

**ASIAN DEVELOPMENT BANK**

**TAR:BHU 34374**

**TECHNICAL ASSISTANCE  
(Financed from the Japan Special Fund)**

**TO**

**THE KINGDOM OF BHUTAN**

**FOR PREPARING**

**THE RURAL ELECTRIFICATION AND NETWORK EXPANSION PROJECT**

**December 2001**

## CURRENCY EQUIVALENTS

(as of 17 December 2001)

Currency Unit	–	Bhutan ngultrum (Nu)
Nu1.00	=	\$0.021
\$1.00	=	Nu47.81

The Bhutan ngultrum is maintained at parity with the Indian rupee.

## ABBREVIATIONS

ADB	–	Asian Development Bank
DOP	–	Department of Power
FYP	–	five-year plan
RRP	–	report and recommendation of the President
TA	–	technical assistance

## WEIGHTS AND MEASURES

V (volt)	–	unit of electrical potential
kV (kilovolt)	–	1,000 volts
kVA (kilovolt-ampere)	–	1,000 volt amperes
kW (kilowatt)	–	1,000 watts
MW (megawatt)	–	1,000,000 watts
W (watt)	–	unit of active power
GWh (gigawatt-hour)	–	1,000,000 kWh
VA (volt ampere)	–	unit of reactive power

## NOTES

- (i) The fiscal year (FY) of the Government and its agencies ends on 30 June. The notation FY2002, for example, refers to the fiscal year of 12 months ending 30 June 2002.
- (ii) In this report, "\$" refers to US dollars.

## I. INTRODUCTION

1. During the 2001 Country Programming Mission to Bhutan, the Royal Government of Bhutan 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 2001–2004 country strategy program. A fact-finding mission visited Bhutan in October 2001 and reached an understanding with the Government on the scope, approach, and implementation and financing arrangements for the TA.

## II. BACKGROUND AND RATIONALE

2. Since opening itself to the outside world in the early 1960s, Bhutan has experienced considerable growth, diversification, and modernization. The gross domestic product grew by 7.5 percent a year in real terms during the second half of the 1980s, and averaged 5.8 percent during 1990–1995 and 6.6 percent in 1996–1999.

3. Bhutan's first five-year plan (FYP) concentrated on the construction of roads and the creation of a technical and administrative framework for governance. The third and fourth FYPs (1972–1982) witnessed the beginning of sectoral developments, notably in agriculture, forestry, electricity, mining, and public health. While these plans laid the basis for subsequent developments, not until the sixth FYP (1987–1992) and the commissioning of the Chhukha hydropower station (336 megawatt [MW]) in 1986 did the diversification of the economy take shape. Diversification has continued into the seventh and eighth FYPs, with Chhukha paving the way for export of surplus electrical power to India and for increased government revenues.

4. During the eighth FYP (1997–2002), the power sector contributed approximately 45 percent of the Government's revenue earnings, up from 25 percent during the seventh FYP (1992–1997). The power sector is now being recognized as a core sector of the Bhutanese economy. The annual domestic electricity consumption has increased to over 90 MW and 532 gigawatt-hours (GWh) in 2000, up from 70 MW and 338 GWh in 1995. During the eighth FYP, a total of 82.4 MW of hydropower capacity was added to the power system. The commissioning of the Kurichhu hydropower station (60 MW), the Basochhu upper stage (22.2 MW) hydropower station, and the Kellangchhu micro hydroelectric plant (200 kilowatts [kW]), and the development of the eastern transmission grid augmented the overall power supply capacity of the country. The revenues from the Chhukha plant have enabled the Government to expand its programs in the social sectors (health and education). Further development of the power sector will provide the Government with revenue to sustain the power sector, expand social programs, and sustain overall economic growth.

5. The country's rural electrification program began during the sixth FYP (1987–1992) and was formulated to cover the entire country using primarily hydroelectric power. Due to a lack of finance and human resources, the actual achievement fell short of that planned in both the sixth and seventh FYPs. During the seventh FYP, ADB began its involvement in rural electrification in Bhutan and provided funds under its first power loan to Bhutan.<sup>2</sup> A total of 3,100 households in

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<sup>1</sup> The TA first appeared in the *ADB Business Opportunities* in October 2001.

