural geographic areas that are awaiting electrification. The TA, through preparing and implementing seminars and workshops for the new distribution companies, aims to ensure full dissemination of the data gathered as well as the technical methodology adopted for expanding the national grid and related facilities. There will also be a need to evaluate the delivery mechanism for future financial assistance to the individual companies in the power sector. This assistance could be through funding from development agencies, the private sector, and the national budget.

13. In an earlier power program ADB assisted CEB to develop an economic model solely used for selection of rural electrification schemes based on economic criteria. This economic model ensured that a transparent and objective methodology was used in the selection of schemes. The model should now be reviewed from a historic point of view to ensure its future applicability. In addition, the Government has adopted its poverty reduction strategy, which calls for additional focus on poverty alleviation. The economic model has elements of a poverty ratio within its context, but the poverty indicator needs to be evaluated and expanded to ensure better targeting of the rural electrification schemes. The TA needs to address the selection methodology and technical (system) parameters for project selection.

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<sup>4</sup> ADB. 2002. *Small Scale Technical Assistance to the Democratic Socialist Republic of Sri Lanka for Needs Assessment*. Manila. Two final reports were produced: *Assessment of Needs in the Conflict Affected Areas*, which covers the North and East, and *Assessment of Conflict-Related Needs in the Districts of Puttalam, Plonnaruwa, Anuradhapura, and Moneragala*, which are the four border districts.

14. As the sector is in the process of unbundling the CEB and LECO, the data gathered through the TA must be disseminated among the new companies and stakeholders. The TA proposes to conduct a number of workshops and seminars for the new distribution companies, the Public Utilities Commission as part of its regulatory functions, at the provincial and village level, and for the policy makers. The improved data and its related analysis should improve the understanding of rural electrification in Sri Lanka, and be timely input for the policy makers to understand how further efforts could be structured and supported.

### **C. Cost and Financing**

15. The total cost of the TA is estimated at \$750,000 equivalent, consisting of \$473,500 in foreign exchange cost and \$276,500 equivalent in local currency cost. The entire foreign exchange cost of \$473,500 and \$126,500 equivalent of local currency cost, totaling \$600,000 equivalent, will be financed on a grant basis by ADB's TA funding program. The Government through the Ministry of Power and Energy (MOPE) will finance \$150,000 equivalent, for counterpart and support staff, seminars and workshops, and office facilities. The detailed cost estimates are given in Appendix 1. The Government has been advised that approval of the TA does not commit ADB to financing any ensuing project.

### **D. Implementation Arrangements**

16. MOPE will be the Executing Agency for the TA. The distribution companies that will be established under the restructured power sector will be the implementing agencies. Each distribution company will establish a rural electrification unit that will be directly responsible for the project implementation. MOPE has nominated the director, power sector to be responsible for overall coordination among distribution companies, the consultants, ADB, and other Government and nongovernment agencies. The TA will be carried out by a consulting firm in two overlapping phases. The consulting firm will be recruited in accordance with ADB's *Guidelines on the Use of Consultants*, and other arrangements satisfactory to ADB for selection and engagement of domestic consultants. The outline terms of reference for the consulting services are presented in Appendix 2.

17. **Phase 1.** The TA's first phase will consist of socioeconomic household surveys and econometric assessment of the corresponding results. Phase 1 will be carried out by two international consultants supported by domestic consultants. The international consultants will work closely with the economist who will be recruited under phase 2 of the TA, and will use the findings of the surveys to design and select subprojects based on socioeconomic and poverty impact through adjustments to the economic selection model currently in use. The analysis will include an assessment of the distribution of benefits, with special emphasis on the poor's ability to benefit. The survey findings will be used by the transmission company's dispatch center for load forecast, demand management, and design of subprojects. Household-level impacts will be determined through the survey and participatory approaches will be used to capture community-level impacts and mechanisms through which the impacts occur. A total of 4.4 person-months are envisaged for the international consultants and 17.5 person-months for the domestic consultants.

