

PD-ABQ-863

**FINAL REPORT
FOR THE
PRIVATE ELECTRICITY PROJECT**

Prepared for

His Majesty's Government of Nepal
Ministry of Water Resources
Electricity Development Center

Under the

USAID/Nepal Private Electricity Project
Contract No 367-C-00-95-05117-00
Project No 367-1073-3

October 1998

Prepared by

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Acres International Corporation Memorandum

To Mr B N Pradhan
Project Manager, USAID/Nepal

From James R Plummer
Project Manager

Date October 30, 1998

Subject Private Electricity Project
Contract No 367-C-00-95-05117-00
Final Report

In accordance with the USAID requirements in Clause 752 7026, Reports (Oct 1989), we are transmitting copies of the Final Report for the PEP contract

The Final Report summarizes the accomplishments of this assignment, methods of work used, and recommendations regarding unfinished work and / or program continuation. The report also provides a brief summary (synopsis) of each report as well as some of the key recommendations in order to assist the reader in locating information. In addition, the report provides two appendices, Appendix A which cross references activities to the technical specialists and deliverables, and Appendix B which includes copies of the Progress Reports issued during the course of the contract.

In our recommendations we have strongly supported USAID/Nepal's Private Sector Hydropower Development Project's Special Objective 4. In our support of this objective, we believe Acres can provide valuable assistance based on our experience and knowledge, to review and comment on any changes or revisions made in the following documents:

- ▶ Nepal Power Development Fund - Borrower's Implementation Plan
- ▶ Request for Qualifications and Request for Proposals for Development of Hydroelectric Projects for Development of Hydroelectric Project under Build, Own, Operate and Transfer (BOOT) Basis
- ▶ Nepal Project Benefits Model - PROBEN Model Documentation

We have appreciated the opportunity to work with USAID/Nepal on the Private Electricity Project, and the achievement of significant accomplishments in supporting EDC in its promotion of private investment and management of the hydropower sector. As USAID continues its assistance in Nepal, we would be pleased to be considered to provide technical services to support your current goals.

If you have any questions regarding our work or believe that any corrections should be made to the Final Report, please advise.

cc Scott Ferguson, AG Chief of Party

Table of Contents

1	Introduction	1-1
1 1	Purpose of Project	1-1
1 2	Organization of Report	1-1
2	Summary of Accomplishments	2-1
2 1	Major Accomplishments	2-1
2 1 1	Institutional Strengthening and Regulatory Broadening	2-1
2 1 2	Development of Guidelines for Environmental Review	2-2
2 1 3	Privatization Support	2-3
2 1 4	Procedures for Implementation of the Power Development Fund	2-4
2 1 5	Development of Financial Models	2-4
2 1 6	Requests for Qualifications/Proposals	2-5
2 1 7	Training	2-6
2 2	Reports	2-6
2 3	Training and Study/Promotional Tours	2-8
2 3 1	Training Activities	2-8
2 3 2	Study/Promotional Tours	2-10
2 4	Procurement	2-11
2 4 1	Furniture and Equipment	2-11
2 4 2	LAN System	2-12
2 5	Progress Reports	2-12
3	Description of Reports	3-1
3 1	Review of Institutional and Regulatory Arrangements for Private Investment in Nepal's Power Sector	3-1
3 2	Training Needs Analysis	3-2
3 3	Review of Licensing/Safety Standards and Procedures	3-2
3 4	Review of Project Inspection Procedures and Dam Safety	3-3
3 5	Strengthening EDC's Capacity for Environment Review and Management of Power Sector Projects	3-4
3 6	Review and Recommendations - Electricity Tariff Fixation Commission	3-5
3 7	Private Power Project Development - Financial Documentation	3-6
3 8	Risk Allocation and Mitigation for Private-Sector Financing of Hydroelectric Projects in Nepal	3-6
3 9	User's Manual Model Financial Pro Forma for Private Power Project	3-7
3 10	Request for Proposals for 402 MW Arun-III Hydroelectric Project on Build, Own, Operate and Transfer (BOOT) Basis	3-8
3 11	The Export of Power from Nepal - Evaluation of Opportunities	3-8
3 12	Interagency Consultation Process for Environmental Review of Hydroelectric Developments	3-10
3 13	Request for Proposals for Development of Medium Hydroelectric Project on Build, Own, Operate and Transfer (BOOT) Basis	3-11
3 14	Stakeholder Issues in Hydropower Development Projects	3-12
3 15	Nepal Power Development Fund - Borrower's Implementation Plan	3-13

