Status of ESMAP Portfolio of Projects
As of December 31, 1999

Energy Sector Management Assistance Programme

ESMAP

March 2000

FILE COPY
Foreword

This report presents the status of ongoing ESMAP projects for the six-month period ending December 31, 1999. Its primary audience is the community of ESMAP donors and partners.

In this volume, ‘ongoing’ projects are those that have generated some activity and disbursed ESMAP funds during the period mentioned above. For comprehensive tracking of ESMAP projects this volume also includes an index listing all projects that were in the ESMAP portfolio during the second half of 1999.

The main section of the report presents the individual status of each ongoing project in ESMAP’s portfolio. Projects launched since 1998 are presented in a format based on the Logical Framework (LogFrame) approach, while earlier projects use a less elaborated format. As a result, more than one format still appear in this volume. ESMAP is currently developing a unified portfolio tracking database that will simplify and unify project reporting for all projects. The new reporting format is expected to be available by the June 2000 round of status reports.

The financial figures presented in this report reflect our best knowledge of the financial situation of each project as of December 31, 1999. Because of a recent change in information management systems at the World Bank, these figures may differ from actual figures as some commitments and expenditures may not have entered the new system during the present transition period. We expect this situation and all discrepancies to be fully rectified in subsequent reports.

The content of this volume is being prepared for online dissemination to ESMAP donors through the ESMAP website. Detailed instructions on how to access this information online will be distributed to donors by email shortly. Any further information about this volume and its contents may be obtained by sending an email to: esmap@worldbank.org.

ESMAP
Washington, D.C.
March 2000
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<td>Brazil</td>
<td>Northeast Renewable Energy Identification</td>
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<td>Bulgaria</td>
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<td>Cambodia</td>
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## Abbreviations and Acronyms

The list below provides definitions of ESMAP-specific and general terms. Each project may have more project-specific abbreviations and acronyms which are not identified here.

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<thead>
<tr>
<th>Abbreviation</th>
<th>Description</th>
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<tr>
<td>ACR</td>
<td>Activity Completion Report</td>
</tr>
<tr>
<td>AFR</td>
<td>Africa Region</td>
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<tr>
<td>AIB</td>
<td>Activity Initiation Brief. An AIB was prepared for all ESMAP activities launched before 1998. It has been replaced by the Project Document which provides detailed information about the project’s background, objectives, schedule of activities and costs. The Project Document describes the agreed-upon work program from which project implementation will be monitored.</td>
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<td>Core</td>
<td>Funds or financial contributions to ESMAP which are unrestricted or untied to procurement or disbursement in specific countries.</td>
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<td>EAP</td>
<td>East Asia &amp; Pacific Region</td>
</tr>
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<td>ECA</td>
<td>Europe &amp; Central Asia Region</td>
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<td>EE</td>
<td>Energy Efficiency</td>
</tr>
<tr>
<td>EER</td>
<td>Energy-Environment Review</td>
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<tr>
<td>EIA</td>
<td>Environmental Impact Assessment</td>
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<tr>
<td>ESMAP</td>
<td>Energy Sector Management Assistance Programme</td>
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<td>GEF</td>
<td>Global Environment Facility</td>
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<td>GHG</td>
<td>Greenhouse Gas</td>
</tr>
<tr>
<td>GLB</td>
<td>Global</td>
</tr>
<tr>
<td>IBRD</td>
<td>International Bank for Reconstruction and Development</td>
</tr>
<tr>
<td>ICR</td>
<td>Implementation Completion Report</td>
</tr>
<tr>
<td>IDA</td>
<td>International Development Association</td>
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<td>IEA</td>
<td>International Energy Agency</td>
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<td>IFC</td>
<td>International Finance Corporation</td>
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<td>LCR or LAC</td>
<td>Latin America &amp; Caribbean Region</td>
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<td>LPG</td>
<td>Liquefied Petroleum Gas</td>
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<tr>
<td>MNA or MENA</td>
<td>Middle East &amp; North Africa Region</td>
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</table>
NGO Non-governmental Organization
PIF Project Implementation Form
SAR South Asia Region
TOR Terms of Reference
UNDP United Nations Development Programme
WB World Bank

*Other ESMAP terms*
- **White Cover**: Refers to the first draft version of a report on an ESMAP project.
- **Yellow Cover**: Refers to the second draft version of a report on an ESMAP project.
- **Green Cover**: Refers to a draft final version of a report on an ESMAP project.
- **Final Cover or Report**: The final report on an ESMAP project which becomes a public document.
The ESMAP Portfolio at a Glance

Breakdown by Thematic Area
(as a % US$ Value)

Number of Projects
by Thematic Area

Breakdown by Geographical Area
(as a % US$ Value)

Number of Projects
by Geographical Area

Breakdown by Strategic Area
(as a % US$ Value)

Number of Projects
by Strategic Area

December 31, 1999
Regional Distribution of Portfolio 1998-1999

As of December 31, 1998
Total Value: $21.7m

As of December 31, 1999
Total Value: $27.7m

Thematic Distribution of Portfolio 1998-1999

As of December 31, 1998
Total Value: $21.70m

As of December 31, 1999
Total Value: $23.75m
### Thematic Distribution of Ongoing Projects in Each Region (by number of projects)

<table>
<thead>
<tr>
<th></th>
<th>Sector Reform</th>
<th>Environment</th>
<th>Rural &amp; Periurban</th>
<th>Renewables</th>
<th>Efficiency</th>
<th>International Trade</th>
<th>Total*</th>
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<td><strong>20</strong></td>
<td><strong>12</strong></td>
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<td><strong>8</strong></td>
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*Excludes one ESMAP-managed dissemination project ($100,000)

### Thematic Distribution of Ongoing Projects in Each Region (by dollar value)

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<th>Environment</th>
<th>Rural &amp; Periurban</th>
<th>Renewables</th>
<th>Efficiency</th>
<th>International Trade</th>
<th>Total*</th>
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<tbody>
<tr>
<td>Global</td>
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<td>981,217</td>
<td>617,000</td>
<td>245,150</td>
<td>300,000</td>
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<td>Africa</td>
<td>870,285</td>
<td>200,000</td>
<td>1,368,914</td>
<td>632,895</td>
<td>1,050,284</td>
<td>1,257,530</td>
<td>5,279,908</td>
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<td>East Asia &amp; Pacific</td>
<td>952,205</td>
<td>660,000</td>
<td>100,000</td>
<td>433,000</td>
<td>150,000</td>
<td>665,000</td>
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<td>South Asia</td>
<td>120,000</td>
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<td>722,709</td>
<td>185,000</td>
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<td>-</td>
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<tr>
<td>Europe &amp; Central Asia</td>
<td>1,214,000</td>
<td>1,058,070</td>
<td>-</td>
<td>-</td>
<td>1,452,622</td>
<td>-</td>
<td>-</td>
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<tr>
<td>Middle East &amp; North Africa</td>
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<td>50,000</td>
<td>253,230</td>
<td>125,000</td>
<td>340,000</td>
<td>-</td>
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<td>Latin America &amp; Caribbean</td>
<td>1,207,000</td>
<td>935,022</td>
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<td>259,479</td>
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<td>430,350</td>
<td>8,541,949</td>
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<td><strong>Total</strong></td>
<td><strong>4,977,490</strong></td>
<td><strong>6,048,232</strong></td>
<td><strong>8,039,951</strong></td>
<td><strong>1,880,524</strong></td>
<td><strong>3,924,906</strong></td>
<td><strong>2,687,880</strong></td>
<td><strong>27,558,983</strong></td>
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*Excludes one ESMAP-managed dissemination project ($100,000)
**Project Title:** Best Practices for Grid Electrification - Phase II  
**Theme:** Poverty Alleviation  
**Origin of Funds:** Netherlands  
**Task Manager:** Douglas Barnes

### Project Development Objective

| Key Indicator | The adoption of best practices by institutions extending grid electricity to rural areas in developing countries. | Number of new or existing companies adopting best practices recommended in the study and increasing effectiveness of rural electrification. |

### Expected Outputs

| Key Indicator | Methodology for conducting case studies on success factors.  
| | Main factors leading to success of rural electrification in countries that have achieved significant levels of electrification.  
| | Expanded knowledge based on best practices.  
| | Lessons learned from selected countries. |

### Implementation Progress

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<th>End</th>
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<td>7/1/99</td>
<td>9/15/99</td>
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<tr>
<td>Complete Case Studies</td>
<td>8/1/00</td>
<td>2/1/00</td>
</tr>
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<td>China</td>
<td>8/1/00</td>
<td>2/1/00</td>
</tr>
<tr>
<td>Mexico</td>
<td>8/1/00</td>
<td>2/1/00</td>
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<td>Bangladesh</td>
<td>8/1/00</td>
<td>2/1/00</td>
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<tr>
<td>Tunisia</td>
<td>8/1/00</td>
<td>2/1/00</td>
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<tr>
<td>Synthesize Findings of Case Studies</td>
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<td>5/1/00</td>
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<td>Disseminate Findings at Workshop</td>
<td>5/15/00</td>
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### Expected Dates for:

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<tr>
<td>Project Completion (all project activities completed)</td>
<td>6/00</td>
<td>--</td>
</tr>
<tr>
<td>Project Closing (all financial transactions executed)</td>
<td>8/00</td>
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</table>

### Summary of Current Project Status, Issues and Actions

The project has just been initiated. At the present time arrangements are being made to choose the countries and hire the consultants for the case studies. Most case studies will begin in Fall 99.

### Status of Funding

<table>
<thead>
<tr>
<th>Funding Source</th>
<th>Committed to Date</th>
<th>Disbursed to Date</th>
<th>Remaining Balance*</th>
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<tbody>
<tr>
<td>ESMAP</td>
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</tr>
<tr>
<td>of which:</td>
<td></td>
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<tr>
<td>Trust Funds</td>
<td>280,000</td>
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<tr>
<td>Total</td>
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<td>229,317</td>
<td>37,450</td>
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</table>

*Excludes foreign exchange rate gain/loss.
**Project Title:** Designing Competitive Single Buyer Power Market Structures

**Theme:** Sector Reform & Restructuring

**Origin of Funds:** Core, Others

**Task Manager:** Ranjit Lamech

### Project Development Objective

Develop the conceptual design and analytic framework for about 3-4 different structural variants of the single buyer power market model.

### Key Indicator

- Demand for and utilization of the framework as a basis for dialogue on power sector reform options.
- Follow-up requests for dissemination workshops in client countries.

### Expected Outputs

1. ESMAP publication and WB Energy Discussion Paper
3. Training workshop in Washington

### Key Indicator


### Implementation Progress

All major components of the task have been completed.

Publication of ESMAP Report and Joint World Bank/ESMAP/State Power Corporation Report were scheduled for completion in July 1999. The final draft has been completed and is now under review by the Government of China and both internal and external reviewers. Their final comments were received end-August. The report will then be sent for professional editing, layout and publication.

<table>
<thead>
<tr>
<th>Component</th>
<th>Start Date</th>
<th>End Date</th>
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</thead>
<tbody>
<tr>
<td>Preparation of draft discussion papers, Review debate and finalization of the study reports Workshop in China</td>
<td>January 99 March 99 May 8, 99 May 11, 99 continuing</td>
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</tr>
</tbody>
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### Summary of Current Project Status, Issues and Actions

Final draft report finalized. The report is being professionally edited and prepared for printing as a discussion paper. The report will be published as a joint ESMAP, World Bank and State Power Corporation of China report. The final report will be available in March 2000.

### Status of Funding

<table>
<thead>
<tr>
<th>Funding Source</th>
<th>Project Cost</th>
<th>Funds Received</th>
<th>Committed to Date</th>
<th>Disbursed to Date</th>
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<td>of which:</td>
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<td>114,000</td>
<td>51,500</td>
<td>51,500</td>
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<td>Others</td>
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<td>114,000</td>
<td>51,500</td>
<td>51,500</td>
<td>62,500</td>
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*Excludes foreign exchange rate gain/loss.
Project Title: Electricity Benefits Assessment

Theme: Rural And Pen-Urban Access

Origin of Funds: Netherlands

Task Manager: Douglas Barnes

Report Preparation Stages

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<th>White Cover</th>
<th>Yellow Cover</th>
<th>Green Cover</th>
<th>Final Cover</th>
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Objectives

This study was developed in response to an evaluation of rural electrification in Asia, completed by the Operations Evaluation Department. One of the conclusions of the study was that the methods used to estimate the benefits of rural electrification by the Bank may be conservative and may not reflect the actual benefits of projects. The report recommended that it would be appropriate to develop better measures for determining the economic benefits of rural electrification. This study was developed to:

(a) Prepare a practical method for assessing the benefits of rural electrification, going beyond current methods which are very dependent on tariffs.
(b) Implement the beneficiary assessment methodology in a selected country in order to determine how practical it is to apply to other Bank rural electrification projects.

The project will help power distribution companies to more accurately measure the benefits of their service, and perhaps reinforce customer service as a significant but often overlooked goal of power development in developing countries. The work will complement two other study that were completed in Malawi and Bolivia, using other methods.

Principal Tasks:

- Review Benefit Assessment Methodology.
- Develop methods to capture “hard to measure” benefits.
- Conduct a case study in Philippines.
- Prepare report on Benefits Assessment case studies.
- Prepare guidelines on how to utilize new methodology.

Summary of Current Project Status, Issues and Actions

The polished draft of the consultant’s report based on the survey of 2000 households from Ateneo de Manila University has been received. The final draft report will be completed by February 2000. After this the task manager and one consultant will produce the final ESMAP report.

The project has produced some very interesting findings. There appears to be a very strong complementary link between rural electrification and education. At the present time, we are in the process of applying a new benefit analysis technique to the findings that have been generated in the study. Within the context of the new focus on poverty alleviation, the new methodology is that is being developed is more appropriate for measuring such benefits of rural electrification.

Project Completion Date (all project activities are expected to be completed) 6/2000
Project Closing Date (final commitments are expected to be reported) 8/2000
<table>
<thead>
<tr>
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<th>Project Cost</th>
<th>Funds Received</th>
<th>Committed to Date</th>
<th>Disbursed to Date</th>
<th>Remaining Balance*</th>
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*Excludes foreign exchange rate gain/loss.
The Energy and Environment Steering Committee has co-sponsored the Biomass Gasification Expert Workshop by providing the Risk Analysis/Mitigation Model. The proceedings and the report by EPRI will be put in the web site of Environmental Management for Power Development.

Objectives:

(a) To obtain views on the main carriers for the dissemination of environmentally benign technologies in developing countries;
(b) To determine the most effective way for accelerating the dissemination of such technologies in developing countries;
(c) To establish a network that will facilitate the exchange of information and will facilitate cooperation for the above objectives.

Principal Tasks:

I. Developing a model to evaluate new technologies which are environmentally friendly but still in the development stage and at high cost and high risk. The model would be able to estimate the cost at the matured stage of the technology as well as analyzing associated risks and recommending mitigation measures at current stage of the development.

II. Develop "Energy Issues" and a joint World Bank-EPRI web page that provides up-to-date information on energy and environment-related technologies as they apply to developing countries.

Summary of Current Project Status, Issues and Actions:

(i) The committee is currently chaired by Richard Baltzhezer, former Electric Power Research Institute (EPRI) president.

(ii) A technology assessment and risk mitigation workshop on Biomass Gasification Combined Cycle Power Plant was held in June 1999 (delayed due to the delay of the Brazil Biomass project) in connection with the preparation of the Brazil Biomass Gasification Project. Experts from international organizations and specialized institutions have been invited to participate to assess the prospects of cost reductions through learning curve effects. The workshop has been sponsored jointly with regional department (LAC) and GEF. A model of analyzing technical risks and uncertainties and estimate cost after replication of building plants have been developed by EPRI. The proceedings and the report by EPRI will be put in the web site of Environmental Management for Power Development.

Expected Project Completion Date (all project completed) June 00

Expected Project Closing Date (all financial transactions executed) Dec 00
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*Excludes foreign exchange rate gain/loss.
**Project Title:** Energy Development Report 2000  
**Theme:** Energy and Poverty Alleviation  
**Origin of Funds:** Core, Others  
**Task Manager:** Penelope Brook

### Project Development Objective

Compile a publication containing current data, analysis and good practice on access to energy and the alleviation of poverty

### Expected Outputs

Energy and Development Report 2000

Publication of the report

### Implementation Progress

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### Summary of Current Project Status, Issues and Actions

All component papers (15 papers + 2 appendices) have been commissioned. Review process has commenced. Design work for publication has been commissioned.

### Status of Funding

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Project Title: Energy Efficiency Operational Exchanges Program
Theme: Energy Efficiency and Conservation
Origin of Funds: Netherlands, Others
Project Manager: Anke Meyer

Project Development Objective

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<th>Expected Outputs</th>
<th>Key Indicator</th>
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<tr>
<td>Exchange of energy efficiency operational knowledge and implementation best practice</td>
<td>Number of client countries participating in network</td>
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<table>
<thead>
<tr>
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<td>2. District heating</td>
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Implementation Progress

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<tr>
<td>Bilateral Exchanges</td>
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Information Dissemination:
A web page has been developed and is regularly updated:

Expected Dates for:

<table>
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<tr>
<th>Expected Dates for:</th>
<th>Original</th>
<th>Revised</th>
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Summary of Current Project Status, Issues and Actions:

On October 25-26 the second workshop within the program was held in Krakow, Poland. The workshop was on the subject District Heating and was hosted by MPEC, the municipal district heating company in Krakow, and the World Bank jointly. The workshop was attended by 35 invited district heating practitioners from Poland, Russia, Ukraine, Latvia, Estonia, Bosnia-Herzegovina, Macedonia and China. Representatives from utilities in Finland, Germany and France were also present to add their perspective. The workshop featured a series of presentations by individual practitioners and discussion among the participants on issues which they or the facilitator, Mr. H. Lehdonvirta from Ekon Energy in Finland, raised. The draft version of the report has been disseminated to the participants, their comments gathered and the report published on the above website. A Russian language version has also been prepared. The workshop was concluded in a good cooperation atmosphere. The District Heating Practitioners are facing similar challenges in all countries but perhaps with different time frames. It was felt that the experiences exchanged during the workshop and the cooperation network will benefit the participants and similar cooperation should be continued in the future.

The planning of the third workshop, on Energy Efficiency Funds, planned for April 2000, is ongoing. Identification of facilitator and participants is in progress. The identification of the subjects for the remaining workshops is ongoing.
## Status of Funding

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<th>Funding Source</th>
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Project Title: Environmental Manual For Power Development

Theme: Energy and Environment

Origin of Funds: Netherlands

Task Manager: Masaki Takahashi

Report Preparation Stages:

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* Report Preparation Stages is not applicable. Project has components with individual timings.

Objectives:

Provide computer based analytical tools (EM model) and reference material information (EMPower Info) for the design and environmental assessment of power projects. The development phase of the project has been completed with the release of version 1.0 of the EM model and the installation of EMPower Info on the internet. The objectives and tasks of the current phase relate to dissemination, application, and training in the use of the tools.

Principal Tasks:

(i) Release of Version 1.0 of EM model and EMPower Info software
(ii) EM Promotion
(iii) Dissemination and Application. Dissemination of the EM Model and EMPower Info
(iv) Development of EM Users Network
(v) Maintenance
(vi) Software Enhancements

The various tasks were supported by the following agencies which worked together in a collaborative way:

- **Gesellschaft fuer Technische Zusammenarbeit (GTZ), Germany**: developed the EM model, technical support of EM users, EM model dissemination workshops, supported case studies and development of EM databases.
- **Directorate General for International Cooperation (DGIS), Netherlands**: provided funding for a variety of activities in all above tasks. The DGIS program was managed by ESMAP and is the primary focus of this document.
- **Department for International Development (DFID), United Kingdom**: supported the development of manual for assessing the environmental impacts of hydroelectric project, as well as numerous cases studies in which the EM model was used.
- **Bundesamt fuer Aussenwirtschaft (BAWI), Switzerland**: supported the development of guidance material for assessing the environmental impacts of electricity transmission and distribution project.
<table>
<thead>
<tr>
<th>Summary of Current Project Status, Issues and Actions</th>
</tr>
</thead>
</table>
| (i) **Task 1. Release of Version 1.0 of software.** Completed. Approximately 900 copies of the EM model have been distributed through floppy disks, email and downloading from the World Wide Web. Furthermore, the EM model and the EMPower Info are available through the internet at the world wide web locations.  
| (ii) **Task 2. EM Promotion.** The EM model and EMPower Info were demonstrated  
- At a seminar for World Bank staff (December 1995) on tools for environmental assessment of power projects.  
- A presentation was given to representatives of 18 countries was given to a USAID sponsored course on Air Pollution Control Technologies (Roanoke Virginia, USA).  
- Promotion within the World Bank; the EM model was used in the GreenHouse Gas Assessment Handbook developed by the World Bank (ENVGC).  
- Participation at the EU-funded Conference on Sustainable Energy Development in Southern Africa, June 4-6, 1997 to identify potential applications of the EM model in the Southern African region.  
- Workshop and training program in Beijing, China on August 11-15, 1997  |
| (iii) **Task 3. Dissemination and Application** are being accomplished primarily through workshops and case studies and in response to queries by potential users.  
- Regional workshop in Manila (with GTZ funding in parallel) completed in October 1995.  
- Case studies have been completed in Philippines, Morocco and Fiji with GTZ funding.  
- Sectoral environmental assessment of the Philippines completed; report will be released as an ESMAP report; it has been reviewed by the World Bank and the National Power Corporation of the Philippines, and is in the final stage of production.  
- Case study on the cost-effectiveness of alternative power generation and environmental control technologies in Shanghai, China in collaboration with World Bank Operations and the Beijing Economic Research Institute (BERI). A similar study (Assessment of Cost-Effectiveness of Environmental Control Options) has been completed for the Henan Province; a summary report was prepared in December 1999; the final report, documenting the Shanghai, Henan and a third case study (Hunan Province) which was carried out in 1999 will be prepared by April 2000. The results were presented at the International Symposium on Clean Coal Technology, November 18-20, 1997, Xiamen, Fujian, P.R.China and on April 29, 1998 in the Clean Coal Conference, Reno, Nevada and on October 7, 1998 and in the APEC Clean Fuel Energy Technical Seminar in Okinawa, Japan, key findings of the study were also included in World Bank's report on "China's Environment in the 21st Century/Clear Water-Blue Skies" which was released in the Annual Meeting in Hong Kong, Sept 1997.  
- Training provided for consultants to use the EM model to assess the environmental impacts of heating alternatives in Eastern Europe as part of six Case Studies as part of the ESMAP project District Heating in East and Central Europe. The EM has been used to carry out the study. A workshop was held in July 1996 to review results.  
- The EM has been used in Viet Nam connection with the technical assistance project (ADB funded) being carried out by ERM Consultants. The additional cost associated with the application of the EM is being funded by ODA.  
- Indian consultants working on the World Bank/ODA-funded study of Environmental Issues in the Power Sector were trained on the EM model.  
- A case study was initiated in India to assess the cost-effectiveness of greenhouse gas options; final report was issued in March, 1999. |
(iv) **Task 4. EM Users Network.** The Internet will be used to link EM users, project participants and key organizations working on energy and environment issues. Also, included are the establishment of regional centers to disseminate the EM model and EMPower Info, and provide user support on an ongoing basis. Appropriate centers to be identified in conjunction with regional workshops. The EM Network was updated with EM model users and energy-environment sites. Also, the EMPower Info has been updated and the web site design has been improved.