18. One economist and one statistician, with suitable academic qualifications in statistics and economics will be recruited as international consultants. They will (i) be experienced in designing and conducting socioeconomic surveys and analyzing poverty; (ii) have strong skills in applying econometric techniques and other statistical methods; (iii) be familiar with using participatory methods to analyze the process of change to complement statistical analysis; and (iv) have proven ability to work in developing countries, preferably in Asia.

19. The international consultants will be responsible for designing and analyzing the socioeconomic survey and will collaborate closely with local consultants, ensuring that analytical skills are transferred to the extent possible. The international consultants will collaborate with the consultants conducting the economic feasibility under phase 2, and will spend approximately 1.4 person-months in the field on an intermittent basis. At the end of the study, the consultants will conduct a workshop to present the findings to all stakeholders.

20. **Phase 2.** The second phase of the TA will form the basis for an ensuing rural electrification and network expansion project. The work will be carried out by well-qualified international and domestic consultants. Phase 2 is expected to commence in March 2004 and be completed by the end of January 2005. Ten person-months of international and 8.75 person-months of domestic consultancy are envisaged for phase 2, bringing the overall TA total for international consultants to 14.40 person-months and for domestic consultants to 26.25 person-months. International consulting services will be required in rural electrification system planning (including load forecast and power system analysis), power distribution planning, transmission and distribution design, economic and financial analysis, project evaluation, socioeconomic studies, and environmental studies. This includes a specific review of tariffs of the rural electrification subsector. Domestic consulting services will be for field surveys in conjunction with the socioeconomic studies and surveys to determine the engineering line routes. The consultants will provide seminars and training courses under the TA.

21. The two phases of the TA will commence in March 2004 and be completed by the end of January 2005. For phase 1, the individual consultants will (i) submit an inception report, within 3 weeks of commencement of services; (ii) a draft final report, within 3 months of commencement of services; and (iii) the final report, within 2 weeks of receipt of comments on the draft final report by ADB and the Government. For phase 2, the consortium will submit an inception report for ADB's and the Government's approval within 3 weeks of the commencement of the assignment. The report will indicate the initial findings, proposed methodology, and timetable for the remainder of the consulting services under phase 2. An interim report will be submitted for ADB's and the Government's approval within 3 months of commencement of the assignment. A second interim report will be provided within 7 months of commencement. A draft final report will be submitted within 10 months of commencement of the assignment. The final report will be submitted within 1 month after receipt of comments on the draft final report by ADB and the Government.

#### **IV. THE PRESIDENT'S DECISION**

22. The President, acting under the authority delegated by the Board, has approved the provision of technical assistance not exceeding the equivalent of \$600,000 on a grant basis to the Government of Sri Lanka for preparing the Rural Electrification and Network Expansion Project, and hereby reports this action to the Board.

**COST ESTIMATES AND FINANCING PLAN**  
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Item	Foreign Exchange	Local Currency	Total Cost
<b>A. Asian Development Bank Financing<sup>a</sup></b>			
1. Two Individual International Consultants for Socioeconomic Survey (phase 1)			
a. Remuneration and Per Diem			
i. International Consultants <sup>b</sup>	110,000	0	110,000
ii. Domestic Consultants <sup>c</sup>	0	70,000	70,000
b. International and Domestic Travel	12,000	3,000	15,000
c. Report and Communications	2,000	1,000	3,000
2. Consulting Firm (phase 2)			
a. Remuneration and Per Diem			
i. International Consultants <sup>b</sup>	250,000	0	250,000
ii. Domestic Consultants <sup>c</sup>	0	35,000	35,000
b. International and Domestic Travel	47,000	5,000	52,000
c. Report and Communications	7,500	2,500	10,000
3. Representative for Contract Negotiations	5,000	0	5,000
4. Contingencies	40,000	10,000	50,000
<b>Subtotal (A)</b>	<b>473,500</b>	<b>126,500</b>	<b>600,000</b>
<b>B. Government Financing</b>			
1. Counterpart and Support Staff	0	65,000	65,000
2. Office Facilities	0	40,000	40,000
3. Local Transportation	0	15,000	15,000
4. Seminars and Workshops	0	30,000	30,000
<b>Subtotal (B)</b>	<b>0</b>	<b>150,000</b>	<b>150,000</b>
<b>Total</b>	<b>473,500</b>	<b>276,500</b>	<b>750,000</b>

<sup>a</sup> Financed by ADB's TA funding program.