Table of Contents (Cont'd)

3 16	Manual on Guidelines for Stakeholder Analysis	3-14
3 17	Review of Potential for Exempting Smaller Hydroelectric Projects from the Full EIA Process	3-15
3 18	Summary of Existing Guidelines and Regulations for Hydropower Licensing in Nepal	3-15
3 19	Interagency and Public Consultation Guidelines for Application for Production License	3-16
3 20	Request for Proposals for Power Development Fund Administrator	3-16
3 21	Institutional Issues Associated with the Financing of Small-Scale Power Projects Lessons from the Developing World and Implications for Nepal	3-17
3 22	Small Hydropower Project - Financial Simulation Model	3-19
3 23	Nepal Project Benefits Model - PROBEN Model Documentation	3-19
3 24	Request for Qualifications for Development of Hydroelectric Project on Build, Own, Operate and Transfer (BOOT) Basis	3-21
4	Methods of Work	4-1
4 1	Review of Existing Documentation	4-1
4 2	Interviews	4-2
4 3	Reviews	4-2
4 4	Software	4-3
5	Recommendations	5-1
5 1	Recommendations Included in USAID/Nepal's Private Sector Hydropower Development Project	5-1
5 2	Recommendations Included In Individual Reports	5-1
5 3	Summary Recommendations	5-2

Appendices

Appendix A	List of Activities, Responsible Specialists and Deliverables
Appendix B	Quarterly Reports

1 Introduction

This Final Report summarizes the work carried out under the Private Electricity Project (PEP) by Acres International. The contract was awarded in April 1995 and by a series of amendments the work in Nepal was extended through August 1998. This report summarizes the accomplishments of this assignment, methods of work used, and recommendations regarding unfinished work and/or program continuation. In addition, this report provides a brief summary of each report in order to assist the reader in locating information.

1.1 Purpose of Project

The purpose of PEP has been to promote private investment in and the management of the hydropower sector. This goal was accomplished through the provision of leadership and coordination by a Chief of Party, short term technical assistance, training and seminars focused on enhancing the institutional capacity of the Electricity Development Center (EDC) within the Ministry of Water Resources (MOWR), and procurement of commodities.

More specifically the project was implemented to

- Strengthen the institutional structure
- Broaden the regulatory framework
- Broaden privatization skills
- Provide advice in financial, legal and monitoring
- Procure commodities and provide administrative support
- Carry out formal training and promotional programs

1.2 Organization of Report

The report has been organized as follows:

- Section 2 Summary of Accomplishments identifies major accomplishment, provides a list of the reports prepared by specialists, outlines the training and study/promotional tour activities, lists the procurement of major commodities, and lists the progress reports issued during the contract.
- Section 3 Description of Reports provides a brief summary of the purpose or content of each report as well as some of the key recommendations.
- Section 4 Methods of Work provides an outline of the general methodology used by technical specialists for preparation of the various reports.
- Section 5 Recommendations provides a summary of the recommendations regarding unfinished work and/or the continuation of the program to support the privatization of electricity production in Nepal.
- Appendix A Provides a list of the activities as reported in Progress Reports, cross referenced to the technical specialist(s) responsible for the activity and the deliverables from that activity.
- Appendix B Provides a copy of the Progress Reports issued during the contract.

2 Summary of Accomplishments

This section summarizes the accomplishments of the PEP assignment under the following subsections

- ▶ *Major Accomplishments* which identifies major accomplishments with supporting references
- ▶ *Reports* which lists all reports by date completed as well as author
- ▶ *Training and Study/Promotional Tours* which identifies the various activities accomplished
- ▶ *Procurement* which lists major commodities procured as well as the installation of the LAN system
- ▶ *Progress Reports* which lists the main progress reports

2 1 Major Accomplishments

Major accomplishments are presented “*in bold italics*” under the following subheadings and supported with references to the completion of reports as well as other assistance provided by the technical specialists. The reports are referenced by title only in this section. Complete listings of the reports by title, author and date are provided in Section 2 2, Reports, and summary descriptions of the purpose or content of the reports as well as some key recommendations are provided in Section 3

2 1 1 Institutional Strengthening and Regulatory Broadening

Reviewed the institutional structure and regulatory framework of EDC and provided recommendations to strengthen the structure of EDC and broaden its regulatory role in the development of private power in Nepal.