(v) **Task 5. Maintenance.** This task includes minor improvements of the EM model and EMPower Info as suggested by the users (especially improvements which are essential for the completion of the case studies or for the enhancement of their usability and attractiveness). ESMAP and Oeko Institut are providing support to users on as needed basis, as well as direct support of on-going case studies.

(vi) **Task 6. Software Enhancements.** This task includes enhancements of the software such as:
- expansion of material on qualitative impacts for hydroelectric plants in both the EMPower and EM model (with parallel funding from ODA).
- addition of material on sectoral environmental assessments, EA models and environmental standards.
- enhancement of EM model to handle district heating environmental assessment depending on experience with case studies.
- material on renewable technologies as they relate to developing countries has been collected and will be added to the EMPower Info in the Web. Also, data on renewable technologies will be added to the EM model.
- The data on renewable technologies were identified and organized by a Dutch Consultant. In July 1998, they were provided to Oeko Institut to be included in the EM mode. The project is delayed for a month due to the involvement of the task manager in other activities (e.g. Turkey EER proposal and a China report).

(vii) The final report was published in September, 1999.

### Project Completion Date (all project activities completed):
09/30/99

### Project Closing Date (all financial transactions executed):
03/30/00

#### Status of Funding as of 12/31/99:

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Project Title: Gas Flaring Reduction

Theme: Energy and Environment

Origin of Funds: Netherlands, Core

Task Manager: Arinze Agbim

Report Preparation Stages:

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<th>Final Cover</th>
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Objectives:

The objective of this desk study is to have an overview of worldwide gas flaring and venting practices, to examine the economic, environmental, and other consequences of flaring and venting large volumes of associated gas in oil fields, and to propose general mitigation measures. Such measures could assist developing countries in minimizing the waste of this natural resource in their oil fields.

Principal Tasks:

1. Review of gas flare provisions in a variety of countries. The aim is to determine which provisions have been effective in reducing gas flaring and how these can be applied to countries where adequate provisions do not exist.
2. Selection of focus countries for case studies:
   (a) Countries which have achieved a good measure of gas flaring reduction through regulatory measures, incentives, etc.
   (b) Countries where much is yet to be done.
3. Case studies for selected countries, and application of best lessons learned to specific countries.
4. Institutional strengthening and capacity building to address implementation issues.

Summary of Current Project Status, Issues and Actions

(a) The first task above has been completed with a detailed literature survey of gas flaring in several countries.
(b) A detailed report that addresses three main issues: (i) the extent of gas flaring and venting worldwide, (ii) the alternative uses of flared and vented gas and, (iii) the regulation of gas flaring and venting, has been prepared by Petroconsultants. Six countries: Azerbaijan, Indonesia, Iran, Nigeria, Norway, and Venezuela were selected and used to illustrate the major points made in the study.
(c) This report is now being reviewed and edited for publication as an ESMAP report. The target is to have a final report issued by February 2000.

Expected Project Dates:

Completion Date (all project activities expected to be completed): 02/2000
Project Closing Date (final commitments are expected to be reported): 04/2000

Status of Funding

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* Excludes foreign exchange rate gain/loss.
## Project Title:
Oil and Gas Investment Promotion Project  
(Old Name: Global Petroleum Project Promotion)

## Theme:
Energy and the Environment / Sector Reform

## Origin of Funds:
Core, Others

## Task Manager:
Thomas E. O'Connor

### Project Development Objective
Produce the design of a program to assist the Bank and its client countries in the identification and effective promotion of oil and gas development opportunities on the best obtainable terms

### Expected Outputs

<table>
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<tr>
<th>Key Indicator</th>
<th>Expected Outputs</th>
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<tbody>
<tr>
<td>Expressed interest from countries in obtaining assistance from the Bank or private sector in developing Petroleum Investment Promotion Projects/Programs</td>
<td></td>
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| 1. Inventory of discovered but undeveloped petroleum resources                |
| 2. Analysis of the causes of present situation                                |
| 3. Promotion program designed, priority list of projects established          |

### Key Indicator

| 1. A database is designed, established and operational                       |
| 2. Draft analysis is produced and distributed to key players                 |
| 3. Final Report including promotion Program design and Priority list prepared |

### Implementation Progress

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### Summary of Current Project Status, Issues and Actions

A data base (in Microsoft Access) containing 6155 undeveloped discoveries in 73 Bank client countries is designed established and operational. The data base has been created based on provided information from Petroconsultants: "Discovery Opportunities 1996 – Oil and Gas in over 5000 wells" and supplemental information from June 1998. Through the application of industrial knowledge and known petroleum geology of the relevant basins the long list of countries has been further reduced to a 12 country list of possible candidates for potential Bank Petroleum investment projects in discovered and undeveloped oil and gas fields. The discoveries within the 12 countries appear to have both technical and commercial potential for economic development and has been picked in cooperation with our two commercial partners (Robertson Research International and Petroconsultants now called "IHS Energy Economics and Consulting"). The countries are: ECA: Romania Azerbaijan, Ukraine, Poland, and Hungary; MENA: Yemen and Syria; EAP: Papua New Guinea, Myanmar and Vietnam; Africa: Coté d'Ivoire and; SAS: Pakistan.

As background information a comprehensive data base of both publicly available and Bank Group specific data sets has been developed for each of the 12 countries. The country data base contains information on ongoing and past Bank Group petroleum projects, selected bank reports and some general information about the status of the countries petroleum sector, some political relevant information and finally a listing of the known undeveloped discoveries.

Draft analysis of the environment for potential scope for Bank Group petroleum investment projects and possible areas of investments in each of the selected 12 countries has been completed for ECA, MENA and EAP. The draft analysis completed to date has been reviewed and commented on by respective Bank Groups Regional management within the Oil and Gas Sector and with IFC’s country energy specialists and its two outside commercial partners. Where possible interview/discussion meetings were set up with respective key players from the Regions and IFC.
The muted response from the Regions, and the project's private sector partners, suggested that perhaps the short list of perspective countries had been to circumscribed and that other countries of potential interest within each region should also be discussed, even if only briefly for the sake of completeness.

A nearly completed draft final report has been provided for internal peer review to the Manager and Acting Manager of EMTOG (McPherson and Daffern) and of the Oil and Gas Division of IFC (Domingues) for comment prior to finalization, on November 29, 1999. To date (12/29/99), no comments have been received and the intention is to proceed towards finalization of the report during January 2000. This will be provided to ESMAP and will include recommendations for the Bank's next steps in the petroleum sector in each of the selected countries. The mechanics of report dissemination need to be discussed further.

The initial delays during project initiation have been followed by delays in responses from the Bank's Regional managements due to mission and leave schedules. More to the point, the project has suffered from a severe falling off of interest by the project's private sector partners due to the significant commercial changes which have and apparently will continue to go on within the petroleum consulting industry. These changes are directly related to new venture cash flow constraints due to the 1998 oil price collapse as well as the ongoing restructuring and outsourcing of most non-core services by oil companies.

With respect to this project, the practical loss of these private sector partners have resulted in a significant loss of industrial intelligence and scientific expertise. The initial scope of work has therefore changed to reflect these losses and to concentrate focus on the Bank's great internal strengths in project economic and political risk evaluation.

7. Status of Funding as of 12/31/99:

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<tr>
<th>Funding Source</th>
<th>Project Cost</th>
<th>Funds Received</th>
<th>Committed to Date</th>
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<td>D</td>
<td>E=B-D</td>
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<td>of which:</td>
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* Excludes foreign exchange rate gain/loss.
Project Title: Oil Spills Occurrence Database, Modeling, Remediation And Prevention
Theme: Energy and the Environment
Origin of Funds: Netherlands, Core, World Bank, Others
Task Manager: Arinze Agbim

**Report Preparation Stages:**

<table>
<thead>
<tr>
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<th>Yellow Cover</th>
<th>Green Cover</th>
<th>Completion/Wshp Reports</th>
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</thead>
<tbody>
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<td>11/97</td>
<td>11/98</td>
<td>12/98</td>
<td>1/99</td>
<td>12/99 Phase I; 12/00 Phase II</td>
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</table>

**Objectives:**

This study was divided into two parts:

**Phase I - Oil Spill Study, Phase 1**

**Phase II - The Caspian Regional Mutual Aid program for Oil Spill Prevention and Preparedness**

The objectives of Phase I have been defined as follows:

**Phase I Objectives:**

- To study historical oil pipeline spills and clean up costs in Russia and the Former Soviet Union, FSU.
- The study will focus only on oil and product trunklines and gathering flow lines. Minor pipelines associated with oil fields, refineries and storage tanks will be excluded from the analysis in Phase I.

**Phase II Objectives:**

- to collect and examine information on the capabilities of private sector companies and the governments of Caspian littoral states (Azerbaijan, Iran, Kazakhstan, Russia, and Turkmenistan) to respond to a major oil spills in or around the Caspian sea;
- to set up and discuss a prototype mutual aid program for the Caspian littoral states to effectively combat on- and offshore oil spills.

**Principal Tasks:**

**PHASE 1**

(a) Data search for oil pipeline spills.
(b) Data analysis and risk assessment.

**PHASE 2**

(a) Data acquisition and analysis of worldwide experience in mutual aid planning and regional cooperation during oil spill emergency;
(b) Missions to Caspian states to obtain necessary information on the capacity of the Caspian region;
(c) Preparation of prototype mutual aid program;
(d) Regional workshop to discuss the program

**Summary of Current Project Status, Issues and Actions**

The preliminary work for Phase 1, whose thrust is the general collection and analysis of pipeline, oil spill, and related data (so as to establish the nature and extent of the problem in the FSU), was completed with the delivery of a report by the Norwegian consultants, DNV. This report has been reviewed internally and found to be wanting in many respects. DNV did not address several items in the Terms of Reference satisfactorily. Efforts have been centered on making factual improvements on the submitted report. An agreement has therefore been reached with DNV, where they will enlarge the data set with oil spill data from the Komi Republic, and secure consolidation of the original report with concern to the new findings. Thereafter, an ESMAP report will be produced.

The ToR for the second phase was prepared in June 1999, and the short list of firms to be invited for the tender was established.
The technical and financial evaluation of the proposals was finalized by December 1999, and negotiations are due to start in the end of January 2000.

**Expected Project Completion Date** (all activities are expected to be completed): 03/00 phase 1 08/00 phase 2

**Expected Project Closing Date** (all financial transactions executed) 05/00 phase 1 10/00 phase 2

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* Excludes foreign exchange rate gain/loss.
Project Title: Regional Project Identification Strategy II

Theme: Renewable Energy

Origin of Funds: Netherlands, Core

Task Manager: Ernesto Terrado

Report Preparation Stages:

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<td>n.a.</td>
<td>n.a.</td>
<td>n.a.</td>
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</table>

Objectives:

Project opportunities in countries not covered in Phase I (possibly Estonia, Oman, Philippines, Bolivia, Ecuador, Ghana, etc.) but which are being considered by Bank regional colleagues for future renewable energy investments, with and without GEF assistance. A second purpose is to allow more focused follow up reconnaissance work in countries already visited in Phase I with positive results obtained (Russia, Georgia, Armenia, Tunisia, Cape Verde, etc.)

Principal Tasks:

(i) Continuation of desk reviews of ongoing renewable energy activities in the various regions in which the above-named countries are located.

(ii) Two or three-man reconnaissance missions of about ten days each will be carried out in the chosen countries.

(iii) From the mission reports and information obtained in the desk work phase, a strategy paper will be drawn up. It will suggest the optimal approach for conducting project follow-up activities, e.g., through the ESMAP program, the Solar Initiative or through programs of bilaterals active in the countries, etc.

(iv) A small workshop will be organized to discuss the preliminary findings of both Phase 1 and Phase 2 work.

Summary of Current Project Status, Issues and Actions

(i) A reconnaissance mission (Terrado) was fielded to Bolivia has recently returned. LA3 has requested IENPD help to identify a renewable energy component for the proposed $50 million rural electrification loan for dispersed areas.

(ii) A consultant was hired to prepare background materials on renewable energy opportunities in Bolivia.

(iii) The consultant’s reports on Bolivia were completed in August and were used as basis for drafting an Initial Project Concept Paper.

(iv) Discussions were held with ASTAE and EA11N for collaboration on technical assistance to the Government of the Philippines to evaluate various options for privatization of their electrification operations in small islands. The TA/study is expected to lead to the identification of a future lending operation in the Philippines covering remote area/small islands electrification featuring renewables. A reconnaissance mission is contemplated in late July 1997.

(v) Desk work was carried out during the period, collecting and examining various privatization experiences in developing countries and the impact on rural and dispersed area electrification programs.

(vi) Discussions were made with ENVGC on the possibility of combining the planned Philippines TA with a Joint Implementation Project to test Wind/Diesel Hybrids in rural areas. The activity will be supported with Swiss Funds. The Philippines TA reconnaissance mission was reset to January 1998.

(vii) Desk work was carried out during this period, collecting published information on methodology for economic analysis of PV projects and some preliminary materials on establishing standards and certification systems for PV projects.
The TM met with Sandia staff headed by Dr. Paul Klimas, Program Manager, International Division in June 1998, and had discussions focused on a potential PV project in Peru. SNL has had some exploratory work done in Peru and had gathered background information. Later, the TM communicated with Peruvian officials at the Ministry of Mines and Energy and with the Lima-based division of Solarex. While there was great interest in a solar home systems project, there was less enthusiasm for a potential Bank lending operation. The Peruvian Government hoped to carry out the project financed solely by bilateral contributions, principally from Japan. Further exploratory work on Peru under the objectives of the present ESMAP activity was therefore dropped.

As requested by LAC Region, assistance was provided to Jonathan Halperin in July/August 1998 to evaluate consultant studies creating Office of Rural Electrification in Panama, as well as to comment on the new electricity law. Further assistance expected to be provided to conceptualize potential RE project.

During the last quarter of 1998 and first quarter 1999 assistance to LAC within the scope of this ESMAP project was continued, including development of strategy for incorporation of renewables in portfolio (McCarthy), preparation of indicators for the Fuel for Thought Policy Paper (De Franco) and preparation of project concept notes for selected countries in Central America (Halpern).

Final Activity Completion Report was submitted to ESMAP in September 1999. No more activities or expenditures are expected for this activity.

| Project Completion Date (all project activities completed): | 11/30/99 |
| Project Closing Date (all financial transactions completed): | 01/30/00 |

### Status of Funding

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<th>Funding Source</th>
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<td>Others</td>
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<td>120,150</td>
<td>120,150</td>
<td>119,978</td>
<td>116,478</td>
<td>3,672</td>
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*Excludes foreign exchange rate gain/loss.
**Project Title:** Removing Obstacles to Cross-Border Oil and Gas Pipelines  
**Theme:** International Energy Trade  
**Origin of Funds:** Core, Others  
**Task Manager:** Ralf Dickel

### Project Development Objective

The project development objective of this project is to provide a tool which client governments will want and be able to use to facilitate quicker development of urgently required cross border pipelines by the private sector.

#### Key Indicator

1. The interim key performance indicators will be:
   a) the publication of guidelines and best practices and the demand for it  
   b) the willingness of Governments involved in cross border pipeline projects to sponsor a workshop on the guidelines

2. The longer term indicator will be the amount of reduction in the average time to project implementation (after feasibility study indicates project and financial viability) compared to the average time the project would have normally taken.

### Expected Outputs

#### Key Indicator

1. Draft guidelines and best practices distributed to the joint panel and practitioners for their review and comments by 11/15/99
2. Presentations at an international forum by 04/01/00, with revised guidelines and best practices distributed to all interested client countries by 05/01/00
3. Workshops completed in regions by 10/01/00

### Implementation Progress

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<th>Component</th>
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<td>07/15/99</td>
</tr>
<tr>
<td>(b). Develop TOR and award consulting contract</td>
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<td>09/15/99</td>
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<td>(c). Complete case studies and analysis</td>
<td>07/15/99</td>
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<td>(d). First draft of guideline report</td>
<td>10/01/99</td>
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<td>(e). Circulation and reviews, internal and external</td>
<td>11/01/99</td>
<td>11/30/99</td>
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<tr>
<td>(f). Second draft of guideline report</td>
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<td>(g). Presentation at an International Energy Forum</td>
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<td>(h). Final report distributed</td>
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<td>05/01/99</td>
</tr>
<tr>
<td>(i). Workshop presentations</td>
<td>06/01/00</td>
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</table>

### Expected Dates for:

- **Project Completion (all project activities completed):** Original: 10/01/00, Revised: 10/01/00
- **Project Closing (all financial transactions executed):** 01/01/01

### Summary of Current Project Status, Issues and Actions

- **Rating Development Objectives and Expected Outcome:**
  The objective, to remove obstacles to cross border pipelines, is reflecting the necessity of increasing energy trade with developing and transition countries to improve commercial energy supply to their population and to enable them to earn highly needed revenues by exporting their own energy resources, while having due regard to minimizing the impacts on population and environment by such projects. Given the substantial potential of these projects to improve the energy supply and reduce pollution in the importing countries and the potential to improve the income situation in the exporting countries any expedition of such projects has large benefits. Guidelines and best practices summarizing the lessons learned would expedite new cross border pipeline projects.

- **Rating Implementation Progress:** The project has recently started. The team has been formed. Coordination has been established with the Energy Charter Treaty Secretariat and with the USTDA study on developing uniform documentation of the requirements of International Financial Institutions. Components a) and b) are under way.
### Status of Funding

#### 7. Status of Funding as of 12/31/99:

<table>
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<tr>
<th>Funding Source</th>
<th>Project Cost</th>
<th>Funds Received</th>
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* Excludes foreign exchange rate gain/loss.
ESMAP Global

Project Title: Solar Initiative Regional Strategy

Theme: Renewable Energy

Origin of Funds: Netherlands, Core, Others

Task Manager: Ernesto Terrado

Report Preparation Stages:

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Objectives:

The main purpose of this activity is to develop a regionally oriented strategy for identifying near term investment opportunities for renewable energy, for both large scale grid tied power generation applications and smaller scale, off grid, rural based applications. This would be done by a combination of deskwork and highly focussed reconnaissance missions in various regions. This activity will supplement ongoing global and country specific work on the Solar Initiative by allowing a review of potential project opportunities in presently uninvestigated regions and countries.

Principal Tasks:

(i) Task 1. An extensive desk review of ongoing renewable energy activities in various regions. From this review and other information already available in the Bank (such as ESMAP Energy Assessment reports and operational lending programs), a determination will be made as to which particular countries in each region are the most likely to be suitable for RE investments.

(ii) Task 2. Two or three-man reconnaissance missions of about 10-12 days will be carried out in 1-2 chosen countries in each region. The subject regions will be Middle East and North Africa, Eastern Europe and Latin America. The specific countries are Argentina, Peru, Brazil, Russia, Morocco and Tunisia.

(iii) Task 3. A strategy paper will be drawn up containing a plan for further, more focussed preinvestment or prefeasibility work on specific applications in specific countries in the various regions. It will rank the recommended activities in the order of likelihood of success.

Summary of Current Project Status, Issues and Actions:

(i) The deskwork for LAC countries has been completed. Brazil, Argentina, Chile and Peru have emerged on the shortlist of prospective countries. Coordination was initiated with NREL that currently has started renewable energy work in these countries.

(ii) In February 1995, a reconnaissance mission was fielded to Tunisia, Morocco and Cape Verde that was timed to coincide with operational missions of regional staff. In all three cases, opportunities for potential investments in renewables were identified. Agreement were reached with the Governments and with regional staff to conduct broader, strategy type work on renewables in Tunisia and Morocco, and for initial project oriented background work for Cape Verde.

(iii) In March/April a reconnaissance mission was fielded to Argentina and Chile. This was followed by visit to the Bank of Argentinian officials interested in Bank/GEF assistance for rural electrification featuring renewables for dispersed communities. Bank region has requested IENPD/ESMAP to join mission in July to pursue this possibility.

(iv) In April, an exploratory mission to Russia was fielded. A brief renewable energy assessment report was completed, concluding that wind and biomass are the most viable resources to exploit. The Ministry of Nationalities expressed support for further work.
In June, a mission to Brazil resulted in agreement with CEPEL to put together a $10 M potential renewable energy component of a Bank energy efficiency project.

Bank regional staff has requested assistance in identifying renewable energy off-grid application that may be considered for inclusion in a proposed IDB/WB rural electrification loan to Peru. A reconnaissance mission in mid-November with the LA3IN task manager is planned.

Assistance has also been requested by LA3IN for renewables/efficiency issues in a TA loan to Colombia.

The planned mission to Peru was postponed due to outstanding issues still to be settled with GOP on the overall loan proposal. Mission to Colombia, planned to be timed with the Peru mission to obtain travel economies, was consequently also postponed.

Meanwhile, requests for project identification work has been received for Yemen, Central Asian Republics and Sahelian Africa. These are being discussed.

A consultant has been hired to prepare a report on renewable energy opportunities in Russia and neighboring countries. He will obtain data from the field while there on another project. A side mission to Bulgaria (Adamantiades) was made in June 1996 at the request of the Region. The purpose is to discuss with the Government potential project ideas in renewable energy. A report on this trip is being prepared.

At the request of LA1, a mission to Brazil was fielded in August to assist in identification of project opportunities in Northeast provinces. During the mission, the Task Manager also participated in the Bahia Second International Seminar on Solar and Wind Energy and made a presentation on the Solar Initiative. The mission identified potential solar home systems investments in Bahia, Ceara and Minas Gerais and has recommended field studies to characterize the markets and resources availability. Details of the mission results are available in Bank Back-to-Office report.

A consultant was hired to study the Argentina concession system for dispersed area electrification now being piloted in two provinces. Bidding documents and other materials were obtained and are now being analyzed. The purpose is to see whether the delivery mechanism for renewables here will be applicable as well to other countries such as Brazil.

Analysis of the concession system contracts continued during the period.

It was decided to wrap up this activity and prepare a draft report covering selected countries in North Africa, Central Europe and the former Soviet Union that emerged as having potential for follow-up work. The draft report has been completed and is being circulated for comments by relevant staff in the Regions.

Draft report completed and reviewed in December 1997. Some revisions were suggested by the reviewers. The report is now being finalized.

This activity has been completed. No more tasks or expenditures are expected.

Project Completion Date (all project activities completed): 10/30/99
Project Closing Date (all financial transactions executed): 12/30/99

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*Excludes foreign exchange rate gain/loss.
Project Title: Opportunities for Power Trade in the Nile Basin

Theme: Regional Power Trade

Origin of Funds: Sweden, Core, Others

Task Manager: David Grey

### Project Development Objective

<table>
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<tr>
<th>Phase</th>
<th>Objective</th>
<th>Key Indicator</th>
</tr>
</thead>
</table>
| Phase I | A sound conceptual basis is developed for the Nile riparians to assess the benefits of regional power trade, develop a strategic framework for pursuing promising opportunities, and identify technical assistance and investment needs. | • Dialogue among Nile riparians is established.  
• Framework for moving forward is agreed.  
• Donor/financing commitments are secured for future projects. |

### Expected Outputs

<table>
<thead>
<tr>
<th>Key Indicator</th>
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<tbody>
<tr>
<td>Benefits and constraints of power trade identified.</td>
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</tr>
<tr>
<td>Strategic framework developed.</td>
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</tr>
<tr>
<td>Development alternatives and investment opportunities recommended.</td>
<td></td>
</tr>
<tr>
<td>Riparian countries and/or sensible groupings of countries use report to prepare project proposals.</td>
<td></td>
</tr>
<tr>
<td>Favorable feedback from donors receiving report at ICCON.</td>
<td></td>
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### Implementation Progress

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<td>Mar99-Jun99</td>
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<td>1.2 Conduct study</td>
<td>Apr99-Jun99</td>
<td>Jun99-Nov99</td>
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<tr>
<td>1.3 Review and finalize report</td>
<td>Jul99</td>
<td>Dec99-Jun00</td>
</tr>
<tr>
<td>a. Disseminate to Nile power sector representatives &amp; Nile-TAC</td>
<td>}</td>
<td></td>
</tr>
<tr>
<td>b. Disseminate to international donor community</td>
<td>Sept99-Dec99</td>
<td>Jun00-Fall/Winter00</td>
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### Expected Dates for:

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<th>Revised</th>
</tr>
</thead>
<tbody>
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<tr>
<td>Project Closing (all financial transactions executed):</td>
<td>Dec00</td>
<td>Dec00</td>
</tr>
</tbody>
</table>

### Summary of Current Project Status, Issues and Actions

1. **Development Objective**: Significant progress has been made towards achieving the development objectives of this project and they should be fully achieved by the completion of the project.