<sup>b</sup> Assuming 14.40 person-months of international consultants at \$25,000 per month.

<sup>c</sup> Assuming 26.25 person-months of domestic consultants at \$4,000 per month.

Source: Asian Development Bank staff estimates.

## OUTLINE TERMS OF REFERENCE FOR CONSULTANTS

- A. Phase 1: Socioeconomic Impact Analysis** (two international consultants, total 4.4 person-months; and domestic consultants, total 17.5 person-months)
- 1. Scope of Work**
1. The statistician will, in collaboration with the economist, complete the following:
    - (i) Design a household and a community-level survey in collaboration with domestic consultants,<sup>1</sup> the Ministry of Power and Energy (MOPE), and other relevant Government of Sri Lanka agencies. The surveys will be subject to random sampling and cover areas under previous Asian Development Bank (ADB)-financed rural electrification projects, areas to be electrified under the Government's rural electrification project and the proposed Rural Electrification and Network Expansion Project, and control areas. The surveys will be used to assess the benefits of rural electrification with and without the proposed Project. The household survey will cover approximately 3,000 observations and the community-level survey will cover all villages under the household survey.
    - (ii) In collaboration with domestic consultants, design questionnaires that will be subject to field-testing and approval by ADB before survey implementation. The survey will take into account activities to strengthening the National Statistical System, to ensure coordination and comparability between the electrification impact survey and the forthcoming living standards measurement survey.
    - (iii) Include the relevant characteristics of commercial activities in the surveys.
    - (iv) Provide guidance to and assist domestic consultants in training of field enumerators.
    - (v) In collaboration with domestic consultants, check the raw data, adjust them for inaccuracies, and prepare data sets for analysis.
    - (vi) Estimate the number of poor households in accordance with the household income and expenditure survey 2002 and provide related identification information. Based on this information, propose a set of targeting criteria to be used for identification of the poor.
    - (vii) In collaboration with the economist, provide a distributional analysis of energy-related variables, income, and expenditure.
    - (viii) Assist the economist in relevant work for the econometric and quantitative analysis and in the reporting.
  
  2. The economist will, in collaboration with the statistician, complete the following:
    - (i) Review work on poverty and energy and impacts of rural electrification. Provide a detailed analytical and empirical framework for analyzing the distributional impacts of rural electrification. The framework will include a derived demand model, for conducting the econometric analysis. The empirical analysis will distinguish between consumer categories, including one category for the poor.
    - (ii) Establish consumer categories and clear identification criteria. Conduct demand forecasts and impact analyses for various categories of consumers. The analyses will distinguish between long-term and short-term impacts and between incremental and nonincremental benefits of rural electrification.

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<sup>1</sup> Domestic consultants with expertise in conducting surveys and participatory approaches will be recruited.

- (iii) Estimate the ability and willingness to pay of the consumer categories. Analyze the impacts and coping mechanisms of tariff increases.
- (iv) For providing electrification kits, assess the targeting criteria for determining the poor and analyze the scope for self-selection as a targeting mechanism.
- (v) Identify consumer constraints and assess the impacts of such constraints on benefits of rural electrification. Analyze the impacts of load shedding and voltage fluctuations.
- (vi) Analyze the distributional impacts of electrification and the share of benefits accruing to the poor from rural electrification and the potential benefits of sustainable rural electrification and the proposed Project.
- (vii) Prepare a proposal for the underlying variables for the economic analysis of subprojects and otherwise assist consultants with data requirements under phase 2 of the technical assistance.
- (viii) Provide guidance to and assist domestic consultants in conducting participatory assessments at the village and community levels to determine processes through which the impacts occur. The participatory assessments will be used to complement quantitative analysis and include, to the extent possible, intra-household impacts.
- (ix) Conduct a workshop to present the analyses and findings.
- (x) In collaboration with the consultants for economic and financial analyses in phase 2, design a follow-up survey, including cost estimates, to monitor the impacts of rural electrification.

