Updated Project Information Document (PID)  

**Project Name**  
ERITREA - ERITREA POWER DISTRIBUTION AND RURAL ELECTRIFICATION PROJECT

**Region**  
Africa Regional Office

**Sector**  
Power (95%); General energy sector (5%)

**Theme**  
Infrastructure services for private sector development (P); Rural services and infrastructure (P); Other environment and natural resources management (S); Decentralization (S); Regulation and competition policy (S)

**Project**  
P057929

**Borrower(s)**  
GOVERNMENT OF THE STATE OF ERITREA

**Implementing Agency(ies)**  
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**Environment Category**  
B (Partial Assessment)

**Date PID Prepared**  
May 5, 2004

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April 30, 2004

**Bank Approval Date**  
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1. Country and Sector Background  

**Main Issues.** There are four main sector issues:

*First,* the Eritrea Electric Authority (EEA) is the sole electricity provider in Eritrea operating under the Ministry of Energy and Mines (MEM). As the Government is yet to establish the legal and institutional framework for the power sector, the Electricity Board, Chaired by the Minister of Energy and Mines currently governs matters pertaining to electricity in the country. Before independence, EEA was a branch of the Ethiopian Light and Power Authority and has continued to operate largely on the basis of the processes established at that time. It is tightly integrated into the central government administration and budget - investment, financing, and cost recovery decisions are made at the central government level. The Government also expects EEA to undertake non-cost recovering rural electrification. Although EEA is relatively well operated - revenue collection and technical performance are satisfactory - it is not financially viable, in part because some Government investment choices are beyond EEA's financial capability, nor is it in a position to develop a meaningful business plan or manage its finances adequately because of the lack of clear and transparent rules for the sector.

*Second,* access to grid electricity in Eritrea is low, especially outside of Asmara. Household level access figures for the urban, semi-urban, and rural population are at 86 percent, 49 percent, and 3 percent respectively. Of the over 2,600 villages in the country, only 40 villages in the vicinity of urban centers have any access to grid power. At the present time, many rural agriculture based businesses are working
below capacity due to an insufficient and costly supply of power from small diesel generators. Hospitals and schools experience similar problems. This is mainly due to the small capacity of the generators, the high cost of transporting diesel to remote areas, and the high maintenance costs. The connection of rural villages to grid electricity has, thus, the potential to increase economic activity, employment, incomes, and the social well being. The experience of previous electrification projects suggests that this indeed has been the case in many villages. EEA, however, is constrained to provide higher rural access because of the lower customer density, smaller electricity demand per customer, and high cost of supply. These make rural electrification a financially unfeasible scheme for EEA to undertake. Thus, government assistance for rural access is necessary as is the lowering of the cost of supply to render expansion programs more viable.

Third, the distribution system in Asmara is 40-50 years old and has reached the limits of its useful life. This has resulted in high technical losses and poor quality of supply. The obsolete distribution system also limits the number of larger commercial and industrial customers that can be added to the network. Moreover, the replacement and maintenance of the old equipment, which is not of international standard, is difficult and costly. Finally, following the connection of a thermal generating plant at Hirgigo (Massawa) to the power system in 2002, the fault levels in Asmara could exceed the interrupting capacity of some old switchgear, setting up the potential for failure of the switchgear and eventual system breakdown.

Fourth, following the commissioning of the 88 MW (4 units at 22 MW) Hirgigo plant, EEA now has substantial excess generating capacity in the system - 134 MW to meet the 103,000 customers' peak demand of 46 MW. Since Eritrea does not have hydro potential, all of its generation is oil-based. The excess capacity was caused by the lower than expected demand growth resulting from the war and from inadequate distribution system facilities. Hirgigo's utilization is low currently – only about 26% of its installed capacity is needed to meet demand. Also, the larger units limit the operating regime and generation operating efficiency of EEA. Although electricity from Hirgigo is lower cost than that from EEA's older plants as it uses lower cost fuel and has a higher efficiency, its design (low-speed engine) and the larger unit size limit its utilization at the present low demand levels. Currently, at peak times during the day, EEA is only able to operate two units at Hirgigo, thus requiring the less efficient plant at Belesa (Asmara) to be operated. With growing demand, it can gradually substitute more for the older plants and, thus, reduce the average variable cost of generation.