   - **Establish dialogue**: Power sector representatives from the Nile Basin countries met as a group, referred to as the Nile Power Working Group (Nile-PWG), for the first time in December 1999 in Entebbe, Uganda. The Scoping Study developed under this project was well received and the Nile-PWG has agreed to participate in the updating of data in the study and review of the report. The Nile-PWG has also agreed to continue dialogue and promote power trade in the region in a more formalized manner through the creation of a Nile Basin Power Forum, which will be formulated under Phase 2 of this project. The establishment of a Power Forum will be one of the priority projects within the Nile Basin Initiative (NBI) Shared Vision Program.
• **Strategic framework:** The Scoping Study provides a broad strategic framework for moving forward to promote power trade in the Nile Basin. A key component of this framework is the establishment of a Power Forum, which the Nile-PWG has agreed to pursue. The development of a more detailed strategy to create an environment conducive to power trade will be developed by the Nile riparians within the context of the Power Forum when implemented.

• **Donor/Financing commitments secured:** A bilateral donor (Norway) has expressed strong interest in supporting the power component of the NBI. Norway has provided some funding for FY00 to assist in formulating the Power Forum, and discussions are currently ongoing regarding the focus and process for providing long-term implementation support. It is expected that by the consultative-group type meeting, ICCON, donor commitments will be in place for long term implementation of the Power Forum and for exploring the feasibility of investment opportunities.

2. **Outputs: Report:** The initial scoping level study, which was conducted as a ‘desk study’ by Norconsult International under ESMAP funding, was completed in draft form in Nov99. Due to the sensitive nature of some of the data, the report has been split into two parts:

- **Draft Scoping Study** – A draft framework paper which provides a regional perspective on energy and power resources; identifies specific opportunities for, potential benefits of, and constraints to power trade in the region; and proposes a preliminary strategic framework for promoting power trade was completed in Nov99. The Draft Scoping Study was presented to and discussed by the Nile-PWG during their Dec99 meeting. The report is currently being further reviewed and updated by members of the Nile-PWG and will be finalized by Norconsult and submitted back to the PWG for approval during their May00 meeting. The report will be widely disseminated in through the Summer and Fall of 2000.

- **Draft Background Data Reports** – Based on available World Bank data, background data on the energy and power sectors of each country were analyzed and compiled by Norconsult into ten separate country-specific data reports. This information was presented to the countries during the Dec99 meeting. Due to the sensitive nature of some of the data, the countries decided to not update and consolidate this information into a regional report at this time. It is hoped that as the countries gain experience working with each other, the Power Forum moves forward, and specific investment opportunities are pursued, that this data will at a later date be updated and published as a consolidated background data report for the region or specific sub-regions.

3. **Implementation Schedule:** As shown in Item 3, the implementation schedule has been revised to reflect a full project completion date of Dec00. This is due to: (i) delayed initiation of the project while funding was being secured; (ii) extra time required to produce 10 country-specific data reports and complete the Scoping Study, due to the politically sensitive nature of many of the issues and the need for Norconsult and Bank staff to work closely together; (iii) the inclusion of the Nile power sector representatives in the review and updating of the Scoping Study; and, (iv) the need to align the timing of the power sector work with the overall schedule of the preparation and identification of projects for the NBI Shared Vision and Subsidiary Action Programs, respectively, and the presentation of these projects for financing at ICCON. The timing of ICCON will be determined by the Nile Council of Ministers, but is targeted for the Fall 2000.

<table>
<thead>
<tr>
<th>Funding Source</th>
<th>Project Cost</th>
<th>Funds Received</th>
<th>Committed to Date</th>
<th>Disbursed to Date</th>
<th>Remaining Balance*</th>
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<td>B</td>
<td>C</td>
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<td>of which:</td>
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*Excludes foreign exchange rate gain/loss.
## ESMAP

**Project Title:** Petroleum Transportation Corridors  
**Theme:** Energy Efficiency and Conservation  
**Origin of Funds:** Core, Netherlands  
**Task Manager:** Ralf Schwimmbeck

### Report Preparation Stages:

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<td>10/00</td>
<td>12/00</td>
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<td>6/01</td>
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</table>

### Objectives:

(a) The study will review transport of petroleum products in most SSA African countries (Angola, Botswana, Zambia, South Africa, Namibia, Zimbabwe and Congo) and identify lower cost modes of transport.

(b) The study will recommend African countries in which a more detailed examination of oil transport systems is required.

### Principal Tasks:

(a) Screening exercise to show present costs and potential savings.

(b) Detailed review of priority countries

### Summary of Current Project Status, Issues and Actions:

(a) First stage of screening exercise completed. It needs better data before moving on to second stage.

(b) A questionnaire on fuel prices and transport modes was prepared and circulated to SSA countries with modest result. A new questionnaire was prepared to obtain required information from industry and was circulated also with modest results.

(c) A consultant will be hired to collect more accurate data in other landlocked SAA countries.

(d) Due to civil unrest in Angola and neighboring countries, the hiring of the consultant has been delayed.

(e) An analysis of the petroleum transport corridors for Ethiopia was supposed to be included in the overall review of the petroleum transport corridors in SSA countries. A set of TOR were prepared in February 1999 to hire consultants and transmitted to the Govt. of Ethiopia. However, due to the war between Eritrea and Ethiopia the Govt. delayed its response to our initiative.

(f) The current intent is to focus the review of the petroleum transport corridors to landlocked countries neighboring Nigeria i.e. Niger, Cameroon to gauge the potential to rationalize the petroleum product supply. It is planned to co-finance the project by using a consultant TF to carry out a market and infrastructure analysis in this region. Once the TOR for this assignment have agreed with the relevant Governments, the study will be implemented.

(g) Based on the results of the preliminary screening, the transport cost for petroleum products in landlocked SSA countries are significantly higher compared to the transport cost that occur in other landlocked countries. Rationalization of the petroleum transport sector is a key component to further development in landlocked SSA countries and the original project objectives are still valid. A project extension of 12 months up to September 2001 would be required to allow implementation of the project.

(h) Preliminary report is expected to be completed by September 2000.

### Expected Project Completion Date (all project activities completed): 06/01

### Expected Project Closing Date (all financial transactions completed): 09/01

### Status of Funding as of 31/12/99:

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<td>51,844</td>
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* Excludes foreign exchange rate gain/loss.
Project Title: Development of a Regional Electricity Market in the Greater Mekong Sub-Region

Theme: International Energy Trade

Origin of Funds: Core

Task Manager: Jean-Pierre Charpentier

Project Development Objective

[Tutorial activity is a component of a 3-year program for the development of a regional electricity market in the Greater Mekong Sub-region for which an Action Plan has been developed] Implementation of component (1a) of the three year Action Plan, i.e., Transfer of knowledge and promotion of coordination of technical issues.

Key Indicator

- Workshop on Coordination of technical issues for sustaining an increasing level of trading activities.

Expected Outputs

- Report identifying major bottlenecks in communication between dispatch centers and in transmission availability for enhancing power trading activities.
- Workshop Proceedings including recommendations agreed by the regional Experts Group to overcome identified bottlenecks.

Key Indicator

- Issue date: March 2000
- Issued date: May 2000

Implementation Progress

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Expected Dates for:

- Project Completion (all project activities completed): June 2000
- Project Closing (all financial transactions executed): June 2000

Summary of Current Project Status, Issues and Actions

The regional Experts Group put in place during the previous phase of the project defined a comprehensive three year Action Plan composed of five key activities: (1) transfer of knowledge and promotion of regional agreements for common technical, institutional and commercial standards, (2) preparation of an indicative regional Master Plan, (3) development of a regulatory and Institutional Framework report, (4) preparation of two draft policy documents: a Policy Statement and a Regional Protocol and finally (5) organization of several worldwide technical visits to learn from other experiences of regional power trading.

Due to the complexity of the task and its substantive financial requirement, it was agreed that ESMAP, the Asian Development Bank and the private industry would share the financial and technical support of the three year program.

The present project is part of the first activity related to the promotion of regional agreements for common technical standards which ESMAP agreed to technically and financially sponsor. It will essentially be a workshop where two key aspects will be investigated: (i) the development of technical standards for regional transmission activities and (ii) a first identification of bottlenecks in communication between national dispatch centers and in transmission availability for sustaining an increasing level of trading activities.
### Status of Funding

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*Excludes foreign exchange rate gain/loss.*
**Europe and Central Asia**

**Project Title:** Assistance to EU Accession Candidates

**Theme:** Sector Reform and Restructuring

**Origin of Funds:** Core, World Bank

**Task Manager:** Laszlo Lovei

---

**Project Development Objective:**

To facilitate the accession of candidate countries to the EU by assisting with their implementation of EU directives on electricity and gas market liberalization.

**Key Indicator:**

The number of candidate countries that adopted new legislation/regulation and established a schedule for the opening of their electricity and gas markets.

---

**Expected Outputs:**

1. Multilateral workshops for the accession countries on critical issues related to market liberalization organized jointly with the EC
2. Single country-focused technical assistance programs developed during joint EC-WB missions to the accession countries
3. Initial steps in the implementation of the assistance programs

**Key Indicator:**

1. Number of workshops and number of participants at each workshop from accession countries
2. Number of joint missions and agreed technical assistance programs
3. TA tasks implemented

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**Implementation Progress**

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<tr>
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<th>End</th>
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</thead>
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</tr>
<tr>
<td>2. Joint missions to develop country focused TA programs</td>
<td>10/99</td>
<td>6/00</td>
</tr>
<tr>
<td>3. Implementation of TA programs in selected countries</td>
<td>01/00</td>
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</table>

**Expected Dates for:**

- **Project Completion (all project activities completed):**
  - Original: 12/00
  - Revised: 12/00
- **Project Closing (all financial transactions executed):**
  - Original: 03/01
  - Revised: 03/01

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**Summary of Current Project Status, Issues and Actions**

One multilateral workshop was organized in November 99 (in Leiden) on electricity regulation and third party access issues. It was well attended and received by about 50 participants from accession countries.

Joint EC-WB missions took place to Romania, Latvia, Lithuania, Slovakia and Turkey to develop country-focused assistance programs. Additional joint missions are planned to Bulgaria, and another one to Turkey (since the first one was only to make initial contacts with this new candidate).

The implementation of agreed TA programs is progressing well in the three Baltic states (with a focus on creation of a Common Baltic Electricity Market), and Hungary, and is starting in Slovakia and Romania.

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**7. Status of Funding as of 12/31/99:**

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*Excludes foreign exchange rate gain/loss.
Project Title: Central And Eastern Europe: District Heating I

Theme: Energy Efficiency And Conservation

Origin of Funds: Netherlands, Switzerland, Core, Others

Task Manager: Anke Meyer

Report Preparation Stages:

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<td>10/30/98</td>
<td>11/30/99</td>
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</table>

Objectives:
Assess comparative advantages of various types of heating systems.

Principal Tasks:
- Prepare methodology document.
- Conduct workshop with consultants.
- Conduct case studies in Lithuania, Poland, Russia and Ukraine.
- Prepare summary document and conduct seminar with recipients and World Bank staff.

Summary of Current Project Status, Issues and Actions:
The Blue Cover report was sent to ESMAP management in September 1999. Comments by the ESMAP reviewer were incorporated in the final version of December 1999.

Expected Project Completion Date (all project activities completed): 11/99

Expected Project Closing Date (all financial transactions executed): 01/00

Status of Funding

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*Excludes foreign exchange rate gain/loss.
### Project Title
Cleaner Transportation Fuels for Improved Urban Air Quality in Central Asia and the Caucasus

### Theme
Energy Efficiency and Conservation

### Origin of Funds
Core, World Bank

### Task Manager
Masami Kojima

### Project Development Objective
<table>
<thead>
<tr>
<th>Expected Outputs</th>
<th>Key Indicator</th>
</tr>
</thead>
<tbody>
<tr>
<td>Improve air quality and public health by introducing cleaner transportation fuels</td>
<td>There is broad agreement on the timeframe for the introduction of new fuel standards</td>
</tr>
</tbody>
</table>

#### Key Indicator
- 1(a) Cost of producing cleaner fuels estimated; agreement with participating countries on target dates for lead elimination; agreement with some governments on recommended fuel specifications
- 1(b) Recommendations made for possible changes in petroleum sector policies

#### Implementation Progress

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</thead>
<tbody>
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<td></td>
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<tr>
<td>(b) sector policy analysis</td>
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</tr>
<tr>
<td>2. Analysis of vehicle fleet and emission inspection programs</td>
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<tr>
<td>3. Air quality monitoring: systems audit and collection of baseline data</td>
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<tr>
<td>4. Study findings disseminated</td>
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#### Expected Dates for:

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<td>Project Closing (all financial transactions executed):</td>
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#### Summary of Current Project Status, Issues and Actions
A regional kickoff workshop was held in Tbilisi on 10-11 June 1999 drawing together representatives from the environment, energy and transport sectors in the region as well as international speakers and representatives from bilateral and multilateral agencies. The participants of the workshop issued a resolution pledging to work towards facilitating the implementation of the study and obtaining the support of their Governments for the adoption of the recommendations of the study and preparation/implementation of national lead phaseout action plans.

### Status of Funding as of 30 June 1999

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*Excludes foreign exchange rate gain/loss.*
**Project Title:** Central America And Panama: Rural Electrification And Power Reform

**Theme:** Rural And Household Energy

**Origin of Funds:** Netherlands

**Task Manager:** Douglas Barnes

### Report Preparation Stages:

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<td>t.h.d.</td>
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### Objectives:

(a) Complete background study on rural electrification options in Central America and Panama.

(b) Development of priorities for grid and off grid electricity projects for rural areas.

(c) Assess strategies to develop market for products to serve people without access to grid electricity.

(d) Assess feasibility of user’s associations and private entrepreneurs to promote electricity service in rural communities without access to grid electricity.

### Principal Tasks:

(i) Complete background review of countries in the region, including sector policies affecting rural distribution.

(ii) Develop priorities for grid and offgrid electrification in consultation with the country governments.

(iii) Complete a workshop on electrification in one of the countries in the region.

### Summary of Current Project Status, Issues and Actions

The background review of the privatization of electricity for Guatemala, Nicaragua and El Salvador has been completed.

The project has moved into phase (ii), aimed at developing the priorities for both grid extension and off-grid electrification in consultation with the country governments. The workshop also will be planned.

### Expected Project Completion Date (all project activities to be completed):

7/00

### Expected Project Closing Date (all financial transactions executed):

8/00

### Status of Funding

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<td>109,353</td>
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<td>207,344</td>
</tr>
<tr>
<td>Others</td>
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<tr>
<td>Total</td>
<td>300,000</td>
<td>115,317</td>
<td>109,353</td>
<td>92,556</td>
<td>207,344</td>
</tr>
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</table>

*Excludes foreign exchange rate gain/loss.*
### Project Title:
Regional Interconnection of Electricity Markets in South America

### Theme:
International Energy Trade

### Origin of Funds:
Core, Others

### Task Manager:
Jean-Pierre Charpentier

<table>
<thead>
<tr>
<th>Project Development Objective</th>
<th>Key Indicator</th>
</tr>
</thead>
<tbody>
<tr>
<td>Provide an opportunity for all decision-makers of the power sector of the different countries of South America to better understand the key technical, organizational, and regulatory issues which may represent constraints to the development of regional electricity trading activities among member states.</td>
<td>- Number of decision-makers attending the two key foreseen meetings of the activity (launching and review workshop) - Request for launching a second phase of recommendation upon satisfactory completion of the present activity aimed at identifying issues.</td>
</tr>
</tbody>
</table>

### Expected Outputs

<table>
<thead>
<tr>
<th>Expected Outputs</th>
<th>Key Indicator</th>
</tr>
</thead>
<tbody>
<tr>
<td>Two issues reports: one on present technical bottlenecks and a second on present institutional and regulatory issues</td>
<td>Issue date: June 2000</td>
</tr>
<tr>
<td>A review workshop to discuss the findings of this first phase of activities and to recommend a second phase aimed at studying operational options</td>
<td>Organization date: June 2000</td>
</tr>
</tbody>
</table>

### Implementation Progress

<table>
<thead>
<tr>
<th>Component</th>
<th>Start</th>
<th>End</th>
</tr>
</thead>
<tbody>
<tr>
<td>1. Launching workshop</td>
<td>Nov 1999</td>
<td>Nov 1999</td>
</tr>
<tr>
<td>2. Selection of key consultants</td>
<td>Oct 1999</td>
<td>Nov 1999</td>
</tr>
<tr>
<td>4. Preparation of report on present institutional and regulatory issues</td>
<td>Dec 1999</td>
<td>June 2000</td>
</tr>
<tr>
<td>5. Review workshop to discuss findings and, if requested, launching a second phase on possible options</td>
<td>June 2000</td>
<td>June 2000</td>
</tr>
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</table>

### Expected Dates for:

<table>
<thead>
<tr>
<th>Expected Dates for:</th>
<th>Original</th>
<th>Revised</th>
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</thead>
<tbody>
<tr>
<td>Project Completion (all project activities completed):</td>
<td>July 2000</td>
<td></td>
</tr>
<tr>
<td>Project Closing (all financial transactions executed):</td>
<td>October 2000</td>
<td></td>
</tr>
</tbody>
</table>

### Summary of Current Project Status, Issues and Actions:

The present activity is the first phase of a comprehensive project aimed at providing energy decision-makers of South American countries with: (a) a better understanding of key technical, organizational, and regulatory issues which may represent constraints to the development of regional electricity trading activities among member states and (b) jointly agreed recommendations to address these issues in a practical way.

The present activity is focused exclusively on the identification of various issues and is highly dependent upon the information that national utilities, energy entities, and ministries of different South American countries will agree to release.
### Status of Funding

#### Status of Funding as of 12/31/99:

<table>
<thead>
<tr>
<th>Funding Source</th>
<th>Project Cost</th>
<th>Funds Received to Date</th>
<th>Committed to Date</th>
<th>Disbursed to Date</th>
<th>Remaining Balance</th>
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<tbody>
<tr>
<td><strong>ESMAP</strong></td>
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<td></td>
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<tr>
<td><strong>of which:</strong></td>
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<td><strong>Total</strong></td>
<td>705,350</td>
<td>205,597</td>
<td>35,804</td>
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<td>169,793</td>
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## Project Description

**Project Title:** Renewable Energy For Rural Electrification: Assessing Opportunities for Investments in the LAC Region

**Theme:** Renewables and Energy

**Origin of Funds:** Netherlands, Core

**Task Manager:** Ernesto Terrado/Kulsum Ahmed

### Project Development Objective

<table>
<thead>
<tr>
<th>Objective</th>
<th>Key Indicator</th>
</tr>
</thead>
</table>
| Improve access to modern energy by un-served rural populations in the LCR region in economically viable and environmentally sustainable manner | - Decrease in number of un-electrified populations in the region  
- Increase in the use of renewable energy in the region for rural electrification |
| Improved LCR capability to assist client countries to address Climate Change and issues related to improving access to modern energy in rural areas. | - Increased number of sector leaders, country managers, and task managers with a better understanding of renewable energy potential in addressing energy and Climate Change issues by FY01  
- Increased discussion of renewable energy opportunities in country dialogue  
- Increase in the renewable energy components in LCR projects and ESW by FY01 |

### Implementation Progress

<table>
<thead>
<tr>
<th>Component</th>
<th>Start</th>
<th>End</th>
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<tbody>
<tr>
<td>Task I. Background review: Stocktaking</td>
<td>10/1/99</td>
<td>10/15/99</td>
</tr>
<tr>
<td>Task II. Analysis of Power Sector Reform Process in LCR and Impacts on Policies for Rural Electrification</td>
<td>10/15/99</td>
<td>10/30/99</td>
</tr>
<tr>
<td>Task III. Approaches to Rural Electrification with Maximum Role of Private Sector and Renewables</td>
<td>11/1/99</td>
<td>11/30/99</td>
</tr>
<tr>
<td>Task IV. Country case Studies: Brazil and Nicaragua</td>
<td>11/15/99</td>
<td>12/15/99</td>
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<tr>
<td>Task V. Formulating a new Strategy for the World Bank</td>
<td>1/5/00</td>
<td>1/30/00</td>
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<table>
<thead>
<tr>
<th>Expected Dates for:</th>
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<tr>
<td>Project Completion (all project activities completed)</td>
<td>12/30/99</td>
<td>3/15/00</td>
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<tr>
<td>Project Closing (all financial transactions executed)</td>
<td>3/30/99</td>
<td>6/15/00</td>
</tr>
</tbody>
</table>

### Summary of Current Project Status, Issues, and Actions

Principal Consultant has completed all field work. A first draft report was submitted to LCR Dec 99. After review by E. McCarthy and E. Terrado, revisions were made and final draft report submitted Jan 2000. Report now being reviewed by selected staff. Comments due end Feb 2000.

Original TM McCarthy retired from the Bank Dec 99, new TM is K. Ahmed (LCSEN)

### Funding Source

<table>
<thead>
<tr>
<th>Funding Source</th>
<th>Project Cost</th>
<th>Disbursed To Date</th>
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<tr>
<td>ESMAP</td>
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<tr>
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<tr>
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<tr>
<td>Total</td>
<td>-267,000</td>
<td>27,249</td>
<td>76,241</td>
</tr>
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</table>
Country Projects
ESMAP

Bangladesh

Project Title: Opportunity for Women in Renewable Energy Technology Utilization

Theme: Gender and Rural Renewable Energy

Origin of Funds: Sweden, World Bank

Task Manager: Nilufar Ahmad

![Image]

**Project Development Objective**

| Increased opportunity for poor rural women in Bangladesh in Renewable Energy Technology (RET) utilization. | Rural poor women involved in RET and using micro-credit. |

**Expected Outputs**

| 1. Capacity developed among government officials, professional women of private and public organizations and NGOs for efficient utilization of RET for economic development and poverty alleviation. | 1. Workshops and training for public sector officials, professional women and others in RET. |
| 2. Development of micro-credit programs with innovative technology in support of decentralized rural electrification and RET utilization | 2. Micro-credit program with income generating activities for rural women in RET utilization. |

**Implementation Progress**

<table>
<thead>
<tr>
<th>Component</th>
<th>Start</th>
<th>End</th>
</tr>
</thead>
<tbody>
<tr>
<td>1. Institutional capacity enhancement for public sector</td>
<td>09/99</td>
<td>12/2000</td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>Expected Dates for: Original</th>
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</tr>
</thead>
<tbody>
<tr>
<td>Project Completion (all project activities completed):</td>
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</tr>
<tr>
<td>Project Closing (all financial transactions executed):</td>
<td>10/2000</td>
</tr>
</tbody>
</table>

**Summary of Current Project Status, Issues and Actions**

Prokaushali Sangshad Ltd (PSL) of Bangladesh submitted a proposal to ESMAP which was approved. A sole sourced contract to PSL has been signed for carrying out the activities on December 23 1999.