<sup>2</sup> Loan 1375-BHU(SF): *Rural Electrification Project*, for \$7.5 million, approved on 19 September 1995. The project completion report (PCR) categorized the Project as successful. To the extent practicable, the major lessons learned outlined in the PCR have been incorporated in the design of the current Project. In particular, the socioeconomic surveys, which were not undertaken under the first rural electrification project, have been included. The lack of proper training of the Department of Power staff is acknowledged in the present TA and allowances for training have been made.

seven districts were connected to the grid under that loan, bringing the total number of consumers connected to 35,709 and the total number of villages connected to 552 in 2000. In 1999, ADB followed up with its second rural electrification loan,<sup>3</sup> currently being implemented. By closure of the loan, a further 6,038 rural households in 17 districts will have been connected to the electrical grid systems.

6. Along with the two loans, ADB's six advisory TAs<sup>4</sup> to the power sector amount to \$2.8 million. Through its TA program, ADB has influenced the development of the Bhutan power sector through the creation of the Electricity Act (passed by the Bhutan National Assembly in July 2001); creation of the Bhutan Energy Authority, which came into being with the passing of the Electricity Act; restructuring of the Department of Power (DOP) as a corporation (expected on 1 July 2002); and the recommendation to rationalize the power generating section. In addition, under TA 2912-BHU, a computerized commercial accounting system has been implemented and is expected to help smoothen DOP's transition from a Government body to a corporatized institution.

7. Under the ninth FYP (2002–2007), the Government intends to electrify a further 15,000 rural households, covering the entire 20 districts of the country. The ninth FYP is in line with the Government's vision to have all of Bhutan electrified by 2020. Most of the areas in the ninth FYP are near 132 and 66 kilovolt (kV) transmission lines fed by the major power stations (Basochhu, Chhukha, and Kurichhu) or are near isolated mini or micro hydropower plants.

8. The Government's vision to fully electrify the country by 2020 and thereby improve the quality of life for all of Bhutan's citizens is in line with ADB's country strategy program, which seeks to help Bhutan reduce poverty through improvement of physical and social infrastructure.<sup>5</sup> The aim of the ensuing project is to provide electricity to areas of the country with the highest impact on poverty. Regional TA for facilitating capacity building and participatory activities was conducted during 2001.<sup>6</sup> A final participatory workshop was held with field staff to receive feedback on the study. The findings revealed the strong need to go beyond participatory approaches and conduct a full socioeconomic survey to assess impacts, assess constraints on the poor receiving benefits, conduct a demand analysis, and develop proper poverty targeting criteria.

9. In this context, the Government has requested assistance to develop the rural electrification and network expansion project to electrify 8,000 of the 15,000 households selected under the ninth FYP. Selection of individual subprojects for connection will depend on two sets of criteria. The first set will be in line with the Government's participatory decentralization process where development priorities are made by the communities

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<sup>3</sup> Loan 1712-BHU(SF): *Sustainable Rural Electrification Project*, for \$10.0 million, approved on 25 November 1999.

<sup>4</sup> TA 1729-BHU: *Power Sector Institutional and Financial Development Project*, for \$500,000, approved on 9 July 1992; TA 2043-BHU: *Power System Development Project*, for \$245,000, approved on 29 December 1993; TA 2400-BHU: *Institutional and Financial Development of Department of Power*, for \$400,000, approved on 19 September 1995; TA 2912-BHU: *Second Rural Electrification Project: Part 2, Full Commercial Accounting System*, for \$600,000, approved on 19 November 1997; TA 3112-BHU: *Policy and Legal Framework for Power Sector Development*, for \$500,000, approved on 08 December 1998; and TA 3307-BHU: *Corporatization of Department of Power*, for \$600,000, approved on 25 November 1999.

<sup>5</sup> A rapid poverty assessment study was undertaken in June 2000 by the Bhutan Planning Commission with ADB assistance (Small-Scale TA 3443-BHU: *Poverty Assessment and Analysis*, for \$100,000, approved on 19 May 2000). The study reviewed for their high poverty impact areas that had been selected (for project interventions).

<sup>6</sup> RETA 5894: *Facilitating Capacity Building and Participatory Activities*, for \$400,000, approved on 28 December 1999.

themselves. The second set will be guided by technical feasibility and socioeconomic costs and benefits, with a particular emphasis on the benefits received by the poor.