**Government Power Sector Strategy.** Eritrea is at an early stage in laying down the infrastructure for water supplies, power generation, transportation, telecommunications, schools and health services. The Government recognizes that if Eritrea is to expand its economy, electricity supply is a strategic sector that needs to be emphasized over the medium term. Government strategy highlights the need for increased access to electricity for promoting income-generating activities and social services in rural areas to improve living conditions and reduce poverty. Although the Government is yet to crystallize its longer-term vision, the following goals emerge for the power sector:

(a) Ensure that reliable, good quality electricity is available to a wide range of customers to support economic activity;
(b) Expand electricity service to rural areas, both to improve the quality of life in these areas and to provide one of the essential infrastructure inputs required to facilitate productive activities, especially the establishment of small businesses; and
(c) Establish a regulatory and institutional framework that will facilitate and promote the financial viability of the sector and the introduction of private sector participation to relieve the financial burden on the state and extend the sector's managerial capacity.

The Government recognizes that the development of an efficient power sector will require a move away
from the central government administered system towards the establishment of a modern institutional and regulatory framework governing electricity production, transmission, distribution and sales. It will further require the establishment of a transparent framework and mechanism for setting electricity tariffs for urban and rural consumers. To set in motion this “break with the past”, the Government has prepared a draft Electricity Proclamation, with the financial support of SIDA. The purpose of the Proclamation is to promote efficiency, safety, environmental protection and the private sector involvement in the power sector. The Proclamation makes provisions for the establishment of a National Electricity Regulatory Board to enforce the Proclamation and associated regulations and directives with respect to the commercial and safety aspects of the electricity business. Under the proposed Proclamation, EEA, or any other public or private person is allowed to apply for a licence to generate, transmit, or distribute electricity, provided that they, among others, have the financial resources to undertake the activity. Currently, EEA would not qualify for a license.

Therefore, to facilitate the transformation of the sector to meet the requirements of the proposed Proclamation, the Government agreed to a substantial sector reform program that will address the current weaknesses in the sector, increase transparency and efficiency, and prepare it for future private sector participation. As declared in its Letter of Sector Policy (Annex 12, to be received), the Government will:

(a) Establish EEA as an autonomous corporation under the commercial code of Eritrea, with clear rules for the responsibilities and accountabilities of the owner, the board, and the management;

(b) Carry out restructuring of EEA’s financial accounts to realistically reflect the company’s revenue earning assets and liabilities, make it financially self-sufficient, and to increase fiscal transparency;

(c) Segment EEA’s accounts into rural and urban businesses to clearly separate EEA’s commercial activities from the non-cost covering rural electrification activities, which EEA will implement with Government subsidy financing;

(d) Establish transparent rules for the implementation and financing of rural electrification, as this activity is not commercially viable for EEA to undertake from its own funds;

(e) Carry out a tariff study and establish a transparent mechanism for tariff setting;

(f) Establish operational and financial performance targets for both the urban and rural businesses of EEA;

(g) Establish a modern institutional and regulatory framework for the power sector by approving a new Electricity Proclamation;

(h) Restructure EEA to enable it to fulfill its obligations under the new Proclamation, increase efficiency, and meet its performance targets;and

(i) Following approval of the Electricity Proclamation, Government will establish a Rural Electrification Fund to provide capital subsidies to public, cooperative, and private providers for rural electrification (from the grid or from stand alone or hybridized renewable energy technologies) based on clear selection criteria for electrification sites and financing conditions. The proceeds would be collected through a levy on electricity consumed, and donor and government contributions.
2. Objectives
In support of broad-based economic growth, the project's development objectives are to: (i) establish a sustainable program for expanding the population's access to electricity; (ii) improve the security of electricity supply; and (iii) strengthen the institutional capacity of energy sector agencies, including: regulatory, fiscal, and institutional reforms in the sector to increase efficiency and attract private participation.

3. Rationale for Bank's Involvement
The Bank's value added will be in the following areas:

Asmara Distribution System Rehabilitation. In addition to the introduction of new technology (but proven in other countries) that is critical to reducing the cost of infrastructure and the preservation of Asmara's cultural heritage, the Bank's knowledge of the sector will help to facilitate optimal use of investment resources for the sector. IDA is the only available concessionary financing source for this rehabilitation. Finally, Bank participation will increase attention to environmental issues.