Due to the delay in signature of the contract and receiving initiation funds the project has suffered in implementation of the field activities. PSL has extended the internal target deadlines and has continued most of the scheduled activities in the first quarter in order to avail of the fair season for field work.

The deadline for technical training of the professional women has been extended due to the delay in availability of funds as per schedule.

Activities between 30 September 99 and 31 December 99

1. Agreement between PSL and the selected NGO for field activities for micro-enterprise development with rural women. - Complete
2. Contact with international research/training organizations training of RET professionals - Ongoing
3. Marketing drive for all the islands are continuing with posters and meetings. Awareness and interest of the people is increasing as found from later interactions. Ongoing
4. Procurement of parts for the first 100 units is over and manufacturing is continuing at site. As soon as funds are made available to us we propose to begin procurement for the projected market of next six months.
5. In total 52 women were interviewed, of which 35 are selected for lamp manufacturing, 5 as marketing agents. -
7. Technical training of the first 20 women has begun on December 1 1999, completed on December 14 1999. Training of second batch will started from December 15, to be completed by the 30th.

8. Women are able to identify transistors, transformers, resistors etc. Training program by PSL will be effective. Women have constructed their first 50 lamps before December 27 1999.

9. Meetings were held with the market committee and other commercial business people of the area.

10. The project has rented a shop in the local market which will be the outlet sales center for the lamps. Orders will be taken for wholesale and retail sales will take place from this shop.

11. A battery charging station is in very high demand. In order to accelerate the growth of sales, the outlet center will also be the charging station for the island. A 5 kW Diesel generator will be used for this purpose.

12. Three local women were interviewed and one selected as the local co-ordinator for the initial period of six months. It is anticipated that women will be able to manage the business once the ground is set.

13. The manufacturing site has been rented from SAP Bangladesh. An advance payment for

14. 6 months rent has been requested by the NGO.

### Status of Funding

<table>
<thead>
<tr>
<th>Funding Source</th>
<th>Project Cost</th>
<th>Funds Received</th>
<th>Committed to Date</th>
<th>Disbursed to Date</th>
<th>Remaining Balance</th>
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</thead>
<tbody>
<tr>
<td>ESMAP</td>
<td>A</td>
<td>B</td>
<td>C</td>
<td>D</td>
<td>E=B-D</td>
</tr>
<tr>
<td>of which:</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Trust Funds</td>
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<td>185,000</td>
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<td>23,556</td>
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<tr>
<td>Total</td>
<td>185,000</td>
<td>23,556</td>
<td>23,556</td>
<td>161,444</td>
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</tr>
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</table>
### ESMAP

**Project Title:** Country Programme Phase II  
**Theme:** Rural Energy and Energy Efficiency  
**Origin of Funds:** Netherlands  
**Task Manager:** Philippe Durand

<table>
<thead>
<tr>
<th>Project Development Objective</th>
<th>Key Indicator</th>
</tr>
</thead>
<tbody>
<tr>
<td>Assist the government in developing and executing a policy framework and its regulation in the field of Energy Efficiency and Rural Energy</td>
<td>Government has formulated policy framework and its related regulations and institutions</td>
</tr>
</tbody>
</table>

**Expected Outputs:**

- **[a]** execution of 25 demonstration projects that show the economic and institutional viability of comprehensive and sustainable solutions that facilitate the rural population's access to modern energy as well as for urban industry.
- **[b]** operational government institutions that are able to formulate policies and regulations, to monitor their execution, to evaluate and adjust them, if need be.
- **[c]** operational private sector support institutions that promote rural electrification (RE) and energy efficiency (EE)

**Key Indicator:**

- **[a-1]** execution of 12 energy efficiency projects (industry 15%; power: 10%; and services: 15% savings).
- **[a-2]** 5 solar drying projects (30% less losses).
- **[a-3]** 3 rural electrification projects.
- **[a-4]** privatization of 5 rural elec. coops.
- **[b-1]** establishment of a rural energy unit within the ministry.
- **[b-2]** formulation of technical regulation and standards.
- **[b-3]** development of an energy database.
- **[c-1]** establishment of an energy efficiency center.
- **[c-2]** establishment rural electrification center.
- **[c-3]** training centers operational to train rural public and private sector staff as well as rural users.
- **[c-4]** establishment of a financing mechanism for RE and EE

### Implementation Progress

<table>
<thead>
<tr>
<th>Component</th>
<th>Start</th>
<th>End</th>
</tr>
</thead>
<tbody>
<tr>
<td>1. Creation Center for Energy Efficiency (CPEE)</td>
<td>2/98</td>
<td>12/98</td>
</tr>
<tr>
<td>2. Creation Center for Rural Electrification Promotion (CFP)</td>
<td>2/98</td>
<td>7/98</td>
</tr>
<tr>
<td>3. Creation of information system for RE</td>
<td>2/98</td>
<td>2/99</td>
</tr>
<tr>
<td>4. Creation of FER</td>
<td>2/98</td>
<td>03/01</td>
</tr>
<tr>
<td>5. RE: design of 3 rural electrification models</td>
<td>2/98</td>
<td>10/99</td>
</tr>
<tr>
<td>6. RE: Tendering of model 1 (SHS)</td>
<td>2/98</td>
<td>1/00</td>
</tr>
<tr>
<td>7. EE: Identification of co-generation potential (sugar industry)</td>
<td>2/98</td>
<td>6/99</td>
</tr>
</tbody>
</table>

**Expected Dates for:**

- **Project Completion (all project activities completed):** 12/2000  
- **Project Closing (all financial transactions executed):** 02/2001
Summary of Current Project Status, Issues and Actions

[a] Preparatory work for the execution of 5 demonstration projects has almost been finalized. Execution is expected to start in early 2000.
[b] Within the ministry a rural unit is operational, and preparation of regulations and standards is underway. The regulation for the energy database has been completed and is partially operational.
[c] Support institutions for RE and EE are operational, and curriculum for training centers is being finalized. The Government has formulated a national electrification program (PRONER) and is actively preparing its implementation. Work on the financing mechanism is almost completed. In 2000, financing mechanisms for RE (a RE fund - “FER”) and EE (“FINE” - a new credit line for EE in a second floor bank) will be established.

For this project, a very large number of consultant contracts have to be procured. Due to the systems renewal (switch to SAP), there have been delays in project execution.

In late 1999, the task management has been transferred to the region (LCSFE) to allow for a closer link to the Bolivian Government and the CDF. After a midterm evaluation of all activities, a re-focusing on the most promising target activities has been started. This process has been agreed upon with the Dutch representatives. Once all activities will have been revised this way, we will come back to ESMAP in due course to revise the overall project duration.

<table>
<thead>
<tr>
<th>Funding Source</th>
<th>Project Cost</th>
<th>Funds Received*</th>
<th>Committed to Date</th>
<th>Disbursed to Date</th>
<th>Remaining Balance*</th>
</tr>
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<tbody>
<tr>
<td>ESMAP</td>
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<td>1,214,563</td>
<td>559,818</td>
<td>538,097</td>
<td>676,466</td>
</tr>
<tr>
<td>of which:</td>
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<td></td>
<td></td>
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<tr>
<td>Trust Funds</td>
<td>1,614,883</td>
<td>1,214,563</td>
<td>559,818</td>
<td>538,097</td>
<td>676,466</td>
</tr>
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<td>Others</td>
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</tr>
<tr>
<td>Total</td>
<td>1,614,883</td>
<td>1,214,563</td>
<td>559,818</td>
<td>538,097</td>
<td>676,466</td>
</tr>
</tbody>
</table>

*Excludes foreign exchange rate gain/loss.
**Project Title:** National Biomass Programme  
**Theme:** Rural and Household Energy  
**Origin of Funds:** Netherlands, Other  
**Task Manager:** Philippe Durand

### Project Development Objective

<table>
<thead>
<tr>
<th>Expected Outputs</th>
<th>Key Indicator</th>
</tr>
</thead>
<tbody>
<tr>
<td>Assist the government in developing a National Biomass Plan (NBP) and developing a related policy framework and its regulations</td>
<td>Government has developed a NBP and has formulated and is implementing a policy framework and its related regulations and institutions</td>
</tr>
</tbody>
</table>

#### Expected Outputs

- [a] execution of 35 demonstration projects that show the economic and institutional viability of comprehensive and sustainable solutions that facilitate the rural population's use of modern energy for productive and consumptive purposes, the more efficient use of biomass energy, and the implementation of improved management of biomass resources.
- [b] operational government institutions that are able to formulate policies and regulations, to monitor their execution, to evaluate and adjust them, if need be.
- [c] operational private sector support institutions that promote investments in biomass projects.

#### Key Indicator

- [a-1] execution of 20 biomass projects saving 20 K tons of biomass.
- [a-2] 15 projects of substitution of biomass by natural gas;
- [a-3] implementation of large scale (100,000 families) rural stove program;
- [a-4] execution of 5 natural forest management projects.
- [b-1] establishment of a biomass unit within the ministry,
- [c-1] training centers operational to train rural public sector staff as well as rural users in forest management;
- [c-2] investment by the private sector in 20 projects for an amount of US$1 million.

### Implementation Progress

<table>
<thead>
<tr>
<th>Component</th>
<th>Start</th>
<th>End</th>
</tr>
</thead>
<tbody>
<tr>
<td>1. Investment in energy substitution in 5 rice-mills</td>
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<td>12/00</td>
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<tr>
<td>2. Investment in energy 30 efficient brick kilns</td>
<td>02/98</td>
<td>12/00</td>
</tr>
<tr>
<td>3. Investment in 3 clausuras silvopastries</td>
<td>02/98</td>
<td>12/00</td>
</tr>
<tr>
<td>4. Investment in 3 hornos de chancaca</td>
<td>02/98</td>
<td>12/00</td>
</tr>
<tr>
<td>5. Investment in natural gas energy provision of 48 industrias de Yeso</td>
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<td>12/01</td>
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#### Expected Dates for:

- Project Completion (all project activities completed):  
  - Original: 12/2000  
  - Revised: 10/2001
- Project Closing (all financial transactions executed):  
  - Original: 02/2001  
  - Revised: 12/2001

### Summary of Current Project Status, Issues and Actions

- [a] Preparatory work for the execution of 30 demonstration projects has almost been finalized. Execution started 1999 with commercial financing.
- [b] Within the ministry a biomass unit is not yet operational, though part is covered by the environment unit. Preparation of regulations and standards is underway. The regulation for the energy database has been completed and is partially operational.

A new credit line for financing of biomass projects is about to be installed in early 2000. For this project, a very large number of consultant contracts have to be procured. Due to the systems renewal (switch to SAP), there have been delays in project execution.

In late 1999, the task management has been transferred to the region (LCSFE) to allow for a closer link to the Bolivian Government and the CDF. After a midterm evaluation of all activities, a re-focusing on the most promising target activities has been started. This process has been agreed upon with the Dutch representatives. Once all activities will have been revised this way, we are going to come back to ESMAP in due course to revise the overall project duration.
## Status of Funding

<table>
<thead>
<tr>
<th>Funding Source</th>
<th>Project Cost</th>
<th>Funds Received</th>
<th>Committed to Date</th>
<th>Disbursed to Date</th>
<th>Remaining Balance*</th>
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<tbody>
<tr>
<td>ESMAP</td>
<td></td>
<td>A</td>
<td>B</td>
<td>C</td>
<td>E = B - D</td>
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<tr>
<td>of which:</td>
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<td>561,808</td>
<td>2,075,212</td>
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</table>

*Excludes foreign exchange rate gain/loss.
Project Title: Training Program for Key Group Representatives From Indigenous People Regional Organizations

Theme: Policy Reform and Restructuring

Origin of Funds: Canada

Task Manager: Eleodoro Mayorga Alba

Project Development/Objective

- Provide general knowledge and training on hydrocarbon sector and rural electrification project, i.e., industry, laws, institutions and social environmental regulations enforcement
- Provide linkage with foreign indigenous peoples(IP)

Key Indicator

- 20 IP representatives undergo training and 5 are selected as local trainers for another 20 to be trained.
- Linkage with foreign IP established

Expected Outputs:

1. Enhanced knowledge on hydrocarbon sector and rural electrification projects
2. Full understanding of IP representatives role and participation in hydrocarbon sector regulations enforcement and rural electrification projects
3. In house capability to deliver similar training

Key Indicator

- Development of training program. Training sessions delivered
  1. In house trainers deliver training
  2. Participation of foreign IP in the process and training

Implementation Progress

<table>
<thead>
<tr>
<th>Component</th>
<th>Start</th>
<th>End</th>
</tr>
</thead>
<tbody>
<tr>
<td>First Phase: Preparation of training program</td>
<td>June, 1999</td>
<td>Nov., 1999</td>
</tr>
<tr>
<td>Second Phase: training activities and dissemination of lessons learned</td>
<td>Dec., 1999</td>
<td>May, 2000</td>
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Expected Dates for:

<table>
<thead>
<tr>
<th>Project Completion (all project activities completed):</th>
<th>Original</th>
<th>Revised</th>
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<tbody>
<tr>
<td>Project Closing (all financial transactions executed):</td>
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</table>

Summary of Current Project Status, Issues and Actions

Implementation of this Project is proceeding as planned. There is a strong commitment from the Government and the IP representatives to achieve the Project Objectives. Further the industry has been very co-operative in providing training facilities and field visits.

The preparation phase was completed with full consensus among the IP representatives, the Consultants, Bank and Government Staff on the way the training and dissemination phase should proceed. In December 1999, the first training session took place. Twenty IP representatives received training on different aspects of the oil industry and rural electrification projects. Moreover, 5 of them were selected for traveling early Feb. to Calgary to improve their training skills and to strengthen contacts with Canadian IP representatives. The E2 Consultants interim report shows the importance of the consultation process, the required course preparation and of the Gov. and industry commitments. The evaluation made by the IP participating at the first course is 4.5 in a 1 to 5 rating scale.

The second training course is scheduled for March to take place in Sta. Cruz and Chapare (oil province); this time the IP trainers will have to demonstrate the acquired skills.
### 7. Status of Funding as of 12/31/99:

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<tr>
<th>Funding Source</th>
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</table>

* Excludes foreign exchange rate gain/loss.
**Project Title:** Northeast Renewable Energy Identification

**Theme:** Renewable Energy

**Origin of Funds:** Core

**Task Manager:** Anke Meyer/Ernesto Terrado

---

### Objectives:

Identify potential investments which could be part of a World Bank project. The project would assist some states in North-East Brazil extend the supply of electricity to remote rural areas. Renewable technologies and new institutional and organizational arrangements for the provision of services and equipment would be supported.

### Principal Tasks:

1. Review of the technical, financial, economic and institutional experience with renewable energy in Brazil, especially in the Northeastern States of Ceará, Bahia and Minas Gerais.

2. Prepare an overview of the existing renewable resource base in the Northeastern states, including solar, wind and biomass energy.

3. Prepare an overview of population patterns, incomes and current energy expenditures as well as the extent of infrastructure and other public services in place in rural areas of the Northeast to define the composition and size of the potential markets and the payment capability of potential consumers.

4. Review of current rural electrification and water supply policies and implementation in those states: strategy and guidelines, extent and coverage, resources (state budget), cost of installation, O&M cost, tariffs.

5. Identification of possible participants in a renewable energy project: private concessionaires, service providers, equipment sellers, leasing firms, energy service companies, non-governmental organizations, rural cooperatives and communities, and end users.

6. Assessment of the existing barriers for expansion of electric services and applications based on renewables, e.g., existing regulations, technological issues, development of technical specifications, technical support, importation tariffs, electricity tariffs, and first investment cost, and proposals for the design of institutional, regulatory and financial measures to overcome these barriers and increase market penetration.

7. A comparison of conventional rural electrification (grid extension and diesel generation) with electrification on the basis of renewable energy in terms of the economic and environmental costs and benefits.

8. Recommendations for a focused renewable energy investment program and implementation mechanisms.

Studies will be initiated, as needed, to complete tasks (i) to (vii). A draft TOR for the studies will be prepared.

---

**Summary of Current Project Status, Issues and Actions:**

The ACR was finalized in January 1999 and sent for review and clearance to regional Bank staff and to the Government of Brazil. A final version, incorporating comments, was sent to ESMAP management in November 1999.

Project Summary and Conclusions

The challenge of sustainably providing electricity services to millions of households in off-grid rural areas of Brazil is a huge one. The least cost supply option for most of these markets are renewable energy systems (RES) because of their modular and decentralized nature. Several formidable market barriers, including the high front-end cost of RES, need to be addressed before widespread use can occur. New mechanisms for commercial dissemination of RES, characterized by maximum participation by the private sector, need to be devised. There is evidence of growing private sector interest in large-scale deployment of renewable energy equipment and services. The utilities in two of the three target states appear poised to take advantage of opportunities to participate in new initiatives to electrify dispersed areas in their territories. Additionally, there are potential permissionaires in all states, such as rural electrification cooperatives and rural credit cooperatives.
Several modalities for private sector provision of electricity services to off-grid areas are possible under the existing and emerging policy framework for the power sector in Brazil. Among the regulated market options are the concession (jointly for grid and off-grid electrification), subconcession and permit mechanisms. The open market options include independent dealerships, franchises and rural ESCOs. These options have inherent advantages and disadvantages. In general, the open market options have a better chance of achieving efficiency gains through competition. On the other hand, the regulated market options have the advantage of potential economies of scale and other efficiency gains that accrue from access to a large market. Considering the particular characteristics of the dispersed area markets in the three states, especially the low density of population, the present study considers the regulated market approaches as having a better chance to attract private sector participants than the open market options, and as being more feasible to implement and achieve a certain coverage within a reasonable period of time. However, regulatory action needs to be taken to provide flexibility for the delivery of electricity services to rural consumers and incentives for the private sector to actively pursue this market.

An implementation plan for a proposed project was developed, as well as the potential cost sharing of the principal participants: the Federal, state and municipal governments; the private service provider, and the consumers. Absent more detailed market characterization studies and more rigorous cash flow analyses, it is difficult to determine the real profitability and commercial attractiveness of the scheme to prospective private investors.

Potential service providers are uncertain as to how to measure the financial viability of off-grid electricity services. The threshold test of financial viability is different for concessionaires than for other unregulated providers. Under current regulations, distribution concessionaires have an exclusive market with a per household limit of investment for extending service to unconnected households. At the same time, they face tariffs structures that do not allow them to recover the full costs of service from low income and rural households, other than through cross-subsidies with larger, urban residential consumers. Regulations currently do not cover the provision of off-grid services. For distribution concessionaires, a threshold test for viability is that the following conditions are satisfied. (a) the net capital investment, (total system cost minus subsidies) does not exceed the investment that would otherwise be made to extend the grid, and (b) project revenue is adequate to cover all O&M expenses and provides a return equivalent to what would have been received from grid extension. Clearly, project proponents must first prepare detailed business plans that hopefully provide results sufficiently attractive to prospective participants.

Bank officials who have reviewed the proposed project are concerned about the high project risks, particularly extraneous attractiveness of the project to the private sector, future cost reductions, and willingness to pay of poor rural customers. To reduce these risks, it was suggested that the interested concessionaires prepare their own business plans and that additional site and household surveys be done during project preparation. In order to reduce risks in general, the scope of the proposal could be scaled down, taking care to ensure that the sustainability characteristics are not weakened. Thereby, the reduced activity would become a pilot project to test the viability of the proposed implementation mechanisms. In any case, there is no doubt that Bank financing and technical involvement in a project that would benefit off-grid populations can catalyze the growth of private sector interest in these areas and stimulate market growth.

<table>
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*Excludes foreign exchange rate gain/loss.
**ESMAP**

**Project Title:** Energy-Environment Strategy  
**Theme:** Environment  
**Origin of Funds:** Core, World Bank  
**Task Manager:** Salman Zaheer

### Project Development Objective

Develop energy-environment strategy which takes into account the impact of reform, local environmental regulations and international obligations re. environment GDP growth and release rates of key pollutants/GDP in the next 20 years. Key pollutants include: TSP, SO2, NOx, CO2 and solid wastes

### Key Indicator

Expected Outputs

<table>
<thead>
<tr>
<th>Energy-environment strategy paper including:</th>
<th>Key Indicator</th>
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</thead>
<tbody>
<tr>
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* least-cost development plan complying with local environmental goals and international agreements  
* investment prioritization based on economics and environmental impact (trade-offs)  
* policy recommendations (fuel policy, environmental regulations and taxes, etc.)  
* Dissemination activities incl. workshop and public consultations  
|  
* Report on demand forecast and its impact due to reform (Jan '00)  
* Workshop & public consultations (Jan '00)  
* Energy-environment strategy report (June '00)  

### Implementation Progress

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<td>Task 2: Energy-Environment Strategy</td>
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<td>June 00</td>
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<td>Task 3: Workshop</td>
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</table>

**Expected Dates for:**

- **Project Completion** *(all project activities completed):* 6/00 -- 7/00
- **Project Closing** *(all financial transactions executed):* 8/00 10/00

### Summary of Current Project Status, Issues and Actions

The project has just been initiated. Local counterparts have been proposed to the government for approval. Approval is pending. It is expected that a mission will take place in late January/early February to start Task 1.

### Status of Funding

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<th>Funding Source</th>
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*Excludes foreign exchange rate gain/loss.
Objectives:
Increase the efficiency of the power sector in order to make it attractive for investment by the private sector. Attention is expected to focus on three major areas: the management of the efficiency program within the electricity company, the restructuring of the sector including the implementation of the regulatory system and the enhancement of the technical capabilities of Energy Ministry staff in charge of energy efficiency activities.

Principal Tasks:
- Put in place an operational structure within Electricity of Cambodia for managing energy efficiency programs;
- Propose a regulatory system for the power sector in Cambodia;
- Enhance the ability of the staff of the Energy Efficiency Unit of the Ministry of Energy;
- Provide advice and guidance in preparing and implementing energy efficiency policies

Summary of Current Project Status, Issues and Actions:
Tasks (i) and (iii) were launched during an initial mission which took place in February 1996. Two working groups were created, one within the electricity utility (EDC) and another at the Ministry of Energy and Mining (MIME). The working group of the electricity utility has the responsibility of guiding and monitoring the energy efficiency progress of the company. The working group is operational since May 1996. Its work program is coordinated by the Management Committee of the company. The objective of the working group of the Ministry, which was created during the first mission (February 1996) is to develop coordinated energy efficiency policies within several sectors of Cambodian economy. Unfortunately an unexpected training requirement for the group was identified during the May 1996 mission. A training program was prepared with the support of the local Institute of Technology and was almost completed when the civil war started in July 1997. The civil war lasted about three months and an identification mission was fielded in November 1997 to identify the damages of these devastating three months on the project. Its main conclusions are: (i) most of previously trained staff are back in their respective offices, (ii) a large part of gathered information is missing, (iii) the morale and enthusiasm of the staff has been deeply affected, but (iv) the management of both EDC and MIME requested the continuation of the project. Therefore it has been decided: (a) to continue the support of the EDC and MIME groups for an additional year and (b) to limit the activities of MIME to one or two energy saving demonstration programs in one or two sectors of the economy. A mission was fielded in February 1998 to reactivate the above mentioned activities and to launch the definition of a regulatory system for the power sector (task ii). Upon return of the mission, the Minister of Energy sent a letter to the World Bank expressing his satisfaction with the project's evolution and requesting a further assistance for at least two additional years. The political and military turmoil faced by the country during most of 1998 forced to postpone the next mission after the elections of November 1998. Due to the huge change in staffing of the local groups created by the project, it was decided to wrap up previous activities in focusing on one important sub sector for Cambodia, e.g.: electricity lighting in services and industry. It is expected that the approach will be used as example and could be replicated within other sub sectors by the local staff after the end of the ESMAP support.