### III. THE TECHNICAL ASSISTANCE

#### A. Objectives

10. The TA will establish the technical, economic, and social feasibility of the rural electrification and network expansion project and provide DOP with capacity for preparing similar future projects for external financing.

#### B. Scope

11. The TA will include carrying out socioeconomic household surveys, an engineering feasibility study, and a socioeconomic analysis to determine the most viable projects with the largest poverty reduction impact. The studies will include detailed socioeconomic analysis including the ability of customers to pay and environmental assessment. The outline terms of reference are in Appendix 1.

#### C. Cost Estimates and Financing Plan

12. The total cost of the TA is estimated at \$865,000 equivalent, consisting of \$654,000 in foreign exchange cost and \$211,000 equivalent in local currency cost. The entire foreign exchange cost and \$46,000 equivalent of local currency cost, totaling \$700,000 equivalent, will be financed by ADB on a grant basis from the Japan Special Fund, funded by the Government of Japan. The Government through the Ministry of Trade and Industry's DOP, will finance \$165,000 equivalent, consisting of domestic consulting services (for the socioeconomic survey) and facilities. The detailed cost estimates are given in Appendix 2. The Government has been advised that approval of the TA does not commit ADB to finance any investment that may be recommended under it.

#### D. Implementation Arrangements

13. DOP will be the Executing Agency for the TA. The project manager of DOP's Technical Assistance Coordination Unit will be responsible for overall coordination among DOP, the consultants, ADB, and other Government and nongovernment agencies. The TA will be carried out in two overlapping phases.

14. **Phase 1.** The first phase of the TA will consist of socioeconomic surveys and econometric assessment of the results of the surveys. Phase 1 will be carried out by two individual 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 socioeconomic surveys to design and select subprojects based on socioeconomic and poverty impact. The analysis will include a full distributional assessment of benefits, with special emphasis on the poor's ability to benefit. The survey findings will also be used by DOP for load forecast, demand management, and design of subprojects. Household-level impacts will be determined through a traditional household survey and participatory approaches will be used to capture community-level impacts and mechanisms through which the impacts occur. A total of 8 person-months is envisaged for the international consultants and 8 person-months for the domestic consultants. Early in February 2002, ADB will

engage the international consultants in accordance with its *Guidelines on the Use of Consultants*. The domestic consultants for phase 1 will be financed by DOP.

15. One economist and one statistician, with suitable academic qualifications in statistics and economics will be recruited as international consultants. They will possess experience in designing and conducting socioeconomic surveys and analyzing poverty, and will have strong skills in applying econometric techniques and other statistical methods. The consultants will also be familiar with using participatory methods to analyze the process of change to complement statistical analysis. They will have proven ability working in developing countries, preferably in Asia.

16. The international consultants will be responsible for designing and analyzing of the socioeconomic survey and will collaborate closely with local consultants, ensuring that analytical skills are transferred to the extent possible. The international consultants will be responsible for writing reports and submitting them to ADB. The international consultants will collaborate with the consultants conducting the economic feasibility under phase 2, and will spend approximately 3 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 DOP staff and other interested Government and external agencies.

17. **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 a consortium of a well-qualified international firm and domestic consultants. Phase 2 is expected to commence in March 2002 and be completed by the end of February 2003. Fifteen person-months of international and 8 person-months of domestic consultants are envisaged for phase 2, bringing the overall TA total for international consultants to 23 person-months and for domestic consultants to 16 person-months. International consulting services will be required in rural electrification power system planning (including load forecast and power system analysis), power transmission and distribution planning, transmission and distribution design, economic and financial analysis, project evaluation, socioeconomic studies, and environmental studies. Domestic consulting services will be for field surveys in conjunction with the socioeconomic studies and surveys to determine the engineering line routes. ADB will engage the consultants in accordance with its *Guidelines on the Use of Consultants* and other arrangements satisfactory to ADB on the engagement of domestic consultants. A full technical proposal will be submitted for consultant selection. The consultants will conduct seminars and training courses provided under the TA.

18. Two utility vehicles, office and computer equipment, and software will be procured under the TA for the use of the consultants and DOP during the assignment and this will be transferred to DOP upon completion of the TA. DOP will procure vehicles, office and computer equipment, and software using ADB's *Guidelines for Procurement*.