Rural Electrification. It will help to introduce new technology to Eritrea (but proven in other countries) that is critical to reducing the cost of infrastructure in rural areas; to support implementation of proper environmental and social safeguards; ensure that increased electricity access is integrated with provision of training to gain the maximum benefits from the availability of reliable electricity service as quickly as possible. The Bank support for rural electrification will be grant financing, which will increase affordability and contribution to the social development of this post-conflict country. Given the Bank's experience and expertise in rural electrification, it is in a strong position to assist Eritrea in finding alternative institutional arrangements that promise better sustainability of results than the traditional public utility approach.

Institutional Reform. The Bank’s experience in other countries offers comparative advantage and allows sound policy advice to the Government in building up Eritrea's power sector. The Bank's financial and coordinating resources will help the Government to advance institutional reforms initiated with bilateral support and would bring to the table knowledge of successful reforms of the power sector elsewhere. The Bank is in a unique position to combine lessons from other countries to help develop a new approach to expansion of electricity access.

4. Description
A. Asmara Distribution System Rehabilitation and Expansion (US$35.73 million of which US$32.88 IDA credit financed)

This component seeks to remove operating constraints on the distribution system in the city, reduce losses, and meet the forecast increase in demand over the next 20 years.

Investments. The project will finance: (a) the complete replacement of the old 5.5kV medium voltage system by a more efficient and modern 15kV system; (b) the elimination of the old fashioned and unreliable 127/220V low voltage system, replacing it with an efficient 400/230V system; and (c) a new 66/15 kV substation at Asmara North, plus upgrading/rehabilitation of the existing substations at Gejeret and Denden and minor works at Asmara East and Belesa substations. In addition, the project will finance the undergrounding of the medium voltage system in the old historic city center, where space is at premium and the replacement of the current, dangerous, open-wire systems by a safe aerial bunched cable (ABC). The project also will finance the replacement of service connections and new meters for affected consumers.
These investments will significantly increase the network's load carrying capacity and drastically reduce losses as a result of upgrading to the higher operating voltage. The upgrading will help unify EEA's city distribution standards, as other cities and the new suburbs of Asmara are already operating at the new voltage. Preparation of this component is based on studies previously carried out by independent consultants and updated during preparation.

Technical Assistance: Training and consulting services to EEA on project design, management, construction, and operation.

B. Rural Electrification (US$16.73 million of which US$12.68 IDA grant financed)

This component will support the Government's strategy to increase the population's access to electricity. It includes two sub-components: (i) the electrification of about 80 villages and small towns around four main towns – Keren, Barentu, Dekemhare and Adi Keih - through grid extensions by EEA; and (ii) seed funding for the Government’s Rural Electrification Fund to be established following the approval of the Electricity Proclamation.

B1. Grid Electrification by EEA

Investments: The project will finance the extension of the medium voltage distribution lines from the larger towns to the center of the selected villages, the distribution transformers, the low voltage distribution lines, and a number of service connections.

In accordance with the procedure for rural electrification in Eritrea, the villagers pay for the cost of the low voltage reticulation in the village as an upfront payment. The contributions for each householder are determined by the Village Administrator on the basis of ‘ability to pay’. EEA collects the service connection costs directly from the consumers. In addition, the householder has to pay for simple house wiring. As the project will finance the entire connection costs in the selected villages, it was agreed with the Government and EEA that EEA would collect the payments from the villages and deposit them in the Rural Electrification Fund to benefit future electrification. This arrangement will ensure consistency with the financing arrangement in villages that have been recently electrified with government and SIDA financing. An upfront payment will also increase the villages' ownership of the project. The payment depends on the size of the village - the larger and/or the more compact the village the less they pay. For those electrified during 2002/2003 the average payment was 920 Nfa per household (the average reported annual household income in the project's target villages varies from 2,119 to 19,295 Nfa). It is expected that the systematic planning and the new distribution standards under this project will reduce the cost. The project will also establish an improved payment mechanism whereby consumers can elect to pay the connection cost in annual installments.