For that purpose an eight month program was defined and a local consultant was hired to guide and advice the energy staff of the Ministry. The results of this program were highly appreciated by the Minister of Energy who wanted to publicized results obtained and the economic impacts for the country. Therefore upon his request the two groups of energy efficiency experts created by the project (one within the Energy Ministry and the other within the national Electricity Company) were requested to prepare documents, brochures and to organize a public workshop with large TV coverage. The Minister himself chaired the workshop which was attended by most key energy decision makers of the country, including the chairman of the Electricity Company as well as the presidents and concerned staff of industrialized firms which accepted to cooperate during the energy efficiency campaign mentioned above (the eight month special program).
With such an approach, objectives (iii) and (iv) of the original program are satisfied. In spite the fact that the project was officially completed with the organization of this highly publicized workshop the MIME secretariat requested that the project continue to support the activities of the locally recruited consultant for a couple of months in order to fully wrap up some of the ongoing tasks and ensure sustainability. The structure put in place seems sustainable especially since the decisions taken by the Ministry and the Electricity Company to allocate specific budgets to the two energy efficiency units created by the project.

| Expected Project Completion Date (all project activities completed): | 02/28/2000 |
| Expected Project Closing Date (all financial transactions executed) | 03/31/2000 |

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<td>362,381</td>
<td>309,169</td>
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<td>53,212</td>
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Project Title: Rural Electrification Study

Theme: Rural and Peri-Urban Access

Origin of Funds: Netherlands

Task Manager: Robert Van der Plas

Project Development Objective

- The overall objectives of the project are to improve access to electricity and induce poverty alleviation in rural and peri-urban areas.
- Project objectives: Develop a decentralized, rural and peri-urban electrification strategy to be included in WB financed ESI project.

Key Indicator

- More people with access to electricity.
- ESI project prepared including Rural electrification component.

Expected Outputs

- Assistance preparing rural electrification masterplan
- Pilot/demonstration activities
- Stakeholder workshop

Key Indicator

- Plan prepared
- Activities ongoing
- Workshop held

Implementation Progress

Progress made during the reporting period: Two missions were carried out. The first one took place between February 1-13 by the contracted firm to prepare a detailed work program for all the survey and study work to be undertaken by Chadian consultants and firms, and to identify and train these persons. The second took place in September to discuss this work-plan with the local partners and identify any significant problems. Apart from lacking financial means, everything is set for an expeditious implementation.

Expected Dates for: Original Revised

- Project Completion (all project activities completed): June 2000 Dec. 2000
- Project Closing (all financial transactions executed): August 2000 Feb. 2001

Summary of Current Project Status, Issues and Actions

The launch workshop indicated in the work timetable (attached) was completed successfully in December 1998. It was attended by D. Lallement (ESMAP Manager) and M. Munasinghe (Task Manager) as well as consultants, senior decision-makers from the energy and environment sectors, senior executives from the business community, and both consumer and NGO representatives.

A further visit was undertaken by Mr. Munasinghe in April-May 1999, together with Mr. Meier (consultant). The local research collaborators were assembled and a successful workshop was held to explain and discuss specific objectives and to allocate tasks to team members. Data gathering and preliminary analysis commenced in May 1999.

Further implementation progress is awaiting approval of the PHRD grant and no activities were undertaken. The grant agreement is with the WB lawyer for Chad, who is fully engaged in the Chad- Cameroon pipeline negotiations. It is expected that the grant agreement be signed early March, after which surveys and studies will commence immediately.

Status of Funding as of 12/31/99:

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<td>27,258</td>
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Project Title: Sulfur Emission Mitigation Policies

Theme: Energy and Environment

Origin of Funds: Sweden, Others

Task Manager: Todd M. Johnson

To provide assistance to national and local governments in China for efficient sulfur emission control.

Key Indicators:
- Training of local and national officials
- Reports and case studies.

Expected Outputs:
- Case studies
- Training
- Policy discussions
- Dissemination

Key Indicators:
- Quality of case studies
- Dissemination and use of case studies
- Identification of cost-effective policies and investment
- Number of local and national staff trained

Implementation Progress

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<td>2. Training</td>
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<td>3. Policy discussions</td>
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<td>4. Dissemination</td>
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Expected Dates for:
- Project Completion (all project activities completed): 12/00
- Project Closing (all financial transactions executed): 12/00

Summary of Current Project Status, Issues, and Actions

The project began in October 1999, following initial discussions and agreement with SEPA in July 1999. Two cities were selected for the case studies (Shijiazhuang and Changsha) in October 1999 and visits to the two cities were made by a Bank team in November. A local consultant is in place in China, and another has been hired to assist staff at HQ. Training is expected to take place in late February 2000, following Chinese New Year, and the identification and agreement on the set of tools to be used for the sulfur impact mitigation and control analysis.

7. Status of Funding as of 12/31/99:

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<th>Funding Source</th>
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Project Title: Clean Coal Technology Assessment and Environmental Control Options/Case study in China

Theme: Energy and Environment

Origin of Funds: Netherlands, Others

Task Manager: Masaki Takahashi

Project Development Objective

The technology assessment will aid policy makers in technological decision-making, while case studies for specific cities and provinces will give more detailed information for the selection of environmental compliance options.

Key Indicator

Implementation plan and execution of central and local governments and technology users in selecting options in Clean Coal Technologies and Environmental Control Options.

Expected Outputs

Technology assessment report on Clean Coal, Case studies on environmental control options and the workshop proceedings.

Key Indicator

Initiation report with Implementation Plan, Interim and final reports. Workshop proceedings.

Implementation Progress

Component

Start

End

1. Start of the project
January 99
March 99

2. Initiation Report with Implementation Plan
February 99
March 99

3. Interim Report
March 99
August 99

4. Final Draft Report
September 99
March 00

5. Publication of Report
April 00
September 00

Expected Dates for:

Project Completion (all project activities completed):
Original
March 99
Revised
September 00

Project Closing (all financial transactions executed):
Original
June 00
Revised
December 00

Summary of Current Project Status, Issues and Actions

A study team consisting of Bank staff, international and local consultants produced the Clean Coal Technology Assessment Report (Task A) for power sector (completed) and non-power sector (in the process of finalization). Case study of Hunan province (Task B) has been completed except for some analysis for externality value of NOx and validation for cost effectiveness figures of systems level analysis and plant level analysis, and in the process of producing the final draft. A draft concept paper of describing the methodological development of least cost analysis and key findings in Shanghai, Henan and Hunan province case study has been prepared. A “Clean Coal Technology” workshop was held in Beijing in December 1999 inviting Chinese counterpart: State Power Corporation (SP), State Development Planning Commission (SDPC) to disseminate the methodology and the findings of the study. The workshop summary will be put in the web site of the Environment Management for Power Development. All the reports and proceedings are to be translated in Chinese and published. (Task C). Workshop/ seminar are planned in 2000 for further dissemination and policy recommendation to Chinese decision makers and planners.

7. Status of Funding as of 12/31/99:

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<th>Funding Source</th>
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Project Title: Solar Market Development

Theme: Renewable Energy

Origin of Funds: France

Task Manager: Robert Van Der Plas

Report Preparation Stages:

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<tr>
<td>8/95</td>
<td>n.a.</td>
<td>n.a.</td>
<td>n.a.</td>
<td>09/99</td>
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</table>

*The project started in July 1997 (2 years program). Consultant report.

Objectives:

To launch a program to develop the suppressed market for solar electric equipment as an alternative to extension of grid electricity into areas where this is not economically justified.

Principal Tasks:

(i) Develop with the GOC the details of the program.
(ii) Identifying an equipment supplier to carry out the program.
(iii) Monitor the program.

Summary of Current Project Status, Issues and Actions

The final report has been issued to ESMAP for printing.

Expected Project Completion Date (all project activities completed): 10/99

Expected Project Closing Date (all financial transactions executed): 12/99

Status of Funding

<table>
<thead>
<tr>
<th>Funding Source</th>
<th>Project Cost</th>
<th>Funds Received*</th>
<th>Committed to Date</th>
<th>Disbursed to Date</th>
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<td>Total</td>
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<td>154,232</td>
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*Excludes foreign exchange rate gain/loss.
**Project Title:** Corporatization Of Distribution Concessions Through Capitalization  
**Theme:** Sector Reform and Restructuring  
**Origin of Funds:** Core  
**Task Manager:** Mangesh Hoskote

### Report Preparation Stages:

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<tr>
<th>Activity Initiation Brief</th>
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<td>4/97</td>
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<td>01/31/99</td>
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<td>06/30/00</td>
</tr>
</tbody>
</table>

### Objectives:
Assess the feasibility of incorporating employee share ownership as an integrated approach to the capitalization of distribution utilities.

### Principal Tasks:
1. Organize and conduct a workshop on the types of employee ownership arrangements in privatization strategies.
2. Conduct a valuation of a selected distribution utility franchise.
3. Conduct a prefeasibility study of integrating employee share ownership into the capitalization of the selected distribution utility franchise.
4. Organize and conduct a workshop to discuss the prefeasibility study findings and next steps.

### Summary of Current Project Status, Issues and Actions

The study was launched in mid-October 1997 when an exploratory mission visited Ghana. A draft report outlining Employee Stock Ownership Plan (ESOP) in privatization was prepared by December 1998, and reviewed by the region in March 1999. This Green Cover report was distributed to Ministry of Energy officials in May 1999. ESMAP is still awaiting the comments of the Ministry and other stakeholders for this report. We have recently been informed verbally that a stakeholders workshop is imperative to review the role of employee ownership schemes in the privatization of Electricity Corporation of Ghana. Furthermore the Trade Union Congress of Ghana is also keen to participate in this workshop. The workshop is currently being planned.

### Expected Project Completion Date (all project activities completed)
09/00

### Expected Project Closing Date (all financial transactions executed)
12/00

### Status of Funding

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<td>of which:</td>
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<tr>
<td>Total</td>
<td>133,186</td>
<td>133,186</td>
<td>69,572</td>
<td>69,572</td>
<td>63,614</td>
</tr>
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*Excludes foreign exchange rate gain/loss.*
Project Title: Rural Energy Study
Theme: Rural And Household Energy
Origin of Funds: Core, Netherlands
Task Manager: Douglas Barnes

Report Preparation Stages
<table>
<thead>
<tr>
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<td>n.a.</td>
<td>3/30/2000</td>
<td>5/30/2000</td>
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Objectives:
To evaluate appropriate energy policies and potential lending activities for India's vast rural population of 600 million people including possibilities for conservation of existing supplies of modern fuels strategies to eliminate bottlenecks in the distribution of modern fuels for productive use recommendations for making the rural electrification program more service oriented possible substitution of modern and/or modern and renewable fuels for existing inefficient use of traditional fuels.

Principal Tasks:
Phase I (completed):
- Prepare issues paper on rural energy.
- Participate in sector work being completed by South Asia Operations Department.
- Prepare a desk review of rural energy situation in India.
- Phase II:
  - Conduct a survey of rural energy use in four states and prepare the data for formal analysis.
  - Analyze the extent and potential for energy conservation in agricultural pumping.
  - Examine consumer awareness, satisfaction, and participation in the rural electrification program.
  - Assess the potential for substitution of renewable energy/modern fuels for traditional fuels.
  - Identify main environmental problems related to rural energy along with possible solutions.

Summary of Current Project Status, Issues and Actions
The draft report has been completed and circulated to the energy unit in the region for comment. A presentation of the results of the study will be made in February, 2000. The report has been circulated to the environment and rural development departments in South Asia for comments.

Part of the report is being utilized as the basis for new sector work on rural electrification and electricity distribution for India. The report will be cleared by the regional operation staff through the Ministry of Non-Conventional Energy Sources. The report will be issued as an ESMAP publication. An internal Bank seminar is the dissemination activity planned.

Project Completion Date (all project activities completed) | 2/29/2000
Project Closing Date (all financial transactions executed) | 6/30/2000

Status of Funding

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<td>412,709</td>
<td>389,316</td>
<td>389,316</td>
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*Excludes foreign exchange rate gain/loss.
**ESMAP**

**India**

<table>
<thead>
<tr>
<th>Project Title</th>
<th>Dissemination On Environmental Issues In The Power Sector</th>
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<tr>
<td>Theme</td>
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<td>Origin of Funds</td>
<td>Core</td>
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<td>Task Manager</td>
<td>Mudassar Imran/Robin Bates</td>
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</table>

**Project Development Objective**

The key objective of the work is to disseminate to various states in India the results of an earlier activity, entitled "India: Environmental Issues in the Power Sector" (EIPS), that was completed in June 1998.

<table>
<thead>
<tr>
<th>Key Indicator</th>
<th>Extension to other states in India of the ability to apply the tools and process developed under EIPS and knowledge of the findings of EIPS to help decision-makers at the state level:</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>• to improve the planning and management of their power systems, taking into account the major environmental impacts</td>
</tr>
<tr>
<td></td>
<td>• to assess more explicitly the economic and environmental trade-offs involved between different options for power development.</td>
</tr>
</tbody>
</table>

**Expected Outputs**

- National NGO Workshop in Delhi
- Bihar Workshop
- Manual for Environmental Decision-Making
- Orissa Workshop
- Haryana Workshop
- Training of officials in Orissa and Haryana to apply tools and process developed under EIPS
- Execution of a Rapid Assessment (RA) of EIPS in Orissa
- Andhra Pradesh (AP) Workshop
- Rajasthan Workshop
- Uttar Pradesh (UP) Workshop
- Final evaluation Report

**Implementation Progress**

<table>
<thead>
<tr>
<th>Component</th>
<th>Start</th>
<th>End</th>
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</thead>
<tbody>
<tr>
<td>2. Finalize Contracts with Consultants (MECON)</td>
<td>9/98</td>
<td>10/98</td>
</tr>
<tr>
<td>3. Hold Workshop in Bihar</td>
<td>8/98</td>
<td>8/98</td>
</tr>
<tr>
<td>5. Hold Workshops in Orissa and Haryana</td>
<td>2/99</td>
<td>2/99</td>
</tr>
<tr>
<td>8. Carry out training programs in Orissa and Haryana</td>
<td>6/99</td>
<td>12/99</td>
</tr>
<tr>
<td>11. Hold Workshops in Rajasthan &amp; UP</td>
<td>3/00</td>
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<td>12. Final Evaluation Report</td>
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**Expected Dates for**

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<tr>
<td>Project Closing (all financial transactions executed):</td>
<td>2/00</td>
<td>9/00</td>
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</table>

75
Summary of Current Project Status, Issues and Actions

Work was initiated with the National NGO Workshop in Delhi (May 1998) and the first dissemination Workshop in Bihar (August 1998).

The final version of the Manual for Environmental Decision-Making was published as ESMAP Report 213/99 in June 1999.

A contract was signed with a local consulting firm (MECON) in November 1998, to help organize Workshops in Orissa, Haryana, Rajasthan, Uttar Pradesh and Karnataka; and a mission took place as planned in 2/99, to conduct the Workshops in Haryana and Orissa.

Following the Haryana and Orissa Workshops, the dissemination experience was evaluated and the dissemination strategy for these and other States reformulated, in consultation with the Government of India, the State Governments and key electric power agencies of Haryana and Orissa, the Bank, and DFID. Given the clear success of the dissemination experience to date, it was agreed that the dissemination effort should be re-oriented to permit the immediate initiation of training in Haryana and Orissa and execution of a RA of EIPS in Orissa (Paper distributed within Bank on 3/30/99). The decision to target reforming States for the dissemination work was also re-endorsed. As a consequence, it was agreed that the pace of implementation of the work should respect corresponding developments in the reforming States; and, to accommodate the shift in resources, one of the workshops would be dropped (expected to be Karnataka). No resources would be available for follow-up in AP, UP or Rajasthan. A new contract was signed with MECON in May 1999, to reflect these changes.

Subsequently, in the period 3/99-6/99, formal training programs were designed for Haryana and Orissa; and Terms of Reference agreed for the RA of EIPS in Orissa. The training programs and RA were implemented successfully in the period 6/99-12/99; and the Workshop was conducted in AP in 12/99.

### Status of Funding

<table>
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<tr>
<th>Funding Source</th>
<th>Project Cost</th>
<th>Funds Received</th>
<th>Committed to Date</th>
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<td>of which:</td>
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<tr>
<td>Trust Funds</td>
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<tr>
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<td>403,923</td>
<td>403,923</td>
<td>242,100</td>
<td>187,437</td>
<td>216,486</td>
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*Excludes foreign exchange rate gain/loss.
**Project Title:** Low-Cost Electrification Pre-Feasibility Project

**Theme:** Rural and Peri-Urban Access, Renewable Energy

**Origin of Funds:** Netherlands, Others

**Task Manager:** Robert van der Plas

<table>
<thead>
<tr>
<th>Project Development Objective</th>
<th>Key Indicator</th>
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<tbody>
<tr>
<td>Demonstrate the viability of one of the lowest-cost options for delivering electricity services to the poor.</td>
<td>Battery packs are being purchased, and used. Rural dealers request additional deliveries of battery packs</td>
</tr>
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</table>

<table>
<thead>
<tr>
<th>Expected Outputs</th>
<th>Key Indicator</th>
</tr>
</thead>
<tbody>
<tr>
<td>100 battery packs produced and placed in rural stores; Obtained feedback from users (who purchased the battery packs at cost) and dealers; Marketing plan for larger-scale dissemination; Best Practice papers.</td>
<td>Producing the battery packs will take not more than 3 months. Most battery packs (60% - 70%) are purchased six to eight months after project approval; Monitoring to take place from 6 – 15 months after placement with rural dealers; 3. +4. About 15 months after the start the dissemination materials are ready</td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>Component</th>
<th>Start</th>
<th>End</th>
</tr>
</thead>
<tbody>
<tr>
<td>1. Produce 100 battery packs and place in rural stores.</td>
<td>April 99</td>
<td>Jan 99</td>
</tr>
<tr>
<td>2. Preliminary results of the desk study</td>
<td>Dec 99</td>
<td>Feb 99</td>
</tr>
<tr>
<td>3. Obtain feedback from users (who purchased the battery packs at cost) and dealers</td>
<td>Sept 99</td>
<td>June 00</td>
</tr>
<tr>
<td>4. Dissemination on a larger-scale (marketing plan; Best Practice paper).</td>
<td>June 00</td>
<td>August 00</td>
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<table>
<thead>
<tr>
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<td>Project Closing (all financial transactions executed):</td>
<td>July '00</td>
<td>Oct '00</td>
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</table>

**Summary of Current Project Status, Issues and Actions**

The recession in Kenya played an important role in delaying the local production of the battery packs, as the battery company focussed on survival rather than on developing new products. However, the locally made batteries are in the stores as foreseen, with some delays. The imported batteries are being cleared with customs.

Initial (potential) customer reaction is lukewarm because of the price. The locally made battery pack turned out to be much more expensive than a battery plus a controller, and customers do not immediately see the benefits. Discussions with an Indonesian firm resulted in imports from Indonesia as a test to see if the battery packs should be imported in larger quantities.
## Status of Funding

<table>
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<tr>
<th>Funding Source</th>
<th>Project Cost</th>
<th>Funds Received</th>
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<td>Task Manager:</td>
<td>Mangesh Hoskote</td>
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**Report Preparation Stages:**

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</table>

**Objectives:**

To fully assess the opportunity for the economic use of the combination of renewable energy and conventional rural electrification and to design a program of policy and institutional changes necessary to facilitate the economic use of each set of technologies in rural Malawi.

**Principal Tasks:**

(i) Completed evaluation of energy subsector issues and options including extensive site visits to assess scope and potential for increasing access to electricity through grid extension and off-grid systems.

(ii) Review and synthesis of IDA-financed study on biomass energy development.

(iii) Draft report produced and will be the subject of a multi-day Workshop, to include appropriate outside experts, to ensure the validity of the work and to suggest integrating strategies and policy steps to be taken. Insofar as possible, outside experts will be drawn from elsewhere in Africa and/or other developing countries that face similar problems.

(iv) Following the Workshop, a final report will be produced along with a specific set of projects (The Action Plan) that would begin implementation of the recommendations.

**Summary of Current Project Status, Issues and Actions**

A working draft report has been prepared based on the first mission in March/April 1997. Bank's Regional review of the draft report was completed in May/June 1998. The Green Cover report was sent to the government in July 1998. The government's comments were received early January 1999 and were incorporated into the final draft in anticipation of a beneficiary consultation forum to be held in October, 1999. However, a prolonged silence followed during which the Ministry of Energy was folded and the Department of Energy was brought under the Ministry of Natural Resources and Environment.

There now appears to be some progress on moving forward on a workshop to discuss the ESMAP report on Rural Energy. The DOE has requested Bank assistance in preparing a short-form Rural Energy policy note which would be distilled from the longer ESMAP report. The DOE is currently planning to recruit a consultant to assist them in this regard. A small portion of ESMAP funds may be used to defray some of the costs of preparing this short form Rural Energy policy note.

**Expected Project Completion Date (all project completed)**

| 06/00 |

**Expected Project Closing Date (all financial transactions executed)**

<p>| 09/00 |</p>
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<tr>
<td>of which:</td>
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<td><strong>Total</strong></td>
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<td>322,554</td>
<td>240,707</td>
<td>240,707</td>
<td>81,847</td>
</tr>
</tbody>
</table>

*Excludes foreign exchange rate gain/loss.
Project Title: Energy Sector Reform

Theme: Sector Reform

Origin of Funds: Core, World Bank, Others

Task Manager: Jonathan Halpern

Provision of better decision making tools to Secretaria de Energia. 


First draft of White Paper on policy supplied to Secretaria. 

First draft for White Paper on policy completed.

Draft report on governance of state enterprises supplied to Secretaria. 

Collection of data on oil sector required for analysis of impacts of alternative tax regimes.

Outline of alternative taxation schemes presented. 

Paper on governance of state owned enterprises completed in first draft.

3 workshops with senior staff in Secretaria on issues of sector reform 

Workshops delivered.

Fuels policy: Work began for producing a “prospectiva” for the finished fuels, the first such document to be made public in Mexico. One element of this is to prepare an improved assessment of demand for automotive fuels as well as an analysis of policies which could impact on the mix of fuels consumed. The environmental impact of these policy decisions is at the forefront of this analysis. Local consultants have been contracted to collect the relevant information and to interpret the results as the data is acquired. The “prospectiva” is to be issued this summer.

Governance: a preliminary paper was produced, but further development of this is waiting on domestic political events related to the proposed legislation to permit private sector activity in the energy sectors.

Taxation Policy: an initial paper commenting on PEMEX’ and on the Secretaria’s proposals for tax reform was produced and discussed with the Secretaria. A program of work and data requirements for this activity were agreed and consultants were contracted. Delays in the provision of data by SE necessary to initiate the modeling work have led to slippage in the timing of submission of modeling results. The next round of discussions is tentatively scheduled for March

Training: a series of workshops for senior staff have been held. Preliminary discussions with various Mexican organizations have been held with a view to establishing which have the capability to organize and deliver suitable training courses.