## **2. Reporting**

3. The international consultants will produce the following reports for ADB and MOPE:
  - (i) The inception report will be submitted to ADB and MOPE within 3 weeks of commencement of services and before the survey commences. The report will provide all relevant information on the survey designs, questionnaires, and implementation schedule. The inception report will review the work on poverty and energy and impacts of rural electrification, and propose an analytical and empirical framework for testing the impact hypothesis. The framework and questionnaires will be subject to approval by ADB.
  - (ii) The draft final report (due 3 months after commencement of services) will be submitted to ADB and MOPE after an initial assessment of the data has been conducted and will include an update of the progress of the study. The report will produce relevant statistical information, preliminary econometric results and initial information on the participatory assessments. The consultants will, in advance of the draft final report, submit the primary data sets to ADB and MOPE.
  - (iii) The final report, to be submitted to ADB and MOPE within 2 weeks of receipt of comments, will include a full report on the impacts of electrification and the proposal for benefit assessment for the economic analysis of subprojects. In addition, the final report for phase 1 will be summarized so it may be published as a formal ADB report. The consultants will refer to recently produced ADB documents for guidance on format and presentation.

**B. Phase 2** (international consultants, 10 person-months; and domestic consultants, 8.75 person-months)

**1. Engineering Aspects**

4. The consultants will complete the following:

- (i) Review the status of ongoing and prior rural electrification projects undertaken by Ceylon Electricity Board (CEB) and the rural electrification program prepared by CEB for the next 5 years.
- (ii) Review the results of CEB's prefeasibility studies in which villages in all the provinces have been identified for electrification. Treat the scope of work involved in connecting the households in each block as constituting one subproject. The consultants may combine blocks into larger subprojects as required, and establish the expected load forecast per subproject. This will be done in conjunction with the economic analysis.
- (iii) Carry out engineering line surveys, check line lengths, confirm existing loads, and check estimates of future line loadings prepared by CEB. Estimate the overall cost of connecting consumers and estimate the cost for each district, using international unit prices.
- (iv) Determine the least-cost power system expansion needed to electrify the villages and households under consideration, giving careful attention to the location and size of transformers and associated facilities. Review the system optimization recommendations made under other assistance projects and, to the extent practicable, incorporate them into optimizing the design of the extensions to the national power system so that a true least-cost solution is achieved. This will be demonstrated by calculations.
- (v) Prepare drawings, detailed design, technical specifications, and draft bid documents, taking into account CEB's and the transmission company's system planning criteria, technical standards, and standard specification equipment. The bid documents will follow ADB's *Guidelines for Procurement Under ADB Loans*.
- (vi) Make the analyses (e.g., load flow, fault level studies, etc.) in association with selected counterpart staff so that effective and sustained technology transfer is achieved. Use computer software programs already in the possession of CEB and provide additional programs as required.

**2. Environmental Issues**

5. The consultants will undertake an environmental assessment of the proposed project and provide an initial environmental examination with their summaries, in accordance with ADB's Environmental Assessment Guidelines. Include development of appropriate environmental frameworks, if required.

**3. Social Analysis**

6. The consortium will provide a poverty and social development specialist to undertake a detailed social analysis of the Project in accordance with ADB's *Handbook for Incorporation of Social Dimensions in Projects*. The consultants will complete the following:

- (i) Present a report incorporating a socioeconomic profile of the project area, describing the participatory processes (including beneficiary participation in

project design) and addressing, in particular, the following issues associated with the Project: poverty reduction, gender, indigenous peoples, land acquisition, and involuntary resettlement.