Technical Assistance. The project will finance training and consulting services to EEA on project design, management, construction, and operation. An important aspect is enabling EEA to smoothly integrate, in its operational and maintenance procedures, the requirements of the new low-cost distribution standards that the project will introduce, including a mixed system of single phase and three phase distribution.

B2. Seed Funding for the Rural Electrification Fund

The Government will establish a Rural Electrification Fund to finance capital subsidies to qualifying schemes to electrify additional villages either by EEA, village cooperatives, or private energy service companies. The project will provide, through an IDA post-conflict grant, seed funding to this Fund once
the Government has established it with suitable administrative management arrangements and has
developed clear selection criteria for rural electrification. Thus, the project will be able to provide
financing for community or private sector electrification schemes in the latter part of the implementation
period.

C. Sector Reform and Institutional Capacity Building (US$4.52 of which $US$4.03 IDA grant
financed)

This component will assist the Government to implement its power sector reform program. It supports the
development of the institutional and regulatory aspects of the power sector and includes advisory services, studies, and training: (a) the finalization and implementation of the Government's new Electricity
Proclamation establishing a modern legal and regulatory framework for the power sector; (b) the
establishment of the institutional and regulatory arrangements for rural electrification, including the Rural Electrification Fund - a mechanism for the Government to promote electrification in areas that would not be commercially viable without a capital subsidy; (c) the establishment of a suitable regulatory function based on the framework stipulated in the Electricity Proclamation; (d) the establishment of a suitable tariff setting policy and mechanism; (e) the building of EEA's technical and planning capacity; (f) capacity building for sector agencies, MEM and EEA, and for private enterprises and village cooperatives interested in participating in power distribution; and (g) consulting services for M&E of project outputs and impacts.

With regard to the development of rural electrification approaches, the project will finance assistance to the Government, through the MEM, to promote cooperative and private sector participation in electricity supply. This will be achieved through training and technical assistance for the development of business models and operational procedures for rural electricity cooperatives, private energy service companies, and individual entrepreneurs to enable them to manage electricity services in rural areas. The business models will promote ownership by the beneficiaries and will be required to be self supporting after the distribution system is built using a capital subsidy. Additionally, the project will test an alternative approach of engaging the private sector in the management of rural electricity services, in line with the Government's policy. This will involve training of electrical practitioners in the villages to do in-house wiring as this is not done by EEA staff as part of the project. Potential trainees are the demobilized youth who were engaged in the defense of the country. EEA could also engage the trainees as agents to distribute and collect electric bills and conduct minor extensions to new customer sites. They could also widen the scope of their services by engaging in other energy systems like distribution of LPG, kerosene, or renewable energy technologies. As rural electrification intensifies, these private practitioners could develop into rural energy service companies.

D. Environmental Monitoring and Mitigation (US$0.55 million of which US$0.46 million IDA grant
financed)

This component will finance the cost of implementing the Environmental and Social Management Plan for the project. The main activities to be financed are: (i) training for EEA's Project Management Unit, MEM, and the Zoba and Village Administrators; (ii) implementation of the M&E activities; (iii) implementation of a compensation plan for loss of crops during construction of power lines under the Asmara distribution rehabilitation and rural electrification components; and (iv) environmental audits at the end of the project. EEA will finance the compensation plan.

Project Cost
Asmara distribution rehabilitation and expansion
Rural electrification
Rural Electrification Fund
Sector reform and institutional capacity building
Environmental monitoring and mitigation

5. Financing
Source (Total ( US$))
BORROWER/RECIPIENT ($5.00)
IDA ($33.00)
IDA GRANT FOR POST-CONFLICT ($17.00)
Total Project Cost: $55.00

6. Implementation
Implementing Agencies

EEA will be responsible for the implementation of the Asmara distribution rehabilitation and expansion component and the rural electrification component, including procurement of all supply and installation equipment and works. EEA will also implement the EEA capacity building activities of the Sector Reform component. The MEM will be responsible for the overall coordination of the project, the implementation of the Sector Reform component - including procurement of all consultant services and goods-, the implementation of the Rural Electrification Fund component, monitoring and evaluation of the activities related to the environmental, social and rural electrification aspects of the project, and the development and execution of the institutional and training activities for the private and cooperative electricity distribution business.