Policy White Paper: a first draft was produced and discussed with the Secretaria. Elaboration of a 2nd draft has been postponed until after the conclusion of the next session of Congress (March-May) as electricity reform and PEMEX’ tax regime may be discussed during that session. The outcome of the legislative debates will determine which aspects of the energy policy white paper will require further work. The other activities (eg. taxation and fuels) which are now proceeding, will provide important inputs into the next version of the white paper.
### Status of Funding as of 12/31/99:

<table>
<thead>
<tr>
<th>Funding Source</th>
<th>Project Cost</th>
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<th>Committed to Date</th>
<th>Disbursed to Date</th>
<th>Remaining Balance</th>
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<td>150,863</td>
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*Excludes foreign exchange rate gain/loss.
**Project Title:** Environmental Strategy For The Energy Sector  
**Theme:** Energy and Environment  
**Origin of Funds:** Core, World Bank, Others  
**Task Manager:** Masami Kojima

### Project Development Objective

The objective of this project is to assist in the development of an integrated, strategic vision of the interactions between the energy and environmental sectors and its implications for the economy.

### Key Indicator

- A better understanding of the environmental impacts of the energy exploration, conversion, transmission and use.
- An assessment of the associated environmental mitigation costs.

### Outputs

The specific outputs include the following:

1. Development of a modeling tool for analysis
   - a) Analysis of the impact of macroeconomic parameters on energy demand and supply
   - b) Identification of supply-demand scenarios and sensitivity analysis of key scenarios
   - c) Cost analysis of emission reduction alternatives
2. Design and operation of a simulation model for the interactions between energy, environment and economy
   - a) Quantification of the impacts of GNP growth rate, demographic growth and energy intensity by key economic sectors on energy demands
   - b) Preparation of scenarios for modeling
   - c) Estimates of the capital and O&M costs associated with emission reduction alternatives
3. Consistency analysis of economic, energy and environmental policies
4. Identification and quantification of environmental impacts of the energy sector and impact of environmental policies and international treaties on the energy sector
5. List of key environmental impacts and estimate of order of magnitude of associated costs; list of impacts of environmental policies and international treaties on the energy sector and the economy
6. Identification of alternative scenarios and policies, and selection of the best policy option

### Implementation Progress

<table>
<thead>
<tr>
<th>Component</th>
<th>Start</th>
<th>End</th>
</tr>
</thead>
<tbody>
<tr>
<td>7. Policy analysis and selection of best policy option</td>
<td>1/00</td>
<td>2/00</td>
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### Expected Dates for:

- **Project Completion (all project activities completed):**
  - Original: Jun. 30, 99  
  - Revised: Apr. 30, 00
- **Project Closing (all financial transactions executed):**
  - Original: Sep. 30, 99  
  - Revised: Jun. 30, 00
Summary of Current Project Status, Issues and Actions

The bottom up modeling has been largely completed and data have been prepared. Analysis of the interactions between macroeconomic parameters and energy demand and supply will start shortly. Further development of the model will commence as soon as the preliminary results from the model are validated.

Detailed discussions are underway with the energy and environment ministries on the selection of specific environmental policies related to the energy sector for in-depth investigation. This is expected to be resolved soon and work to begin shortly thereafter.

<table>
<thead>
<tr>
<th>Funding Source</th>
<th>Project Cost</th>
<th>Funds Committed to Date</th>
<th>Funds Disbursed to Date</th>
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<td>105,121</td>
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* Excludes foreign exchange rate gain/loss.
Project Title: Coal Stove Improvement Program
Theme: Rural And Household Energy
Origin of Funds: Netherlands
Task Manager: Salvador Rivera

Project Development Objective

- to develop cost effective technologies aimed at reducing household fuel consumption and indoor air pollution among ger families;
- to identify self-supporting dissemination methodology for further execution by the private sector and competent public authorities.

Key Indicator

- Verified emission data and cost/benefits on various stoves' kits.
- Self-supporting dissemination methodology identified, proven by active private sector involvement (manufacturers, ESCOMs).

Expected Outputs

- Stove adaptations (inserts) to improve performance of existing installed stoves and improved stoves are available at affordable costs
- An insert dissemination mechanism through private sector (manufacturers and ESCOM) is tested
- A mid-sized GEF program comprising a multi-year stove-improvement dissemination activity is designed jointly with counterparts.

Key Indicator

- Reduced fuel consumption of stove improved with inserts and commercial improved stove, compared with fuel consumption of existing stove models (best compared as kg of fuel/day under controlled conditions: same outside weather and inside temperature). Target: 10-30% reduced fuel consumption
- Availability of realistic business plans by manufacturers and ESCOM(s)
- Availability of realistic pluri-annual wide stove improvement dissemination mid-size GEF program.

Implementation Progress

<table>
<thead>
<tr>
<th>Component</th>
<th>Start</th>
<th>End</th>
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</thead>
<tbody>
<tr>
<td>(a) (i) define a detailed nine-months workprogram with counterparts; and (ii) launch the main scheduled activities such as a comprehensive household and stove-producers survey; an improved stove experimentation program.</td>
<td>09-1999</td>
<td>01-2000</td>
</tr>
<tr>
<td>(b) identify and test dissemination methodology for further execution by joint public private partnerships.</td>
<td>01-2000</td>
<td>05-2000</td>
</tr>
<tr>
<td>(c) mid-term review to assess results and realign program as needed, discuss framework for mid-size GEF stove program.</td>
<td>02-2000</td>
<td>02-2000</td>
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<tr>
<td>(d) Final Report.</td>
<td>03-2000</td>
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Expected Dates for:

<table>
<thead>
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<th>Project Completion (all project activities completed):</th>
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<th>Revised</th>
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<tbody>
<tr>
<td>Project Closing (all financial transactions executed):</td>
<td>06/00</td>
<td>08/00</td>
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</table>


All activities are moving according to schedule. Following agreements on detailed work-program in 09/99, the following activities have been completed: a) a stove characteristic survey with a sample of 253 families and a G2 users' survey; b) a household energy consumption survey (450 families); c) design and construction of stove kits; d) initial testing of stove kits at 40 households in ger district, including the coal and wood comparative consumption data; e) air pollution tests by local laboratory on selected stoves.

No major issues have arisen.
## Status of Funding

<table>
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<th>Funding Source</th>
<th>Project Cost</th>
<th>Funds Received</th>
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<tr>
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<td>46,770</td>
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*Excludes foreign exchange rate gain/loss.*
**Project Title:** Global Efficiency in Sidi Bernoussi Industrial and Peri-urban Area  
**Theme:** Energy Efficiency  
**Origin of Funds:** France  
**Task Manager:** Pierre Savary

### Project Development Objective
Sidi Bernoussi stakeholders agree upon consistent technical, financial, institutional and commercial arrangements needed to permanently upgrade energy and water access, efficiency and environmental impact.

- 75% endorsement rate among industrial stakeholders
- Formal agreement of the representatives of the shanty town community
- Loan conventions, technical terms of reference, management contracts, between Sidi Bernoussi end-user community and potential contractors ready for negotiation

### Expected Outputs
<table>
<thead>
<tr>
<th>Key Indicator</th>
</tr>
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<tbody>
<tr>
<td>Timely approval of the documents by the Project Steering Committee</td>
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### Expected Dates for:

<table>
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<td>09/30/00</td>
</tr>
<tr>
<td>Project Closing (all financial transactions executed)</td>
<td>12/31/00</td>
<td>06/30/01</td>
</tr>
</tbody>
</table>

### Summary of Current Project Status, Issues and Actions

The environment is still very supportive in Morocco. The Steering committee meeting was a success with local authorities and Lydec anxious to be with us.

Mr. Izdihar (chairman of the committee) was to become Morocco envoy in the US. But the death of King Hasan II reversed that decision. Mail/phone inquiry review of industries is in progress. The return is on the order of 30%. A local energy efficiency specialist firm has been hired.
7. Status of Funding as of 12/31/99:

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<thead>
<tr>
<th>Funding Source</th>
<th>Project Cost</th>
<th>Funds Received</th>
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<td>of which:</td>
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<td>340,000</td>
<td>340,000</td>
<td>19,713</td>
<td>19,713</td>
<td>320,287</td>
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**Project Title:** Clean Fuels Project  
**Theme:** Energy and Environment  
**Origin of Funds:** United Kingdom, Core  
**Task Manager:** Masami Kojima

### Project Development Objectives

<table>
<thead>
<tr>
<th>Performance Indicator</th>
<th>Project Development Objectives</th>
</tr>
</thead>
</table>
| Reduced emissions of lead and particulates from vehicles | • GOP accepts final recommendations made on fuel specifications, vehicle control measures and timetable.  
• Working group to review recommendations and implement specific action plans established. |

### Expected Outputs

<table>
<thead>
<tr>
<th>Key Indicator</th>
<th>Expected Outputs</th>
</tr>
</thead>
</table>
| 1(a) Cost of producing cleaner fuels estimated | 1 Petroleum sector analysis with respect to clean fuels completed:  
(a) refinery analysis  
(b) sector policy analysis |
| 1(b) Recommendations made for possible changes in petroleum sector policy | 2 Macroeconomic analysis of the impact of reducing the inter-fuel price differential between gasoline and diesel |
| Recommendations which consider trade-offs between environmental benefits and economic impact are made with due consideration for impact on the poor | 3 Air quality monitoring: systems audit and collection of baseline data |
| Air quality data obtained and recommendations made for future air quality monitoring methodology | 4 Analysis of blood lead levels |
| Blood lead levels monitored in one or two key cities | 5 Study findings disseminated |
| Political consensus building throughout the program, final report distributed and regional workshop held |

### Implementation Progress

<table>
<thead>
<tr>
<th>Component</th>
<th>Start</th>
<th>End</th>
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</thead>
<tbody>
<tr>
<td>6. Publication of final report</td>
<td>July 2000</td>
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### Summary of Current Project Status, Issues and Actions:

The funds are not yet fully available to start this project fully. The funding for the refinery analysis became available at the end of May. The target dates for the completion of various components will be finalized when the funds become fully available for commitment.

### Status of Funding

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* Excludes foreign exchange.

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ESMAP

Pakistan

89
## Project Title:
Rural Energy Electrification

## Theme:
Rural and Household Energy

## Origin of Funds:
Canada, Core, Others

## Task Manager:
Anke Meyer

<table>
<thead>
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<th>Report Preparation Stages:</th>
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<tbody>
<tr>
<td>Activity Initiation Brief</td>
</tr>
<tr>
<td>09/01/95</td>
</tr>
<tr>
<td>*Consultant report, ** ACR</td>
</tr>
</tbody>
</table>

## Objectives:
To establish the most economic way (technology organization) of supplying electricity to rural isolated poor people and to carry out pilot projects for replication. Main objective is to lower the costs of electrification so more people can obtain it and projects would more easily pass economic and financial viability tests.

## Principal Tasks:
- Search for economic source of generation (grid extension, solar PV, wind, mini-hydro, diesel, biomass).
- Search for recipient organizational structure to lower costs of operation and maintenance, and possibly, investment.
- Select, inventory, evaluate low cost technologies.
- Implement 3-5 pilot cases.
- Disseminate results on Workshops.
- Propose Best Practice Dissemination System.

## Summary of Current Project Status, Issues and Actions:
The Activity Completion report was finalized in May 1999 and was sent for review and clearance to regional Bank staff and to the Government of Peru. In September 1999 it was forwarded, incorporating comments, to ESMAP management.

## PROJECT RESULTS
### Outputs
- Project Documents (see list below) which document the approach and results of the various activities
- Training modules for local operators (administration, operations, maintenance) of small isolated and decentralized electrification systems;
- Trained operators in four small isolated and decentralized electrification systems;
- Regional Conference to disseminate results, incl. a workshop with government officials on approaches in other Latin American countries to sustainable rural electrification.

### Outcomes
The program has contributed to raising awareness of low-cost rural electrification technologies and devising new evaluation methodologies for rural electrification programs, including a greater participation by local communities. It has added the evaluation of alternative delivery mechanisms -- institutional and financial -- to the previously dominating focus on technologies to ensure sustainable projects.

## LESSONS LEARNED
Rural electrification projects can be done at lower cost with greater involvement of local entrepreneurs and communities with appropriate training in both technical and administrative issues, and if installations are done where demand exists with capacity to pay;

Small projects in isolated areas have higher specific costs in identification, feasibility studies and training of operators. If these tasks are carried out well, a considerable reduction in overall costs and therefore greater sustainability could be achieved. For communities or local entrepreneurs who might otherwise be able and willing to finance a large part of the investment costs, it would make a big difference if these "set-up" costs would be supported by the government.

The project could have been carried out more effectively with earlier involvement of rural development and social sector specialists both in the country and in the Bank (see background of project summary).
RECOMMENDATIONS FOR FUTURE ACTIONS

The main recommendations from the activities of this project are the following:

- Socio-economic indicators need to be incorporated in the methodology to select sites for rural electrification;
- Within the agency responsible for promotion of rural electrification, a data room should be created with socio-economic data, GIS information and other data relevant for market assessment;
- Municipal and/or private delivery of rural electrification can work, provided that financing is available, low-cost standards can be applied, willingness to pay of consumers is taken into account in project and tariff design, operations and maintenance is carried out by appropriately trained personnel, and politicians do not interfere in business decisions.

Organise a workshop on isolated power generating systems, attended by the government, representatives of distribution concession companies, mayors, experts in this field, etc. The models designed and implemented by this project would be introduced at this workshop, together with others developed either in this country or in other parts of the world. The workshop would also try to bring aboard political voices in Congress to discuss a new scheme on the US$ 400-800 million rural electrification program over the next 6-8 years.
- Design a rural development project in which the energy component plays an important role in the development of the communities. This project should permit the application of the models developed in this project on a larger scale, so that they have the necessary demonstration effect and any adjustments required can be made, particularly to the training modules.

| Expected Project Completion Date (all project activities completed) | 9/99 |
| Expected Project Closing Date (all financial transactions executed) | 01/00 |

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*Excludes foreign exchange rate gain/loss.
**ESMAP**  

**Philippines**

| Project Title | Strengthening of The Rural and Non-Conventiona| Energy Development Program |
|---------------|-----------------------------------------------|
| Theme:        | Renewable Energy                              |
| Origin of Funds: | Core, Netherlands                             |
| Task Manager:  | Ernesto Terrado                               |

<table>
<thead>
<tr>
<th>Project Development Objective</th>
<th>Key Indicator</th>
</tr>
</thead>
<tbody>
<tr>
<td>Significant contribution of renewable energy to total energy mix in ten years.</td>
<td>Contribution of all RE types to Energy Mix increase by 10% in 2004 and 20% by 2009 compared to 1998 levels</td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>Expected Outputs</th>
<th>Key Indicator</th>
</tr>
</thead>
<tbody>
<tr>
<td>Coherent national level strategy for renewable energy development and commercialization</td>
<td>Report on Program Evaluation completed and accepted by DOE</td>
</tr>
<tr>
<td>Identified near-term investment opportunities in renewable energy</td>
<td>Outline of specific investments with costs, timetable and financing plan prepared</td>
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### Implementation Progress

<table>
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<tr>
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<tr>
<td></td>
<td>Dec 1999</td>
<td>Jun 2000</td>
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### Summary of Current Project Status, Issues and Actions

1. Main mission completed Sept 21 to Oct 3, 1998. Full support from GOP. DOE Secretary wants special attention in TA to Presidential project to electrify over 5,000 villages. Project team preparing document to use by DOE as policy framework for project.
2. ESMAP paper preparation held off to take into account results of other related TAs by bilaterals, including work by Winrock International, NREL and USAID. Agreements reached with WI, USAID and NREL to cooperate in strategy formulation and identification of investment projects. Joint activities along these lines conducted from Jan 1999 to May 1999.
7. January 2000: A mission is planned for Jan 8-20 to: (a) discuss draft with GOP, (b) assist DOE in preparation of proposed rural electrification project, (b) participate in donors meeting in Manila organized by EASEG.
### Status of Funding

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<td>190,904</td>
<td>19,096</td>
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*Excludes foreign exchange rate gain/loss.
**Project Title:** Energy Sector Regulation and Tariffs  
**Theme:** Sector Reform and Restructuring  
**Origin of Funds:** Core  
**Task Manager:** Rachid Benmessaooud/Peter Law  

### URE to implement energy pricing and tariff regulations, and the energy sector is subject to a regime of economic tariffs which reflect unbundled cost of service.  
- URE staff are trained on modern regulation techniques for electricity, district heating and gas tariffs  
- URE endorses and implements recommendations and methodologies developed in the various reports  
- Ministry of State Treasury reflects the experts' view on its privatization strategies and power market  
- PGNiG endorses and uses the gas tariff model  

#### Task 1:  
- Proposed amendments to current legislation on regulation of electricity, gas and district heating tariffs  
- Report of tariff regulation and benchmarking for district heating enterprises  
- Report on cost of capital of electricity enterprises  
- Report on benchmarking of electricity enterprises  
- Report on social aspects of electricity tariff  
- Application of tariff regulation methodologies for electricity transmission, distribution and supply businesses  
- Training of URE staff on tariff regulation  

#### Task 2: Various notes  
- Experts' review of Government strategy in privatization of power sector  
- Experts' review of the competitive electricity market  
- Experts' review of power exchange  

#### Task 3:  
- Development of a gas tariff model  

### Accounting procedures for the energy enterprises  
- Aggregate financial models for electricity, heat & gas.  
- Methods and Procedures for setting energy tariffs.  
- Methods for evaluating environmental instruments.  
- Assessment of Market and Regulatory Risks for Power Sector.  
- Tariff adjustment program for power and heat.  
- Non-aggregate tariff models for gas.  

### Summary of Current Project Status, Issues and Actions  
**Change in Schedule:**  
Work on tariff regulation started in September 1999 (district heating) and November 1999 (electricity), after the Summer break (July and August) and after having agreed with URE on the most urgent tasks for URE. As a result, project completion and closing dates have been extended by six months.  

#### Task 1: Tariff Regulatory System  
- London Economics and Cameron MacKenna were retained for electricity tariff regulation and training, and Ekono Energy for district heating tariff regulation and training. Following an internal reorganization, London Economics assigned the contractual responsibilities to Frontier Economics. Local consultants were appointed as counterparts to the foreign consultants.  
- **Work on District Heating Regulation**  
- Work on district heating regulation started in September 1999 with a review of the ordinance for tariff calculation.
and regulation, as well as benchmarking for tariff regulation purpose. A first workshop was held in September 1999 on district heating pricing policy and competition. Draft final report is expected in end January 2000.

- **Work on Electricity Regulation**
  - Work on electricity regulation started in November 1999. Two types of support activities are being implemented: (i) providing support to the Energy Regulatory Authority (URE) on issues of importance to URE and related to tariff review and approval process; and (ii) providing training to URE staff in regulatory methodologies and their application.
  - Amendments to the TORs were introduced to focus the activity support to resolving the most urgent problems and issues URE faces. The four main areas of priority work include: (i) development and application of a methodology for the benchmarking of the distribution and transmission entities, and the application of the methodology to the distribution companies; (ii) the development of a methodology and calculation of the cost of capital for each of the functions in the electricity industry (generation, transmission, distribution, and supply); (iii) assisting URE in determining the need to amend existing reporting formats to allow the collection of the information required to apply benchmarking and other methodologies effectively; and (iv) proposing amendments to the existing tariff ordinance that ensure that it meets international best practice and address URE's concerns over the legality of various regulatory tools, the ability to obtain information from regulated companies, the price adjustment mechanism applied and the affordability of tariffs.
  - The electricity training program comprises two two-day workshops: (i) a first workshop focusing on general international experience in economic regulation of the electricity sector in all its dimensions that would appear relevant to the situation in Poland; and (ii) a second workshop structured around the questions raised by participants and utilizing case studies and other problem-solving mechanisms. The first electricity training workshop took place in December 13-14, 1999 and about 25 staff from URE and 2 staff from the Ministry of Economy participated in the workshop. The second workshop is planned at the end of March 2000.

**Task 2: Market and Regulatory Risk Assessment for Electricity Sector**

**Progress To Date:** The Government of Poland is proceeding forward with reforms to move the energy sector from a controlled market to a deregulated, competitive market. With the new regulatory framework in place, the Government has formulated its overall plan to privatize all 17 power plants, 19 combined heat and power plants, and 33 distribution companies by 2002 and to begin the privatization of the Polish Power Grid Company (the transmission company) in 2002.

In July and September 1999 a series of meetings were held in Warsaw between several members of a panel of international experts (the panel) arranged by the World Bank and representatives of and advisors to the Ministry of State Treasury. Meetings were also held with representatives of the Co-ordinating Group of the Economic Council of Ministers, including the Ministry of Economy, the Energy Regulatory Authority and the Office of Competition and Consumer Protection. The World Bank chaired these meetings. During this period, the advisors to the Ministry of State Treasury assessed the privatization options and elaborated the main elements of a privatization strategy for generation and distribution. The Ministry of State Treasury invited the World Bank to assist in reviewing the advisors' proposals. The meetings discussed the advisors' proposals and other pertinent issues related to the privatization work, and provided opinions on how these issues were addressed in other jurisdictions and how they may be addressed in Poland. The panel of experts included the ex-UK electricity regulator, an electricity market expert, a utility restructuring expert, an investment banker, a regulatory lawyer and a utility privatization specialist.

**Next Steps:** At the request of the Ministry of State Treasury, the World Bank agreed to arrange for follow up meetings with focus on international experience in establishing a power exchange.

**Task 3: Gas Tariff Model**

**Progress to Date:** A mission visited PGNiG during November, and held joint meetings with the PGNiG gas tariff team, representatives of the regional gas distribution entities, URE, and the Ministry of Economy. This was to ensure the key stakeholders are kept fully informed and have chance to air their views on the progress of the ESMAP study.

During the previous mission, the transmission simulations for two geographic transmission zones - the Carpathian (KOZG) and Gdańsk (POZG) - were presented to PGNiG. The consultants had since prepared tariff simulations for the distribution networks for the same two zones, and these results (including simulated income and cash flow statements) were presented to PGNiG in the form of a training session. Like the transmission tariffs, the distribution tariffs for each zone were widely divergent, mainly because of the different investments and gas consumption proposed within each zone. In the next stage a set of distance-based gas transmission tariffs at the national level will be prepared. For preparation of storage tariffs, three storage facilities will be taken into account (Mogilno, Wierzchowice and Husow), with the remaining storage facilities to be considered integral with the domestic...
PGNiG informed the mission that the key principles of the new ordinance for gas tariff policy had been agreed by the Ministry of Economy and the Ministry of Finance. The draft ordinance was discussed at the joint meetings with the key stakeholders noted above, and the mission presented its views on the ordinance. The representatives of URE and the Ministry of Economy indicated their agreement that the approach taken so far to develop the gas tariffs is in line with the regulations. URE indicated that while PGNiG remains a single company, geographically uniform tariffs for each distribution consumer group is appropriate, but this may change upon restructuring of the company.

**Next Steps:** PGNiG to provide technical and economic data concerning one storage facility, and for the transmission system at the national level. When this is received, the consultant will construct the tariff model at the national level (as opposed to the regional level) for gas transport. The timing of the next mission depend on when the outstanding data is made available by PGNiG.