19. The two phases of the TA will commence in February 2002 and be completed by the end of February 2003. For phase 1, (i) the individual consultants will submit within three weeks of commencement of services an inception report, (ii) a draft final report within three months of commencement of services, and (iii) the final report within two weeks of receipt of comments on the draft final report by ADB and DOP. For phase 2, the consortium will submit an inception report for ADB's and DOP's approval within three weeks of the commencement of the assignment. The report will indicate initial findings, proposed methodology, and the timetable for the remainder of the consulting services under phase 2. An interim report will be submitted for ADB's and DOP's approval within three months of commencement of the assignment. A second

interim report will be provided within seven 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 one month after receipt of comments on the draft final report by ADB and DOP.

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

20. The President, acting under the authority delegated by the Board, has approved the provision of technical assistance, on a grant basis, to the Royal Government of Bhutan in an amount not exceeding the equivalent of \$700,000 for preparing the Rural Electrification and Network Expansion Project, and hereby reports such action to the Board.

## OUTLINE TERMS OF REFERENCE FOR CONSULTING SERVICES

### A. PHASE 1: Socioeconomic Impact Analysis (two international consultants, 4 person-months each)

#### 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 Department of Power (DOP), and other relevant Government agencies. The surveys will be subject to random sampling and cover areas under the Asian Development Bank (ADB)-financed Rural Electrification Project and Sustainable Rural Electrification Project, areas to be electrified under the Government's Rural Electrification program and the 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 ADB's activities under Technical Assistance (TA) 3669-BHU: 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 2000 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 to data for the econometric and quantitative analysis and in the reporting.
  - (ix) Prepare relevant data format and information for the project economic analysis of subprojects in phase 2.
  
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.

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

- (ii) Establish consumer categories and clear identification criteria. Conduct demand forecast and impact analysis for various categories of consumers. The analysis will distinguish between long-term and short-term impacts and between incremental and nonincremental benefits of rural electrification.
- (iii) Estimate ability and willingness to pay of the consumer categories. Analyze the impacts and coping mechanisms of tariff increases.
- (iv) Assess the targeting criteria for providing electrification kits for 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 on data requirements under phase 2 of the TA.
- (viii) Provide guidance and assist domestic consultants in conducting participatory assessments at the village and community level 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 analysis and findings.
- (x) In collaboration with the consultants for economic and financial analysis 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 joint reports for ADB and DOP:
  - (i) The inception report, which will be submitted to ADB and DOP within three weeks of commencement of services and before the survey commencement, 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 three months after commencement of services) will be submitted to ADB and DOP after an initial assessment of the data has been conducted and will include an update of the implementation progress of the study. The report will produce relevant statistical information together with preliminary econometric results and initial information on the participatory assessments. The consultants will, in advance of the draft final report, submit the cleaned primary data sets to ADB and DOP.
  - (iii) The final report, to be submitted to ADB and DOP within two 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

### 1. Engineering Aspects

4. The consultants will complete the following:
- (i) Review the status of the ongoing and prior rural electrification programs undertaken by DOP and the rural electrification program prepared by DOP for the ninth five-year plan (20 districts, 15,000 households).
  - (ii) Review the results of DOP's prefeasibility studies in which villages in 20 districts have been identified for electrification. The consultants will treat the scope of work involved in connecting the households in each block as constituting one subproject. The consultants may optimize by combining blocks into larger subprojects as required. 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 DOP. Estimate the overall cost of connecting 15,000 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. The consultants will review the system optimization recommendations made under TA 3307-BHU and, to the extent practicable, incorporate them into optimizing the design of the extensions to the DOP 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 DOP's system planning criteria, technical standards, and standard specification equipment. The bid documents will follow ADB's standard bidding documents on procurement.
  - (vi) The analyses undertaken by the consultants (e.g., load flow, fault level studies, etc.) will be made in association with selected DOP counterpart staff so that effective and sustained technology transfer is achieved. The consultants will use computer software programs already in the possession of DOP, (e.g., PSS/U, PSS/E, and PSS/ADEPT)<sup>2</sup> and may provide other additional programs as required.

### 2. Environmental Issues

5. The consultants will undertake an environmental impact assessment and provide an initial environmental examination with their summary, in accordance with ADB's environmental assessment requirements and environmental review procedures.

### 3. Social Analysis

6. The consultants will complete the following:
- (i) 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*.

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<sup>2</sup> PSS/U: Power System Simulator/Utilities, PSS/E: Power System Simulator/Engineering, and PSS/ADEPT: Power System Simulator/Advanced Distribution Engineering.