EEA will manage the implementation of its components through its Project Management Unit (PMU), headed by a full time Project Manager. Other key staff include a Technical Advisor and a General Services Advisor. To meet the needs of this project, EEA will complement the PMU with an Accountant, an Environmental Specialist, and a Public Relations Specialist. The Accountant is an existing EEA staff member, while the Environmental Specialist is a staff member of the Ministry of Land, Water, and Environment, who’s involvement will be part-time. EEA will assign the Public Relations Specialist before the project’s effectiveness to handle, in particular, the interface with electricity consumers in Asmara. To the extent possible, the PMU will utilize existing EEA staff engaged in the normal day-to-day operations of the utility with the objective of capacity building.

The PMU will work closely with the engineering consultants, already hired during the project’s preparation period. Further, the PMU will coordinate the implementation of the Asmara component and to discuss any implementation issues as they arise with the advisory Technical Support Committee EEA has established for the project (TORs available in project files). The committee includes officials from the Asmara Department of Infrastructure, the Department of Water, the Department of Environment, the Telecommunication Services of Eritrea, and the National Museum. The committee will meet at least semi-annually or as often as required. The EEA will implement the Resettlement Plan whenever resettlement/compensation is triggered in the course of project implementation.

Organizational Structure of EEA's Project Management Unit
MEM has assigned a full-time Project Coordinator (PC) who will be supported by MEM's existing accounting and procurement staff, and the institutional consultants to be engaged during project implementation. The PC will establish an advisory Supporting Committee with members from the Department of Environment, the Heads of the Economic Department of the respective Zobas, and EEA’s Project Manager to oversee the implementation of the environmental and social mitigation measures in the rural electrification component (TORs for the Supporting Committee are in project files). The Supporting Committee will meet at least semi-annually and as often as required to discuss issues arising from implementation. MEM will also provide training to Village Administrators (VAs) to conduct village level environmental and social impact screening and evaluation, mitigation, and resettlement. The PC will coordinate with Zoba and Village Administrators in the project areas to ensure popular participation that includes initial payments for cost sharing and securing optimum rights of way for the network extensions.

Both EEA and MEM will work closely with the elected VAs in implementing the rural component. The VAs will represent their communities, act as a liaison between the local community and EEA and MEM, and organize popular participation for financial contributions to the project.

Organizational Structure of the Ministry of Energy and Mines (MEM)
**Accounting, Financial Reporting, and Auditing Arrangements**

The Bank has assessed the financial management and accounting systems of EEA and MEM. Both institutions have accounting systems that allow for proper recording of financial transactions, with adequate controls for preparation and approval of transactions. The accounting departments of the two institutions are headed by qualified accountants with several years of experience, and both have centralized accounting functions. Given the size of the project, EEA has decided that the Finance and Administration Manager, who is also the head of the accounting department, will be the appointed accountant specifically to keep and monitor the project's accounting records. The report summarizing the financial management assessment of the implementing agencies is included in the project files.

EEA and the MEM will independently maintain accounting records for their part of the project and will ensure appropriate accounting of the funds. Each entity will be responsible for designing and preparing, on quarterly basis, appropriate Progress Reports, including Financial Monitoring Reports (FMRs) reflecting: the status of implementation progress; problems encountered and corrective measures envisaged; and current cost of each project component together with estimated costs of completion. The Bank has provided a thorough presentation of the FMR requirements to the both EEA and MEM accounting staff, including the World Bank publication *Financial Monitoring Reports - Guidelines for Borrowers.*
Both EEA and MEM will be responsible for ensuring that the financial statements are audited annually according to international auditing standards by an independent auditor acceptable to IDA. The annual audit will be carried out in accordance with the Guidelines: Annual Financial Reporting and Auditing for World bank-Financed Activities (June 30, 2003). Acceptable accounting standards are International Financial Reporting Standards and International Accounting Standards (IFRS/IAS) issued by the International Accounting Standards Board (IASB), or International Public Sector Accounting Standards (PSAS) issued by the Public Sector Committee of the International Federation of Accountants (IFAC-PSC). A broad outline of the expected contents of the annual financial statements have already been agreed and will be confirmed during negotiations. EEA is a continuing entity and has an existence independent of the implementation of operation to be financed by the IDA credit and grant. The annual financial statements, therefore, required to be submitted to IDA would be those of the entity as a whole, and not just for the project. In this regard, EEA will submit a full set of financial statements (balance sheet, income statement, etc.), with additional disclosure (for example by way of note or supporting schedule or statement) of sufficient information on sources and uses of funds associated with the IDA-financed activities. MEM will submit annual financial statements to reflect all activities for their part of the project. In addition to the audit reports, the auditors will prepare a management letter giving comments, observations, and recommendations for improvement on the accounting records, systems and controls that have been examined during the course of the audit. Both EEA and MEM will send the audited financial statements to the Bank within six months following the end of the entity's fiscal year.