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*Excludes foreign exchange rate gain/loss.
**Title:** Energy Efficiency Action Plan (Reconnaissance)

**Theme:** Energy Efficiency

**Origin of Funds:** Core

**Task Manager:** Varadarajan Atur

### Project Development Objective

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### Key Indicator

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### Summary of Current Project Status, Issues and Actions

Consultant review of energy efficiency activities was carried out December 1998 to March 1999. On the basis of a draft report, a reconnaissance mission took place in February 1999 to review the status of energy efficiency activities in Romania and determine the need for and possibilities of a productive role of the Bank and/or ESMAP assistance. The team concluded that energy efficiency efforts in Romania should be supported by two sets of activities: ESMAP supported technical assistance for an upstream energy efficiency action plan, followed by the preparation of an investment activity by GEF and possibly the Bank. The team also investigated the need for an Energy and Environment Review, but did not recommend to go ahead with it, since reiterating priority issues/actions would add little value to the Government’s current extensive knowledge base. Furthermore, the team did not see good mechanisms for implementation follow-up. The reconnaissance phase was completed in May 1999 with completion of ESMAP proposal for a full work program. Development took several months since main stakeholders in Romania and the Bank needed to agree on the concept.

The follow-up ESMAP activity was approved in July 1999. However, since funding for activities in Romania is rather limited, only a small part of the requested funding was released and the team was requested to identify consultants of certain nationalities for the remainder. The TM advised ESMAP management that funds received were not sufficient to start the planned activities.

However, since completion of the reconnaissance phase in May '99, the Bank team has worked together with representatives of the Romanian public and private sector to prepare a project concept for a GEF Energy Efficiency project and, after it was formally included in the GEF pipeline end '99, and a PDF B proposal. The need for very focused upstream work on public policy support requirements, legislation, and regulations has now become clear, and the team will provide TOR and time schedule for this work in January 2000.
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*Excludes foreign exchange rate gain/loss.
**ESMAP**

Project Title: Energy Efficiency Technical Assistance - Monitoring And Targeting And Feasibility Of Third Party Financing

Theme: Energy Efficiency And Conservation

Origin of Funds: Switzerland, Core

Task Manager: Anke Meyer

Report Preparation Stages:

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* Redefined 11/95; ** Report for Phase I; *** Final report for Phase II received in 9/97

Objectives:

The general objectives of this redefined activity are twofold: (i) demonstration of Monitoring and Targeting (M&T) techniques to stimulate the development of energy management systems in Slovakia and, (ii) feasibility of Third Party Financing (TPF) to promote the use of M&T in Slovakia. The activity has been divided in two phases: (i) Phase I: M&T set-up at host sites including training, and (ii) Phase II: Achieving the Savings and TPF Study. The activity will be finalized in 15 months from activity initiation. The particular aims of this phased activity are to:

(a) recruit three host companies within the industrial and/or building sectors;
(b) carry out audits to identify where additional metering is required at the host sites;
(c) manage the installation of the M&T system into the host companies;
(d) train the host companies how to operate the M&T system with particular regard to how to set targets and motivate their staff to achieve them;
(e) ensure that energy saving measures are identified at the host sites such that they achieve an excellent payback period;
(f) investigate the possibility of using third party financing (TPF) to accelerate the uptake of M&T in Slovakia;
(g) develop a strategy to extend M&T/TPF throughout the country;
(h) write a project report and produce some brief case study documents to publicize the M&T systems and Feasibility Study of TPF; and
(i) organize Workshop to disseminate results.

Principal Tasks:

The main tasks for Phase I are:

(i) Finalize TOR of the redefined technical assistance activity
(ii) Select consultants and prepare contractual arrangements
(iii) Set-up M&T at host sites, consisting of:
   ⇒ Recruitment of host sites
   ⇒ Initial site visits and audits
   ⇒ Installation of M&T system and training

The main tasks for Phase II are:

(i) Implementation of M&T in the selected host sites
(ii) Feasibility Study for Third Party Financing
(iii) Development of a Strategy
(iv) Final Workshop to Disseminate Case Studies and TPF study results.

Project Results and Conclusions

The joint EC THERMIE Programme and ESMAP/World Bank funded project had the objectives to demonstrate the benefits of Monitoring & Targeting (M&T) and investigate the market for Third Party Financing of such projects in Slovakia. The project ran successfully from February 1996 to March 1998 in a two phase programme in Western and then Eastern Slovakia. The programme of work and project conclusions are summarised below:

6 industrial host companies were chosen to demonstrate the benefits of Monitoring & Targeting (M&T) in Slovakia. The companies represented the Glass, Paper, Lime, Engineering and Food & Drink Sectors.

Comprehensive energy management information systems were established at each of the companies utilising a total of over 580 energy meters. A budget of $12,000 was provided by The World Bank to cover some extra meters required by the sites in the first phase of the programme.
Energy Management software, known as MONTAGE, was installed at each of the sites and the respective energy managers were trained in how to use the software and specifically how to set performance targets for intensive energy users.

Accountability was placed on individuals for energy consumption via departmental reports and regular energy meetings with the consultants involved. Reports were produced weekly and performances were discussed every 4 weeks with the site management and consultants. Actions were identified both by the site staff and the consultants for energy and water savings and the effects of the actions were fed back to those involved in the project.

Specific studies were carried out on the largest consumers to provide energy and heat balances to identify where efficiencies could be improved.

Following approximately 9 months of running the energy meetings and carrying out specific studies savings were calculated for each of the three companies and case studies produced for dissemination throughout Slovakia.

The market for Third Party Financing (TPF) was investigated in Slovakia. This involved contacting finance organisations and assessing their willingness to provide Third Party Financing for M&T programmes in industry.

A market survey of the Slovak industrial sector was also carried out to assess:

- their awareness of M&T and its potential benefits
- the general degree of sub-metering at the largest enterprises
- the possible energy savings achievable from M&T
- their willingness to get involved in third party finance contracts

At the end of each phase, a dissemination seminar and training workshop were held (in Bratislava and Kosice) to spread the results of the project and help stimulate the uptake of M&T. More than 110 delegates participated at these events.

The results of the project were as follows:

- During the programme savings in excess of $470,000 p.a. were achieved at the 6 companies combined. Further potential savings of $620,000 p.a. have been estimated and identified throughout the programme. The majority of the savings were achieved through measures requiring minimal capital expenditure, although a number of capital investment projects were also identified during the course of the project. If the companies had employed consultants at the normal market rate then the payback would have been within 6 months, including the cost of the software and the extra $12,000 provided for extra meters. This proves the excellent return on capital available from our M&T programme in Slovakia, which is comparable with Western Europe.

- The industrial market survey identified the following:
  - savings of between $50 - $100 million p.a., equivalent to 10 TJ to 20 TJ p.a., are achievable from the implementation of M&T in Slovakia
  - the associated market for metering required is estimated to be of the order of $20 million, and the M&T software market around $2.5 million
  - the consultancy market for M&T is worth a total of between $5 million to $10 million over the next 5 years
  - All respondents to the questionnaire were interested in M&T and 80% would consider TPF as a possible route to obtaining the finance required to implement an M&T programme. It was also discovered that almost 90% of the industrial energy consumption is concentrated in 50-80 enterprises which means that the market is relatively easy to penetrate.

- There are very few companies providing Third Party Financing currently in Slovakia. To date, TPF energy contracts have concentrated solely on updating building heating controls. Slovakian Banks are generally reluctant to get involved in TPF contracts because they are also short of cash. There are, however, Western European and American TPF companies making a presence in Slovakia and it is felt that they will be the pace setters in the short-term.

In order to take advantage of the results of this project and further stimulate the market for M&T in Slovakia, it is recommended that the following strategy is developed:

1. Dissemination of the case study results to the industrial sector via:
   - direct mailing
   - seminars (EU, World Bank, SEI etc.)
   - further dissemination of case studies from EU, M&T programme (see Section 8).
   - Stimulation of the consultancy market in Slovakia via:
• direct training (SEI Auditor training course)
• seminars (as above).

2. Direct involvement of the 50-80 largest companies in Slovakia by way of an "M&T Feasibility Study" which will enable an assessment of the prime targets for further development in terms of:
• the companies with the largest number of meters already installed
• the companies with the largest potential for energy savings
• the companies with the most competent management to make M&T succeed
• the companies wanting TPF involvement.

The involvement of local consultants in this exercise would also partly address objective 2) above. From our experience a lot of the top 50 companies are currently assessing Information Technology (IT) requirements and this would be a good time to approach them for the integration of energy information into their planned systems.

Stimulation of TPF market through seminars and putting TPF contractor in direct contact with the companies identified in 3) above as wanting TPF involvement.

| Expected Project Completion Date (all project activities completed) | 04/99 |
| Expected Project Closing Date (all financial transactions executed) | 10/99 |

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*Excludes foreign exchange rate gain/loss.
Project Title: Sri Lanka Energy Environment Review

Theme: Energy and Environment

Origin of Funds: Core, Netherlands

Task Manager: Mohan Munasinghe

Project Development/Objective

To develop an integrated strategy and identify practical policy options to address key energy-environment issues, develop appropriate analytical tools, and strengthen local capacity through collaborative work with stakeholders.

Key Indicator

1. Identify key institutional and regulatory linkages.
2. Develop energy-environment modeling framework.
3. Analyze main energy-environment-economy links.
4. Quantify potential mitigation and damage costs.
5. Determine feasible policy options.

Expected Outputs

1. Identify key institutional and regulatory linkages.
2. Develop energy-environment modeling framework.
3. Analyze main energy-environment-economy links.
4. Quantify potential mitigation and damage costs.
5. Determine feasible policy options.
6. Local capacity building.

Key Indicator

1. Develop participatory approach
2. Build models
3. Gather data and run models
4. Gather data and run models
5. Response of policymakers to study results
6. Extensive training and use of local consultants

Implementation Progress

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Summary of Current Project Status, Issues and Actions

The launch workshop indicated in the work timetable (attached) was completed successfully in December 1998. It was attended by D. Lallement (ESMAP Manager) and M. Munasinghe (Task Manager) as well as consultants, senior decision-makers from the energy and environment sectors, senior executives from the business community, and both consumer and NGO representatives.

A further visit was undertaken by Mr. Munasinghe in April-May 1999, together with Mr. Meier (consultant). The local research collaborators were assembled and a successful workshop was held to explain and discuss specific objectives and to allocate tasks to team members. Data gathering and analysis commenced in May 1999. Two interim reports have been produced:


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*Excludes foreign exchange rate gain/loss.
**Project Title:** Solar Market Development

**Theme:** Rural and Household Energy

**Origin of Funds:** Netherlands, Core

**Task Manager:** Robert Van der Plas

**Report Preparation Stages:**

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**Objectives:**

To launch a program to develop the suppressed market for solar electric equipment as an alternative to extension of grid electricity into areas where this is not economically justified.

**Principal Tasks:**

(i) Develop with the GOS the details of the program and contract a local project manager.
(ii) Identify through ICB an equipment supplier to carry out the program.
(iii) Monitor the program.

**Summary of Current Project Status, Issues and Actions**

The consortium is testing different solar electricity market segments and entered discussions with a local bank to develop financing mechanisms. Initial results show that the lower-end market (panels only) is more interesting than foreseen. The company is adjusting its strategy accordingly. Shell, one of the partners in the consortium, indicated that it wants to become more active in developing a fee-for-service arrangement.

A consultant report will be issued by the end of 2000.

**Expected Project Completion Date (all project activities completed):** 3/30/01

**Expected Project Closing Date (all financial transactions executed):** 4/30/01

**Status of Funding**

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**Objectives:**

(a) Assist TANESCO in further consolidating, institutionalizing and expanding distribution planning techniques in zones not covered in the previous ESMAP project.
(b) Assist TANESCO in hydro reservoir management.
(c) Assist the Tanzania Department of Energy (DOE) and TANESCO in upgrading skills and awareness in electricity Demand Side Management (DSM) and assess the scope for DSM in selected large commercial/industrial installations.
(d) Assist TANESCO and DOE in undertaking feasibility studies of mini-hydro projects in the isolated western and southwestern regions.

**Principal Tasks:**

(i) Provide training to TANESCO staff in using computerized distribution planning techniques in other zones not covered under the ESMAP Power Loss Reduction and Network Development Project; identify hardware to be ordered and licenses to be obtained; enhance software to accommodate specialized tasks such as issuing construction work orders from the computerized mapping system, updating system maps and data retrieval.
(ii) Review hydrological data and establish a credible data base; establish monthly operating policies for the operation of the Mtera-Kidatu reservoirs; establish practical procedures for medium-term reservoir management and hydro/thermal coordination.
(iii) Review existing data and information on electricity use in large commercial/industrial buildings; conduct surveys if necessary; identify opportunities for DSM and evaluate cost and benefits and expected electricity demand reduction in the short to medium term.
(iv) Investigate the technical and economic viability of already identified mini-hydro schemes; provide a preliminary screening and ranking of prospective schemes; prepare investment program for the development of economic projects.

**Summary of Current Project Status, Issues and Actions:**

(i) An ESMAP mission reviewed TANESCO capability to operate computerized mapping and planning techniques. Although the area already computerized has been limited to a fifth of the medium voltage network and to a few low voltage network samples, the mission found that TANESCO staff had acquired satisfactory skills in those techniques. In order to make them profitable in the field, the mission decided to complement the equipment and the staff to apply computerization to the whole distribution network. The Power VI project will finance the equipment.
(ii) The development of a Hydro Reservoir Management Model was discussed with TANESCO. Power & Water Systems Consultants Ltd. (UK) was selected to undertake this activity. Two Pcs, peripheral equipment and software were bought and made available for TANESCO. PWSC delivered a first training session to TANESCO staff in July 1996. The TANESCO trainees could simulate short and long term operations before receiving the second training in November 1996. Consequently, they were able to ask for realistic improvements of the long-term and short-term programs. PWSC has implemented these final improvements. The software is now fully operational and provides Tanesco with estimates of power generation capability. Tanesco has consequently been able to schedule a load shedding programme well in advance of the very dry year anticipated for 1997.
An ESMAP mission was fielded in February 1996 to review the status of TANESCO DSM activities following the conclusion of ESMAP’s support in 1995. Together with TANESCO, the mission set up a proposal for follow-up assistance to translate the results of the strategy work into a comprehensive Project Implementation Plan for DSM. This Implementation Plan focuses on electricity demand management in Arusha, Dar-es-Salaam, Tanga, and Morogoro municipalities, and thereby establishes a rationalized basis for TANESCO to execute the DSM component of the ongoing Power VI Project. They also discussed the specific proposal that TANESCO will be presenting to the IEA-DSM Agreement (Annex V), including how the activities will complement capacity building requirement under the Power VI project. A mission was completed in Dar es Salaam and Arusha in May/June 1996. A program and a timetable were established to start DSM implementation in Arusha, Moshi, Tanga regions (power factor reduction, experimental time of use tariffs, energy conservation at industrial customers).

A DSM training session was held in Arusha in June 1996 just before the IEA meeting took place. This training session included a practical training exercise to prepare DSM implementation in an industrial site. However, the October 1996 ESMAP mission made it clear that logistics and commitment were still missing to go farther on the way to DSM implementation. The mission decided to widen the scope for DSM marketing to Dar es Salaam region large industries as a last chance to fulfill this DSM with TANESCO support. Not much progress was evident, however, at the time of the ESMAP mission in March 1997. Since early 1996, a Tanesco expert has been constantly participating in IEA Annex V on DSM technology in the marketplace.

Sivaguru Water Systems Consultants from India were chosen to deliver the mini hydro prefeasibility studies.

They collected data during a preparatory mission in June 1996. ESMAP and TANESCO finally decided to concentrate on isolated sites: Malagarasi, Mpanda, Ruvuma, Kikujetwa. Other sites will be briefly reviewed for a final checking as recent studies are already available for them. Three of the four sites were visited in October 1996. The initial reports show that these sites meet the required criteria for generation output at a cost of about $1000 per installed kW. During the ESMAP mission in March 1997, the Consultant and Tanesco have agreed on the format of the final reports designed to meet the requirements of the financial community in order to secure project funding. Following a September 1997 field mission, the Consultant delivered draft feasibility reports on Malagarasi, Kikujetwa and Ruvuma sites. For this last river, they finally chose to concentrate on a Ruvuma tributary that would be less politically sensitive than Ruvuma, which is a border with Mozambique. A reconnaissance report was also provided for Mpanda. Two Tanesco engineers have received training in Bangalore. They have gone through the draft reports and made comments.

The delivery of the submission of the mini-hydro report was delayed due to the severe flood in the country that resulted in the delay of the final mission in the field by the mini-hydro consultant until November 1998. The report is now available in draft form and is being circulated to prospective investors. Among these investors, the E7 consortium is showing particularly strong interest.

| Expected Project Completion Date (activities are completed): | Mar 2000 |
| Expected Project Closing Date (all financial transactions completed): | Jun 2000 |

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*Excludes foreign exchange rate gain/loss.
**ESMAP**

**Project Title:** Energy and Environment Review

**Theme:** Energy and the Environment

**Origin of Funds:** Core, World Bank, Others

**Task Manager:** James Moose

**Project Development Objective**

Support the Turkish Government in developing and implementing an energy-environment strategy, including key policy initiatives and prioritization of investment options for the energy sector.

**Key Indicator**

Introduction/Continuation of policies recommended by the project. Investments consistent with the energy-environment strategy and priorities developed under the project. GHG mitigation Strategy

**Expected Outputs**

- Energy and Environment Background Paper
- Revised Energy and Environment Background Paper
- Workshop for stakeholders and Governmental Organizations in Ankara
- Energy and Environment Issues and Options Paper
- Energy and Environment Strategy (Phase III)

**Key Indicator**

- First draft of paper completed by end of Fiscal 1999
- Issued by mid-September 1999
- Workshop should be held in Fall of 1999
- Paper should be issued in FY 2000
- Contents of Phase III not yet agreed, also no funding

**Implementation Progress**

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**Expected Dates for:**

- Project Completion (all project activities completed): 6/00 12/00
- Project Closing (all financial transactions executed): 3/01

**Summary of Current Project Status, Issues and Actions**

The first major mission to Turkey took place in April 1999. Based on that mission an initial draft of the Energy and Environment Background Paper was written and was reviewed in the Bank and in Turkey. After receiving comments the paper was revised and an Energy and Environment Issues and Options paper was prepared. This paper was discussed at a Workshop in Ankara on November 12, 1999. The Workshop was a considerable success with about twice as many persons attending as expected and attendees from both the private sector, NGOs, Universities and the Government. Based on the inputs of the workshop the paper will be finalized in January or February 2000. As a result of the Workshop nine special studies were agreed upon. These studies are: 1) energy demand; 2) electricity transmission and distribution losses; 3) coal/lignite mining; 4) emissions from the non-power sector; 5) renewable energy; 6) cogeneration; 7) management and utilization of solid waste from power plants; 8) the institutional/legal/regulatory framework for energy; 9) fuel oil quality and options for reducing the sulfur content of fuel oils.

Outside funding will be needed for many of these studies. In addition the Bank and the Government agreed that additional modeling work on Green House Gas emissions needs to be done and this work should be done primarily by the Turkish experts in MENR and TEAS with input from the Bank. Unfortunately the Turks will not be able to start their work before June 2000 due to previous commitments. These studies along with the additional modeling work will form the basis of phase III of the work. However, Phase III is unlikely to be finished before about 12/00.
### Status of Funding

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*Excludes foreign exchange rate gain/loss.
Project Title: Power Restructuring Implementation Strategy

Theme: Sector Reform And Restructuring

Origin of Funds: Core, Sweden

Task Manager(s): Mangesh Hoskote

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Objectives:

(a) Assist the Ugandan Power Sector Reform Committee (UPSRC) in assessing and evaluating commercial interfaces in a restructured power sector.
(b) Assist the UPSRC in disseminating an implementation strategy for sector reform and regulation.

Principal Tasks:

I. Discuss the commercial interface between gencos, distcos, and transco and assess the regulatory implication of such interface.
II. Review proposed market design including operation of hydro-independent power projects in a power pool environment under vesting contracts between generators and distributors; and
III. Organize and conduct a stakeholders' consultation workshop to disseminate power sector reforms, market operations, privatization of distribution, project financing of hydro IPPs, and management of contingent liabilities under government guarantees

Summary of Current Project Status; Issues and Actions

An Energy Assessment was completed in 1997, and a workshop conducted in 1998. The Government of Uganda requested, and ESMAP agreed, follow-up technical assistance in implementation of Government's power sector reform strategy. The ESMAP project launch was put on hold pending government's completion of a report on power sector reform and implementation strategy which required Cabinet approval.

The Bank's Africa Region was informed in June 1999 that the Cabinet has approved the government's power sector reform strategy. AFGT1 is in agreement with the objectives of this project, suggests that the project be launched, and recommends inclusion of a stakeholders' consultation workshop on the critical reform implementation measures such as market design and operations, distribution privatization, project financing of private hydro IPPs, and contingent liability management of government guarantees.

A workshop was held in October 1999 to discuss post-reform and privatization issues in Uganda's power sector reform. Attended by over 45 participants, issues of discussion centered around how a large hydro IPP would fit into the system, fiscal impacts of providing government guarantees, distribution privatization potential and scope, and lessons from international experience from other developing countries. The Minister requested a brief follow-up report on generation and distribution privatization in other developing countries and to distill lessons therefrom. This brief report will be completed by June 30, 2000.

Expected Project Completion Date (all project activities completed) 09/00
Expected Project Closing Date (all financial transactions executed) 12/00
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Project Title: Integrated Heat Demonstration Project

Theme: Energy Efficiency And Conservation

Origin of Funds: Netherlands, Core

Task Manager: Anke Meyer

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Objectives:

Demonstration of cost-effective and energy-efficient measures within a limited part of the heat and hot water supply network as well as in residential buildings in the city of Dnepropetrovsk/Ukraine.

Principal Tasks:

The project consists of three phases of which ESMAP is managing Phases 1 and 3.

**Phase 1**
- Preparation of the detailed project cost estimates for the selected supply option and building energy efficiency measures;
- Information and education campaign for the building inhabitants and household energy consumption survey; and
- Measurement campaign in the two buildings to produce baseline energy consumption data against which future energy savings will be evaluated.

**Phase 2**

The actual implementation of the project will be done under a turnkey contract and will be supervised by the Dutch government agency "SENTER". It will consist of:
- detailed engineering of the project
- preparation of tender documents
- preparation of the agreements with local subcontractors
- procurement of equipment and services (PSO)
- supervision of project implementation
- testing and commissioning of the equipment.

**Phase 3**

- Monitoring of equipment and evaluation of energy savings.
- Post-investment survey of participating households.
- Report on the results and the performance of the equipment and energy-efficiency improvements in the apartments, and workshop in Ukraine to present and discuss the results of the demonstration project.

Summary of Current Project Status, Issues and Actions

Phase 2 of the project has experienced substantial delays since summer 1998 caused by disputes between the beneficiary, the international consultant and Senter. The disputes revolve around the beneficiary not completing their share of the work in time and operating equipment in an improper way, and acceptance of installations and additional services and materials deemed necessary by the beneficiary to comply with Ukrainian norms and requirements and to be able to operate the equipment in the intended way after closure of the project. Senter approved additional budget for additional equipment and services in January 1999. Purchase requests were submitted early September and approved by Senter in late November. The equipment was purchased in the beginning of December will be delivered within about six weeks and installed within one or two weeks. Thus the project would be physically completed in early February. This slightly later than expected date would not impact on the project closing date.
Phase 3, project monitoring and evaluation, was continued after the beginning of the heating season in October 1999. The heat supply equipment and the situation in the apartments was monitored for several weeks at the beginning of the heating season and then evaluated. The main results are:

- Improvement of energy efficiency
- Reduction of energy losses
- Improvement of comfort levels
- Reduction of maintenance requirements

A dissemination seminar was held in Dnepropetrovsk on December 14, 1999. The total number of participants was about 80: officials from the Dutch Embassy, Dnepropetrovsk municipality, managers from DHCs in other cities in Ukraine, officials from state committees, institutes, etc. The seminar included information on project participants, presentation of the project results, and discussion about future possibilities. The consultants distributed an information brochure and are currently preparing the final report of the project.