This project goal was accomplished through a number of activities/reports which are summarized below. Initial assistance was provided as part of Phase I and served as the foundation on which the scope for additional technical assistance was developed and implemented. Phase I accomplishments focused on the institutional structure and regulatory functions of EDC and included the following activities/reports:

- “Review of Institutional and Regulatory Arrangements for Private Investment in Nepal’s Power Sector” which focused on strengthening the institutional structure of EDC to support the private sector electricity program including recommendations as necessary
- “Training Needs Analysis, EDC Pilot Group” which developed a sustainable process for continued evaluation and monitoring of the training and educational needs of EDC
- “Review of Licensing/Safety Standards and Procedures” which made recommendations regarding procedures and standards to be used by EDC in licensing and monitoring of projects

This effort to strengthen EDC was further expanded in Phase II of PEP and included

- Review of the guidelines and procedures for the environmental review process and the issues of managing the interests of stakeholders. These accomplishments have been presented separately in Section 2 1 2 below
- “Review of Project Inspection Procedures and Dam Safety” with recommendations regarding specific regulations for oversight during construction, quality control and inspection programs relating to dam safety

While the project goal to strengthen the institutional structure of EDC and expand its regulatory role were addressed in the activities/reports noted above, this theme continued throughout the efforts of technical specialists in other areas of accomplishments discussed below. For example, the assistance provided in the development of the Power Development Fund Borrower's Implementation Plan, financial models such as PROBEN to analyze the total benefits and feasibility of developments, and the preparation of RFQ and RFP documents for the solicitation of developers, have also supported this overall goal of institutional strengthening.

2.1.2 Development of Guidelines for Environmental Review

Reviewed the environmental regulatory process, providing clarification of guidelines and procedures for the environmental review process, identified both the environmental issues and the interests of stakeholders in the development of power projects and provided recommendations on the management of these issues, and made recommendation on the exempting of smaller hydroelectric projects from the full EIA process

The following reports/activities were accomplished

- "Strengthening EDC's Capacity for Environment Review and Management of Power Sector Projects" which reviewed the environment assessment process in Nepal including the standardized Environmental Impact Assessment procedures, and then focused on specific requirements and roles for environmental review, management and monitoring of public and private sector power projects licensed by EDC
- "Interagency Consultation Process for Environmental Review of Hydroelectric Developments" which included an assessment of current Nepalese regulations, guidelines, and experience with the agency consultation process for licensing hydroelectric projects, and provided recommendations of possible improvements which could be made to the process
- "Interagency and Public Consultation Guidelines for Application for Production License" which presented the recommended minimum procedures for conducting agency and public consultations for the EIA process associated with licensing a hydroelectric project in Nepal
- "Summary of Existing Guidelines and Regulations for Hydropower Licensing in Nepal" which summarized the licensing and environmental requirements that potential hydropower developers will face if proposing a hydroelectric project in Nepal. The basis of these guidelines provided valuable information to potential developers in an Appendix to the "Request for Qualifications for Development of Hydroelectric Projects on Build, Own, Operate and Transfer (BOOT) Basis"
- "Review of Potential for Exempting Smaller Hydroelectric Projects from the Full EIA Process" which examined the potential for implementing a regulatory process for exempting small hydroelectric projects, in the range greater than 5 MW capacity, from the full EIA process now required by the Environment Conservation Rules, and concluded that such a process is feasible from an environmental, technical, and regulatory perspective
- "Stakeholder Issues in Hydropower Development Projects" which identified a comprehensive list of stakeholder issues in the three stages of a hydroelectric development and how these issues are

related to the stakeholders' interests, and then addresses the analysis of these issues by applying relevant criteria and how these issues can be managed

- "Manual on Guidelines for Stakeholder Analysis" was written to assist the user in conducting stakeholder analysis for power development projects by facilitating the identification of stakeholders, understanding their concerns, and formulating appropriate strategies to manage their participation

The activities of these specialists as well as the interaction with EDC provided an understanding of the environmental review and management process, and specific guidelines for implementing regulations mandated by existing legislation

2 1 3 Privatization Support

Supported EDC's mandate to promote private power development for both domestic growth and export by providing reports, implementation plans, solicitation documents, financial analytical models and training

A significant accomplishment of PEP was its support of private power development activities by EDC. Initial accomplishments in this area included the following activities/reports by several specialists to provide reviews and recommendations, appropriate financial documentation, risk and financial analysis tools