- (ii) Recommend specific social measures to be incorporated into the project design, including but not limited to, alignments of poles, widths of ease ways, etc. Take into consideration safety and employment opportunities for the very poor affected by the Project.
- (iii) Specify the amount of land to be acquired for project construction and assess any likely impacts on housing and livelihoods. Review measures to minimize adverse effects and prepare mitigating measures. Include compensation at replacement rates for loss and rehabilitation measures if livelihood or houses are at risk. Prepare a resettlement plan consistent with ADB's policy on resettlement, including the following:
  - (a) a database of project-affected people, prepared through a socioeconomic survey;
  - (b) a survey of losses of houses, agricultural lands, businesses, and income opportunities;
  - (c) an entitlement matrix for all project-affected people;
  - (d) relocation options for those who may lose houses and or enterprises structures, as required;
  - (e) collection of data on the host population within the zone of influence, if relocation will be required;
  - (f) gender planning issues;
  - (g) income restoration programs;
  - (h) project-specific resettlement policy;
  - (i) comprehensive resettlement budget and a resettlement plan, prepared in accordance with ADB's *Policy on Involuntary Resettlement and Handbook on Resettlement: A Guide to Good Practice*;

7. The requirements are indicative as the full scope of the ensuing project to be financed by ADB is not yet known. However, involuntary resettlement is expected to be minimal as most line extensions are intended to follow existing roads and extensions to existing substations are presently envisaged.

#### **4. Economic and Financial Analysis**

8. The consultants will do the following: Review the current cost of supply and tariff structure for rural electrification, taking into account the results of previous assistance in the area of tariff development and establishment. The objective is to establish the true financial performance of the rural electrification segment of the overall power market. Analyze the economic and financial implications of the Project on the overall financial viability of the distribution companies under different cost/revenue scenarios. Determine the adequacy of tariffs, propose adjustments necessary to maintain individual companies' financial viability, and estimate the magnitude of rural electrification subsidies required under various tariff scenarios. Assess the lifeline tariff, as part of the analysis.

9. Determine the full cost of connections and for providing electrification kits. Estimate the amount of subsidies needed and distinguish between subsidy allocations for the poor and non-poor under the current connection charge structure.

10. In collaboration with the consultant engineers, the Government, and the power companies, define a set of criteria for identifying subprojects that potentially are economically and technically viable. After approval by ADB, implement the criteria to define individual subprojects for the Project.
11. Set up and computerize an economic model to analyzing the poverty impact and the economic and financial rates of return for individual subprojects. The demand and benefit assessment will distinguish between consumer groups, with a special category for consumers below the poverty line.
12. Conduct a seminar to inform power sector staff about subproject definition, the purpose of economic analysis of subprojects, and the basic functioning of the model. Following the seminar, conduct a series of in-depth training sessions with at least two distribution company staff, using the model for analyzing individual subprojects and changing underlying assumptions as needed to ensure sustainability of economic analysis of subprojects.
13. Conduct a full economic and financial assessment of the Project in accordance with ADB's Guidelines for the Economic Analysis of Projects. Include a calculating the poverty impact ratios. Conduct sensitivity and risk analyses of perceived risks and assess the economic, poverty, and financial implications of different tariff and subsidy scenarios.
14. In collaboration with the economist in phase 1, (i) design a follow-up survey, including cost estimates, to monitor the impacts of rural electrification, and (ii) design updates of the economic model for reassessing subprojects.

## **5. Reporting**

15. The consultants for phase 2 will assist the consultants for phase 1 to summarize the impacts of electrification and the proposal for benefit assessment so that they can be published as a formal ADB report.
16. Similarly, in their final report, the consultants for phase 2 will prepare a summary of the findings of phase 2 of the TA. The summary will be prepared for publication as a formal ADB report.
17. The consultants will prepare a project framework for the proposed rural electrification and network expansion project as per ADB's specifications.
18. The consultants will prepare a draft project administration manual in accordance with ADB's specifications, with due consideration to performance indicators for the proposed Project.
19. The final report for phase 2 will be prepared following the format of an ADB report and recommendation of the President. The final report will contain the environmental impact assessment and social analysis in the format prescribed in ADB handbooks. The final report should include the project administration memorandum, with details on procurement, contract packaging, consultant selection, and implementation schedules. As a minimum, the logical framework, the summary initial environmental examination, the summary of the initial social assessment, the summary resettlement plan, and the financial and economic analyses of the Project will be prepared so that they may be readily attached as appendixes to the Report and Recommendation of the President to the Board that will be prepared by ADB, based on the findings of the TA.