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*Excludes foreign exchange rate gain/loss.
Project Title: Institutional Reform and Restructuring of PetroVietnam Gas Company

Theme: Sector Reform and Restructuring

Origin of Funds: Norway, Core, Others

Task Manager: Bent Svensson

Project Development Objectives

The objective was to prepare PetroVietnam Gas Company (PVGC) - the company assigned the role as a Gas Trader for the development of gas industry under the different phases of gas development.

Performance Indicator

Increased competence of PetroVietnam Gas Company (PVGC) in specific aspects of gas industry development as described below.

Expected Outputs

Phase 1: Training in four areas:
1. Project management and planning
2. Market development, pricing and regulation
3. Marketing and gas sales contracts
4. Organizational and Institutional Development

Development of a Competence Development Program for key areas of competence building.

Phase 2: Competence development and development of a corporate plan:
1. Gas Commercial skills: International Best Practices
   natural gas purchase contracts, condensate and LPG sales contracts.
2. Technical skills within the area of natural gas, LPG and condensates: International Best Practices for distribution, metering, standards, and operations
3. Finalization of organizational study and corporate plan for PVGC.

Key Indicator

Phase 1: Increased competence in the areas of:
1. Project Management
2. Natural gas marketing and contracting
3. Negotiation skills

Draft report on "PVGC Organizational Structure"
Draft Competence model

Phase 2: Increased competence in the areas of:
1. Natural gas contracts, in particular to power
2. Condensate contracts: sales and transport
3. LPG exports and shipping contracts
4. LPG marketing
5. Technical issues related to truck loading, gasoline blending, metering, and quality assurance.

Final organizational study

Implementation Schedule

Inception March 1997

Phase 1:
Main mission: July /August 1997
Discussion of Mission report with counterpart: October 1997

Phase 2:
Preparation for phase 2: June 1998
Gas commercial and technical skills: January 1999
Corporate plan for PVGC: December 1999
Draft report: December 1999

Summary of Assessments

Achievement of: Development Objectives -

Substantial Partial Negligible Not applicable

Expected Outputs

Substantial Partial Negligible Not applicable

Implementation Schedule

Substantial Partial Negligible Not applicable

Project Budget

Substantial Partial Negligible Not applicable

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During the course of the project PVGC has developed from a small company, employing 350 people and mainly distributing natural gas and LPG to relatively few customers, to a larger company with a staff of 800 people and new business areas. A new Managing Director was appointed in 1998. During this period the LPG and condensate production increased significantly. The contract for the first non-associated gas is expected to be signed in 2000 and PVGC will be responsible for the development of the gas market and later operation of the pipeline. PVGC is now more qualified to take on this task. However, more management training would be needed to make PVGC fully prepared. The Competence development program developed under phase 1 was too costly to be funded. The organizational study and corporate plan recommends interim steps to commercialize PVGC and to establish strategic business units around core businesses. Some of the recommendations for reorganization from phase 1 of the study are under implementation, such as establishing a trading core business but the implementation of the recommendations have only been partial.

During the training sessions each subject was presented and discussed in separate groups of managers in PVGC. On-the-job-training was new to the participants who were used to workshops and presentations and proved an efficient way to ensure full understanding of the subject. Discussions and cases were directly related to the participants' daily activities.

The Bank's lending to the energy sector in Vietnam has focussed on the electricity sector and the Bank has little leverage in the petroleum sector. The only leverage was a condition for the power company EVN to contract natural gas from Petrovietnam to the Phu My 2.1 power plant, financed under IDA Credit 2820-VN (Power Development Project). The ESMAP program in the petroleum sector has lead to a significant co-operation with Petrovietnam and increased the Bank's ability to give policy advice to the Government. Petrovietnam, however has proved to be a difficult client and the implementation of the recommendations have been slow.

Institutional Reform and Restructuring are very sensitive issues in most countries and in Vietnam, the Public Enterprise law and the Government's investment approval procedures set narrow limits for Restructuring of state companies. More commitment from the government on state enterprise reform would be required to achieve the reforms necessary.

Dissemination: (List any publications, conferences, seminars and/or workshops.)

A total of 11 weeks training were provided to Petrovietnam managers during sessions in phase 1 and 2. Three workshops for PVGC management and presentation for Petrovietnam HQ.


Dissemination of the final organizational study is planned.

Next Steps: (Describe follow-up steps, if any, regarding investment operations, technical assistance, etc.)

ESMAP has provided TA to Vietnam in the oil and gas sector to support the development of indigenous gas resources and to build up a modern gas industry. In addition to the current project, the assistance has comprised several elements: 1) advice on the design of fiscal terms for oil and gas exploration and development, 2) methods for enhanced reservoir management, 3) how to introduce gas in a safe and environmentally friendly way.

No follow-up is planned for the restructuring of PVGC. Currently, ESMAP provides TA to assist the GOV in revising the Petroleum Law to become a modern legal and regulatory framework for the petroleum sector and enabling Vietnam to attract foreign investment to develop the hydrocarbon reserves.

### Status of Funding as of 12/31/99:

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</table>
ESMAP

Project Title: Lead Phaseout Initiative
Theme: Energy and Environment
Origin of Funds: Netherlands, Others
Task Manager: Todd M. Johnson

Project Development Objective

To improve the quality of life and protect human health by eliminating lead from gasoline.

Key Indicators

Reduction in ambient lead levels, blood lead levels, and lead-related illnesses and mental impairment in Vietnam.

Expected Outputs

Policy development for lead phase-out,
Studies to assess the extent of the lead problem and evaluate policy options,
Implementation plan with short, and medium term actions for implementing lead phaseout,
Policy review and planning meeting.

Key Indicators

Recommendations and conclusions from the initial stakeholder meeting.
Baseline ambient lead levels and health surveys will be established on impacts of lead.
Quality and usefulness of the Action Plan.
Follow actions by government on elimination of lead in gasoline.

Implementation Progress

Component
1. Stakeholder workshop
2. Study of key issues
3. Development of the Action Plan
4. Policy review, planning and dissemination

Start | End
--- | ---
10/99 (rev. 11/99) | 10/99 (rev. 11/99)
10/99 (rev. 01/00) | 6/00 (rev. 8/00) (rev. 8/00)
10/99 (rev. 01/00) | 10/00 (rev. 11/00)
6/00 (rev. 8/00) | 6/00 (rev. 8/00)

Expected Dates for:

Project Completion (all project activities completed):

Original | Revised
--- | ---
10/00 | 12/00

Project Closing (all financial transactions executed):

Original | Revised
--- | ---
01/01 | 04/01

Summary of Current Project Status, Issues and Actions

The stakeholder meeting was held in Hanoi in November, bringing together major government agencies, national corporations, the municipalities of Hanoi and HCMC, and the media. The proposed schedule for the elimination of lead from gasoline was modified by the Ministry of Transport as a result of the workshop, based on the reports offered by the neighboring countries that have or are implementing lead phaseout (Bangladesh, Thailand, China, Korea, H.K., Philippines). It was agreed that the remaining issues would be evaluated as part of an implementation Action Plan, and that this work would commence immediately.

Following the workshop, the Bank prepared letters to the Deputy Prime Ministers in charge of energy and environment affairs, respectively, asking for a quick elimination of lead in Vietnam. Vietnam created a task force for the switch to unleaded petrol in December. A terms of reference for the Action Plan has been drafted and will be discussed and finalized with the Ministry of Transport in early January 2000.

Additional funding to help with the Action Plan and a parallel public information campaign has been secured or promised by the governments of Canada, Sweden, and the U.S.
### 7. Funding as of 12/31/99:

<table>
<thead>
<tr>
<th>Funding Source</th>
<th>Project Cost</th>
<th>Funds Received</th>
<th>Committed to Date</th>
<th>Disbursed to Date</th>
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<tr>
<td>ESMAP</td>
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<td>of which:</td>
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<td>190,000</td>
<td>10,413</td>
<td>10,413</td>
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</table>
The 9th Draft has been sent to all ministries and branches as well as social organizations: National Front of Vietnam, Labor's Union, Youth Union, Women Union, Union of Science - Technical Associations of Vietnam, the Association of Consumers Protection etc. After getting 29 comments from the above organizations, the 10th Draft has been prepared to submit to the Steering Committee, Consultants and WB.

From 23 August 1999 to 10 Sept 1999, the Ministry of Industry organized workshops with relevant local agencies as People's Committees, Departments of Industry, Departments of Justice, Departments of Science, Technology and Environment together with representatives of big consumers from Danang, HCMC and Hai Phong. The WG selected suitable comments to complete the Draft to submit to the Steering committee and the Ministry will submit it to the Government by end of 1999.

Summary of contents that have been received and amended in the Draft:

- There are many different opinions on level of details of the Draft's content. According to the majority, the Law should set up a stable legal framework, certainty of rights and obligations for electric activities, consumers and investors. However, in the circumstances of transitional stage to market economy with lots of fluctuations and changes in both institutional structures and management methods, the Law must be flexible enough reflecting through the secondary regulations so as to keep pace with the fluctuations and changes of the economy.

- Although Electrical Power Regulation is a new concept to Vietnam, most of comments on this issue from workshops and WB consultants have been absorbed in the Draft with principle contents and in the by-law decree on Regulatory Agency with details;

- Opinion on encouragement for private ownership, organization of power sector have been brought into the Draft with common principles in the form of diversification of participating economic sectors in investment and ownership in power generation and distribution; while the transmission and load dispatching functions are still under State ownership;

- Comments obtained from WB consultants and workshops on anti-monopoly, protection legal right and interest of consumer, issuance of license for electric activities have also been brought into the Draft and Decrees.

Results of overseas study tours

- After study tours on legal framework of some countries, members of the WG has gained knowledge and awareness on Electric Power Regulation, on process and method of changing management organization in power sector, on model of management, ownerships, domains for state ownership and fields for private ownership, on principle, method and formulation of defining electricity tariff and electricity market;

- Based on information collected and knowledge enlarged of legal framework for power sector and experience of power sector in some countries, the WG has applied some experience on Power Regulation, protection of consumer's right and interests, on anti-monopoly in power sale and purchase, on the forms and fields for investment and ownership in power sector, on establishment and approval of electricity tariff etc. to seek for comments from Steering Committee in order to explain during workshops and evaluation agencies of the Government and the National Assembly.

Follow-up steps:

- By the end of 1999, the Ministry of Industry plans to submit to the Government the Draft of Electricity Law and Decrees on Regulatory Agency, on Power Professional Inspection, on Administrative punishment in electric activities; other Decrees on Electricity Tariff, on issuance of license and on electricity network is under study and drafting.

- After receiving guidance from the Government, the Ministry of Industry will implement next steps in line with procedures defined in the Law on promulgating legal documents.

Expected Project Completion Date (all project activities completed): 10/99
Expected Project Closing Date (all financial transactions completed) 12/99

<table>
<thead>
<tr>
<th>Funding Source</th>
<th>Project Cost</th>
<th>Funds Received</th>
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<td>308,654</td>
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*Excludes foreign exchange rate gain/loss.
### Project Title:
Renewable Energy Action Plan

### Theme:
Renewable Energy

### Origin of Funds:
Sweden, Core, World Bank, Others

### Task Manager:
Susan Bogach

#### Project Development Objective

<table>
<thead>
<tr>
<th>Key Indicator</th>
<th>EVN improved performance in efficient rural renewable electricity supply</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>• At least 10 projects prepared by January 2001</td>
</tr>
<tr>
<td></td>
<td>• At least 5 employees with necessary skills in EVN’s HQ and Power Companies before EoP</td>
</tr>
<tr>
<td></td>
<td>• EVN established rural-renewable energy budget line before EoP</td>
</tr>
<tr>
<td></td>
<td>At least 3 donor supported projects prepared in an efficient way before January 2001</td>
</tr>
</tbody>
</table>

#### Outputs

<table>
<thead>
<tr>
<th>Key Indicator</th>
<th>a) Main report which includes: (1) three case studies; (2) section on policy, financial and institutional development; and (3) Renewable Energy Action Plan</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>A1) Identified technical, economic and market potential for renewable energy technologies for off-grid, isolated grid and on-grid applications</td>
</tr>
<tr>
<td></td>
<td>A2) Identification of at least 3 broader issues that cut across technologies (policy and planning)</td>
</tr>
<tr>
<td></td>
<td>B1) Draft final action plan and draft donor coordination</td>
</tr>
<tr>
<td></td>
<td>C) At least 100 people informed about the action plan.</td>
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</table>

#### Implementation Progress

<table>
<thead>
<tr>
<th>Component</th>
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<tbody>
<tr>
<td>1. Input from main stakeholder conference (original)</td>
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<td>May 99</td>
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<tr>
<td>2. Working groups</td>
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<td>November 99</td>
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<td>4. Final Workshop</td>
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<td>5. Input from main stakeholder conference (revised)</td>
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<td>6. Working groups</td>
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#### Expected Dates for:

<table>
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<th>Project Completion (all project activities completed)</th>
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<tr>
<td>Project Closing (all financial transactions executed):</td>
<td>July 2000</td>
<td>November 2000</td>
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#### Summary of Current Project Status, Issues and Actions

Following mission to Vietnam, detailed TORs were prepared for eight consulting assignments required to complete the REAP (involving both local and foreign consultants). Agreement was reached with EVN on which assignments would be funded by ESMAP and which would be funded from PHRD funds executed by EVN. Consultants were selected for all assignments and contracts are in place or being processed for all assignments. As part of the initial work, a local consultant was hired to work with the energy team in the Resident Mission in Vietnam, specifically on the REAP. She is now completing an initial draft of a study on policy and institutional issues with respect to grid-connected and off-grid renewable energy development. The first international consultants are now in the field and the study is beginning. The consulting studies are expected to be completed in April/May.
### Status of Funding

<table>
<thead>
<tr>
<th>Funding Source</th>
<th>Project Cost</th>
<th>Funds Received</th>
<th>Committed to Date</th>
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<th>Remaining Balance</th>
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Project Title: Reservoir Management Workshop And Upstream Fiscal Systems

Theme: Sector Reform

Origin of Funds: Core, Others

Task Manager: Bent Svensson

Report Preparation Stages:

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<tr>
<th>Activity Initiation Brief</th>
<th>White Cover</th>
<th>Yellow Cover</th>
<th>Green Cover</th>
<th>Final Cover</th>
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<td>n.a.</td>
<td>n.a.</td>
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</table>

Objectives:

To assist the GOV in defining measures to enhance discoveries through technical and fiscal incentives. On the technical side the study includes improved reservoir management international practice of reserve classification and assessment and evaluation including marginal fields. The fiscal incentives require acceptable PSC fiscal terms an efficient and transparent system for award and operation of contracts and a clear consistent gas pricing policy. Strategies for PSC terms include: A flexible fiscal formula providing for a reasonable Government take under a wide range of price scenarios.

Principal Tasks:

Phase 1:

Oil and Gas Reserve Classification
(a) Review of existing practices in reserve classification, assessment and evaluation.
(b) Development of a system to express existing reserve classification into international reserve classification.
(c) Development and implementation of a training program on reserve classification, assessment and evaluation.

Reservoir Management
(a) An introduction to the concept of reservoir management
(b) A presentation of the tools available for reservoir management
(c) Evaluation of recovery mechanisms and reservoir development strategy
(d) Preparation of an implementation program.

Phase 2:

Fiscal Incentives

The technical assistance on fiscal incentives include the following elements:
(a) Explore the possibility of more flexible gas terms in PSC contracts to avoid delays in the exploitation of gas discoveries due to negotiations of fiscal terms for each discovery.
(b) Analyze which of the following strategies for PSC terms that could provide the best incentives for exploration and production of oil and gas companies in terms of incentives for private exploration and development, government revenues and the development of reserves: a) a flexible fiscal formula providing for a reasonable Government take under a wide range of price and cost scenarios. The fiscal formula of subsequent gas fields could then be based on variations of this formula; and b) a fixed price linked to international petroleum prices.
(c) Decide whether to base the contractual agreements on JV terms or PSC taking into account taxation of petroleum companies in different parts of the world and financing options for the government's share.
(d) Identify ways to improve the transparency and timing of the bid award process.

Technical Incentives

The technical incentives include the following:
- Analysis of reservoir properties;
- Reservoir characterization and elaboration of geological models;
- Estimates of oil and gas reserves;
- Field development strategy;
Summary of Current Project Status, Issues and Actions:

Phase 2
The fiscal incentives part of the project under phase 2 is completed. The bid award process was discussed during a workshop in October (see P067826). A draft report on Petroleum Fiscal Issues and Policies for Fluctuating Oil Prices has been provided to Petrovietnam for approval for publication.

The final element of the project is to hold the workshop on Technical Incentives (which was delayed due to funding and contractual problems):
- Methods for analysis of reservoir properties and elaboration of geological reservoir models;
- Analysis and optimization of reservoir development strategy of the various structures in production or under development;
- Analysis of economics and prioritization of field development sequence of existing discoveries; and
- Optimization of field development synergy;
- The workshop is expected to take place in February, 2000.

Expected Project Completion Date (all project activities completed)
02/00

Expected Project Closing Date (all financial transactions executed)
05/00

Status of Funding

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<tr>
<th>Funding Source</th>
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<th>Disbursed to Date</th>
<th>Remaining Balance</th>
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* Excludes foreign exchange rate gain/loss.
**ESMAP**

**Project Title:** Revision of the Existing Legal and Regulatory Framework for the Petroleum Sector in Vietnam

**Theme:** Sector Reform and Restructuring

**Origin of Funds:** Denmark, Others

**Task Manager:** Bent Svensson

<table>
<thead>
<tr>
<th>Project Development Objective</th>
<th>Key Indicator</th>
</tr>
</thead>
</table>
| A Revision of the existing Petroleum Law to become a modern legal and regulatory framework for the petroleum sector, enabling Vietnam to attract foreign investment to develop the hydrocarbon reserves. | - Investments in exploration and production of hydrocarbons  
- Oil and gas production |

<table>
<thead>
<tr>
<th>Expected Outputs</th>
<th>Key Indicator</th>
</tr>
</thead>
</table>
| - Draft law and implementation decree  
- Draft Model contracts  
- Proposal for improved award system for petroleum blocks  
- Workshops | - Progress in drafting a Petroleum Law and Decree of international standard  
- Progress in drafting a Model contracts according to best international practice  
- Development of an Award system for petroleum blocks |

<table>
<thead>
<tr>
<th>Implementation Progress</th>
<th>Start</th>
<th>End</th>
</tr>
</thead>
<tbody>
<tr>
<td>1. Inception and Fund seeking</td>
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<td>8/99</td>
</tr>
<tr>
<td>2. Kick off workshop to determine the basic assumptions: the role of Petrovietnam, the role of IOCs, Contract forms, Arrangements for Cooperation, JVs. (Started one month later than scheduled)</td>
<td>9/99</td>
<td>9/99</td>
</tr>
<tr>
<td>3. Meetings with stakeholders, including IOCs in Vietnam about their expectations for the revision of the Petroleum Law</td>
<td>9/99</td>
<td>9/99</td>
</tr>
<tr>
<td>4. Study Tour for 10 members of the Working Group to meet with Governments, IOCs, regulators (No study tour)</td>
<td></td>
<td></td>
</tr>
<tr>
<td>5. Advice and discussions with Steering Committee and Working group</td>
<td>10/99</td>
<td>10/99</td>
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<tr>
<td>6. Comments on Draft Law and Decree</td>
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<td>7. Comments on Draft Model contracts</td>
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<td>2/00</td>
</tr>
<tr>
<td>8. Comments on Draft regulations for tendering of petroleum exploration blocks</td>
<td>1/00</td>
<td>2/00</td>
</tr>
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</table>

<table>
<thead>
<tr>
<th>Expected Dates for: Project Completion (all project activities completed):</th>
<th>Original</th>
<th>Revised</th>
</tr>
</thead>
<tbody>
<tr>
<td>Project Closing (all financial transactions executed):</td>
<td>3/00</td>
<td>7/00</td>
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**Summary of Current Project Status, Issues and Actions**

A Decision by the Prime Minister of June 14, 1999 established a Steering Committee and a Working Group for revision and supplementation of the Petroleum Law. An ESMAP mission launched the project October 15-30, 1999 a month later than scheduled due to late arrival of funding.

In a very successful kick-off workshop stakeholders from 60 organizations and companies were invited to discuss the present status of the current Petroleum Law and the issues related to its revision. ESMAP presented the international experience and trends in the Government take (including the sharing of economic rent and of possible windfall profits), trends in petroleum legislation and options for award systems. Current drafts of model contracts were reviewed by ESMAP.

Based on the presentations at the workshop, discussions with Steering Committee members and Working Group the ESMAP team identified seven main areas that were recommended revised and proposed options and recommendations for amendments. The Working group and the Steering Committee have prepared a first draft of the revised Petroleum Law that will be discussed in a workshop Jan. 2000. It was not possible to secure funding from donors for the study tour for the Working group.
7. Status of Funding as of 12/31/99:

<table>
<thead>
<tr>
<th>Funding Source</th>
<th>Project Cost</th>
<th>Funds Received</th>
<th>Committed to Date</th>
<th>Disbursed to Date</th>
<th>Remaining Balance</th>
</tr>
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<td>ESMAP</td>
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<td>of which:</td>
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Project Title: Decentralized Rural Electrification
Theme: Rural and Household Energy
Origin of Funds: Belgium, Core
Task Manager: Robert Van Der Plas

Report Preparation Stages:

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<th>Activity Initiation Brief</th>
<th>White Cover</th>
<th>Yellow Cover</th>
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<th>Final Report</th>
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<td>5/96</td>
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<td>n.a.</td>
<td>n.a.</td>
<td>12/99*</td>
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</table>

* Consultant report

Objectives:

The project will develop a rural electrification strategy, and launch several small scale pilot activities to test the feasibility of rural, decentralized electrification.

Principal Tasks:

(i) Review of literature, existing experience on decentralized electrification in Zimbabwe.
(ii) Organize pilot projects, in collaboration with NGO’s, other donor agencies.
(iii) Develop a rural electrification strategy.

Summary of Current Project Status, Issues and Actions

The final document has been submitted to ESMAP for printing. There are three pilot rural electrification projects ongoing and the use of the remaining money to evaluate the efforts and issue a status report is intended. Particularly one of the efforts (wind energy for village electrification) appears to be very interesting.

Expected Project Completion Date (all project activities completed) 10/99
Expected Project Closing Date (all financial transactions executed) 12/99

Status of Funding

<table>
<thead>
<tr>
<th>Funding Source</th>
<th>Project Cost</th>
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*Excludes foreign exchange rate gain/loss.
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**TOTAL** | **52 Projects** | **$18,657,384** | **$11,729,534** |
### ESMAP PORTFOLIO - Projects Completed in 1999

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**LEGEND**

- **Page Number**: Project(s) were active during the period of July 1-Dec 31, 1999, and reported in this volume on the listed page.
- **No Disbursements**: As of December 31, 1999, the project(s) were either awaiting matching donor funding or current ESMAP allocations were not utilized.
- **Activity Yet to Begin**: Project(s) were funded, but activity had not commenced as of December 31, 1999.
- **Publication in Process**: Development and publication of the project(s) final reports were the only activities reported since July 1, 1999.
- **To be Closed**: No project(s) activity reported from July 1-Dec 31, 1999; project(s) were awaiting financial closure on December 31, 1999.