**Disbursement Arrangements:**

The proposed project is a blend of credit and grant financing and the diagram below describes in pictorial form the expected flow of funds and reporting arrangements. The proceeds of the credit and those of the grant should not be mixed and there will therefore be a need to maintain separate accounting records as well as bank accounts. Three special accounts will be required. EEA will maintain two accounts - one for the credit and the other for the grant, while MEM will maintain one account for the grant. All the three accounts will be opened in a bank acceptable to IDA. Detailed funds flow and reporting arrangement will be developed for the Rural Electrification Fund during the initial project implementation period.

**Procurement Arrangements:**
The EEA and the MEM will be responsible for all procurement funded by the project. They will handle the procurement requests according to agreed procurement plans.

**Monitoring and Evaluation Arrangements:**

Monitoring of outputs and evaluation of impacts will be guided by the project design summary in Annex 1 and the implementation plan through: (i) quarterly progress reports; (ii) Bank supervision missions; (iii) project mid-term review; and (iv) M&E reports by independent parties. Annex 11 discusses the monitoring and evaluation arrangements in detail.

IDA implementation review missions will take place twice a year to review progress. A mid-term evaluation of the Project will take place no later than 24 months after Credit effectiveness in accordance with the terms of reference agreed upon by the Government and IDA. The EEA and the MEM will prepare a mid-term report detailing achievement of development objectives and implementation progress under all project components and identifying implementation issues. They will submit this report to the Government and IDA not later than two months prior to the mid-term review. During the mid-term review, in response to the implementation issues identified, appropriate solutions will be developed. If required, project design will be modified. Finally, EEA and the MEM will transmit a project implementation completion report, within six months of project closing to IDA.

7. **Sustainability**

Sustainability of the Asmara distribution rehabilitation and extension will be improved through the implementation of effective commercialization and reform program in the power sub-sector and EEA. Sustainability also requires EEA’s tariffs to be adjusted on a timely basis so as to ensure that the company fully recovers the cost of its operations.

For rural electrification, the project design aims to lower the cost of providing service by adopting technologies that match demand and by encouraging communities and local enterprises to take on the management responsibility of local distribution business. Project design addresses sustainability also by requiring the selected villages to pay a certain portion of the connection costs. Adequate administration of the Rural Electrification Fund would increase sustainability through the transparent mechanism for the selection and subsidizing of schemes. Finally, the project will build Government capacity in its role as a market facilitator to foster private sector involvement in the electricity business.

8. **Lessons learned from past operations in the country/sector**

*Lessons from Eritrea:*

**Rehabilitation of the Massawa Distribution System.** This project, financed by the EU, is similar to the Asmara component, though much smaller in size and having a different implementation arrangements. The materials were supplied by international contractors, while the works were carried out by EEA staff. The project is now nearing completion and had a number of lessons that will help improve implementation of the Asmara component. These include the delay of work caused by the split between supply and installation aspects of the project; EEA was also slow on reinstating roads and sidewalks after excavation; and it should have informed consumers of the precautions needed to prevent appliance failures after voltage conversion.

**Rehabilitation of Asmara Water Supply.** Although consumers were satisfied with the improvement in the supply of water, implementation had its challenges. According to the stakeholders, the implementing agency should have coordinated better with other utilities and the city administration; it should have
speedily cleared streets from debris and wreckage remnants from the work crews, and it could have planned the work better to avoid blockage of roads and traffic jams.