- (ii) 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.
- (iii) Recommend specific social measures to be incorporated into the project design, including but not limited to, alignments of poles, widths of easeways, etc. Take into consideration safety and employment opportunities for the very poor affected by the Project.
- (iv) 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 persons through a socioeconomic survey;
  - (b) design and conduct of a survey of losses of households, agricultural lands, businesses, and income opportunities;
  - (c) an entitlement matrix for all project-affected persons;
  - (d) relocation options for those who may lose households structures enterprises, as required;
  - (e) collection of data on the host population within the project zone of influence, if relocation will be required;
  - (f) gender planning issues;
  - (g) income restoration programs;
  - (h) a project-specific resettlement policy;
  - (i) a 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*;
  - (j) an implementation strategy and a monitoring and evaluation system; and
  - (k) resettlement planning and preparation of the resettlement plan with the full participation of the executing agency, ensuring that the plan is implementable within the local context and requesting that the Government endorse the plan.

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**

7. Review the current tariff structure, taking into account the results of ADB TA 2400-BHU, 3112-BHU, and 3307-BHU. Analyze the economic and financial implications of the Project on the overall financial viability of DOP under different tariff scenarios. Determine the adequacy of tariffs and propose necessary adjustments to maintain DOP's financial viability and estimate the magnitude of rural electrification subsidies under various tariff scenarios.

8. 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.

9. In collaboration with the consultant engineers and DOP, 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.
10. 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.
11. Conduct a seminar to inform DOP staff about subproject definition and the purpose of economic analysis of subprojects and basic functioning of the model. Following the seminar, conduct a series of in-depth training sessions with at least two DOP staff, using the model for analyzing individual subprojects and changing underlying assumptions as needed to ensure sustainability of economic analysis of subprojects.
12. Conduct a full economic and financial assessment of the Project in accordance with ADB's *Guidelines for the Economic Analysis of Projects*. Include calculating the poverty impact ratios. Conduct sensitivity and risk analyses of perceived project and policy risks and assess the economic, poverty, and financial implications of different tariff and subsidy scenarios.
13. In collaboration with the economist in phase 1, design a follow-up survey, including cost estimates, to monitor the impacts of rural electrification. In addition, design updates of the economic model for reassessing subprojects.

## **5. Reporting**

14. 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 can be published as a formal ADB report.
15. 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.
16. The final report for phase 2 will be prepared following the format of an ADB report and recommendation of the President (RRP). The consultants will refer to the ADB operations manual, the templates for the RRP, and recently produced ADB documents and for content and format. The final report will contain the environmental impact assessment and social analysis in the format prescribed in ADB handbooks. 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 ensuing RRP that will be prepared by ADB based on the findings of the TA.

**COST 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 & Per Diem	129,000	0	129,000
b. International & Domestic Travel	12,000	1,000	13,000
c. Communication & Reporting	3,000	0	3,000
d. Contingencies	5,000	0	5,000
2. Consulting Firm (Phase 2)			
a. Remuneration & Per Diem			
i. International Consultants	265,000	0	265,000
ii. Domestic Consultants	0	35,000	35,000
b. International & Domestic Travel	60,000	5,000	65,000
c. Report and Communications	10,000	0	10,000
d. Vehicle (2x4WD pick-up truck)	30,000	0	30,000
e. Equipment and Software	20,000	0	20,000
f. Seminars and Training	20,000	0	20,000
3. Government Official Participation in Contract Negotiations	5,000	0	5,000
4. Contingencies	95,000	5,000	100,000
<b>Subtotal (A)</b>	<b>654,000</b>	<b>46,000</b>	<b>700,000</b>
<b>B. Government Financing</b>			
1. Counterpart and Support Staff	0	25,000	25,000
2. Office Facilities	0	20,000	20,000
3. Local Transportation	0	10,000	10,000
4. Domestic Consultants for Socioeconomic Survey (Phase1)	0	110,000	110,000
<b>Subtotal (B)</b>	<b>0</b>	<b>165,000</b>	<b>165,000</b>
<b>Total</b>	<b>654,000</b>	<b>211,000</b>	<b>865,000</b>

<sup>a</sup> Financed from the Japan Special Fund.  
Source: Staff estimates.