Learning from the above experiences, the Asmara component will be carried out as a turn-key project, with international contractors taking responsibility for all project phases. To increase acceptance and preparedness, and to avoid the water project’s problems, EEA held extensive consultations with stakeholders in Asmara. Because of the nature of rehabilitation, it will be impossible to avoid blockage of some streets and it will also not be possible to reinstate broken-up roads and sidewalks immediately. EEA has therefore agreed to plan the works so that only one section of the town would be rehabilitated at a time. This should minimize nuisance/disruption to inhabitants. In addition, EEA will implement an information campaign to ease consumers’ transition to the new voltage level.

**Global lessons:**

**Important to simplify design and avoid implementation arrangements that are too complex for the Borrower.** The project will have three well-defined components. The institutional component will be implemented by MEM. The Asmara component will be implemented by international contractors through a turn key arrangement. The rural component will for most part follow the processes used for earlier rural projects. If new technology and institutional arrangements are chosen, the project will provide training to EEA, MEM and the villagers on installation and operation.

**Need for advanced procurement to minimize project delays, especially as this proposed Project will be the first Bank operation in the electricity sector in Eritrea.** Draft procurement documents will be finalized before implementation begins (before the project is presented to the Board).

**Important to consult with beneficiaries and other stakeholders to ensure a viable project design.** As discussed in sections 5 and 6, EEA and MEM have consulted widely on the design of the project.

**Rural electrification** projects should: (i) charge right price but help with upfront costs; (ii) subsidies should encourage not destroy business incentives; (iii) have clear criteria to select villages included in the project; (iv) reduce costs by promoting low-cost equipment and technical specifications; and (v) involve community participation rather than top-down master plans.

**9. Environment Aspects (including any public consultation)**

**Issues**: The Borrower carried out the Environmental and Social Assessment in full compliance with Eritrean and World Bank standards for environmental and social impact assessment. The report was produced in two volumes; the Environment and Social Assessment (ESA) Report, which includes the Environmental and Social Management and Monitoring Plan (ESMMP), and the Resettlement Policy Framework (RPF). In compliance with the Pelosi amendment, all documents were approved by ASPEN and disclosed in the Infoshop, as well as in Eritrea, prior to appraisal.

The MEM established a multi-disciplinary Task Team to prepare the ESA report in February 2003. Public consultations commenced in March 2003. The socio-economic assessment was tendered to local consultants and the successful bidder started fieldwork in May 2003. The main thrust of the fieldwork was to obtain a full understanding of the socio-economic environment of the project areas. Simultaneously, all aspects of the physical and biological environment were examined in detail to establish pre-project conditions, assess the degree of impact, and to design and plan the implementation and monitoring of mitigation measures. The Department of Geography of the University of Asmara was largely responsible for compiling the sections relating to the physical and biological environment. The detailed ESA
investigations were conducted in June/July of 2003. The Borrower incorporated the recommendations from a stakeholders' workshop, which discussed both the ESA findings and the mitigation measures, into the report; specifically, into the ESMMP (Chapter 9 of the ESA report).

**Significant environmental issues:**

<table>
<thead>
<tr>
<th>Environmental impacts</th>
<th>Rating of impacts</th>
</tr>
</thead>
<tbody>
<tr>
<td>Excavation of underground cables on urban traffic</td>
<td>Moderate</td>
</tr>
<tr>
<td>Denial of or restrictive access to economic resources, land, fodder, property, buildings, roadside trees, etc</td>
<td>Moderate</td>
</tr>
<tr>
<td>Private land, garden requirement for transformers</td>
<td>Low</td>
</tr>
<tr>
<td>Slow backfilling of excavated surface</td>
<td>High</td>
</tr>
<tr>
<td>Dust and dirt</td>
<td>Moderate</td>
</tr>
<tr>
<td>Damage to other underground systems</td>
<td>Low</td>
</tr>
<tr>
<td>Erection of overhead ABC cables, open wire overhead</td>
<td>Low</td>
</tr>
<tr>
<td>The cutting of trees and branches</td>
<td>Low</td>
</tr>
</tbody>
</table>

10. **List of factual technical documents:**

11. **Contact Point:**

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   **Note:** This is information on an evolving project. Certain components may not be necessarily included in the final project.