- "Review and Recommendations - Electricity Tariff Fixation Commission" which provided an analysis of the Nepal's Electricity Tariff Fixation Commission and recommendations for strengthening its overall performance
- "Private Power Project Development - Financial Documentation" contains an overview of the financial documentation required in the implementation of power projects in the private sector. This report provided valuable insight into the needs of the developer in meeting financial documentation and supported the following reports on "Risk Allocation" and the development of RFQ's and RFP's for solicitation of competitive bidding
- "Risk Allocation and Mitigation for Private-Sector Financing of Hydroelectric Projects in Nepal", a discussion of the process of identification and mitigation of risk which is crucial to successful financing of a project
- "Financial Pro Forma Model for Private Power Project" is an analytical financial model for use in forecasting the financial impact of both solicited and unsolicited hydropower projects in the private sector and allows user to review buy-back rates, ratios of debt and equity, internal rates of return and other necessary financial indicators used in the assessment of proposed projects

During the period that the above noted activities/reports were being completed, support efforts were focused on the development of funding, financial analysis for negotiations, and the preparation of solicitation documents. Acres responded to this change by providing support in the following areas which have been detailed separately in order to identify the specific accomplishments in each of these areas

- Development of Guidelines for Environmental Review (Section 2 1 2)
- Procedures for Implementation of the Power Development Fund (Section 2 1 4)
- Development of Financial Models (Section 2 1 5)
- Requests for Qualifications/Proposals (Section 2 1 6)

In addition to these activities, technical specialists provided support to EDC throughout negotiations for the development of the Khimti and Upper Bhote Koshi hydroelectric projects, both of which are now under construction. The Export Benefits/Valuation Expert also provided financial analysis support during the negotiations for the West Seti project.

2 1 4 Procedures for Implementation of the Power Development Fund

Developed procedures for Implementation of the Power Development Fund (PDF) for the funding of power projects, prepared a RFP to solicit the services of a Fund Administrator, and drafted a report which identified sustainable models for investment in small-scale projects that could contribute to Nepal's rural electrification deficit by utilizing monies from the PDF

Three reports were drafted to provide the procedures for implementation of the PDF and to secure the services of a Fund Administrator. The following three reports were authored by the PDF Specialist:

- "Nepal Power Development Fund - Borrower's Implementation Plan (Recommendations and Guidelines for Fund Implementation)" is the manual for the administration of funding support for medium sized hydroelectric projects.

The completion of this *final draft report* of the Nepal Power Development Fund - Borrower's Implementation Plan was a major accomplishment. It has been reviewed and received general acceptance by EDC, MOWR and the World Bank. Moreover, the support provided by this activity has maintained the momentum and interest to implement the PDF which is key in alleviating various financial constraints for private power development in Nepal.

- "Request for Proposals for Power Development Fund Administrator" which sets forth the bidding process for the solicitation of services for the PDF Administrator and includes sections such as Information to Bidders, Instruction to Bidders, and Proposal Evaluation Process.
- "Institutional Issues Associated with the Financing of Small-Scale Hydropower Projects: Lessons from the Developing World and Implications for Nepal" addresses the opportunity to utilize the PDF for smaller projects by assisting EDC's efforts to identify sustainable models for investment in small-scale project that could contribute to Nepal's rural electrification deficit.

2 1 5 Development of Financial Models

Developed models to analyze the financial feasibility of power developments and to evaluate the total benefits of developments in order to assist EDC in negotiating agreements with potential developers with increased benefits for Nepal.

Several financial models were developed to analyze the financial feasibility of power developments and evaluate the benefits of a development in order to help EDC negotiate agreements with potential

developers. The following three models were developed and accompanying manuals were authored by six specialists. The principal model developed is the “Nepal Project Benefits Model - PROBEN Model Documentation” which allows the greatest flexibility of inputs and outputs for the evaluation of total project benefits. It has a number of similarities with the “User’s Manual Model Financial Pro Forma for Private Power Project”. A discussion of the application of these models has been provided in Section 3.23.

- (a) “Nepal Project Benefits Model - PROBEN Model Documentation” [*PROBEN replaced and upgraded NEPSIM, which had been issued as a separate report*] is a custom-developed tool to assist EDC in
- evaluating power export policy alternatives and formulate recommendations
 - assessing and comparing developer’s proposals
 - quantifying the net benefits to Nepal, including downstream benefits
 - assisting in negotiations with potential developers and downstream beneficiaries
 - understanding the linkages between HMG/N policy, power production, export prices, project economics, project finance and developer viability
- (b) “User’s Manual Model Financial Pro Forma for Private Power Project” is an analytical financial model for use in the forecasting the financial impact of both solicited and unsolicited hydropower projects in the private sector, and allows the user to review buy-back rates, ratios of debt and equity, internal rates of return and other necessary financial indicators used in the assessment of proposed projects.
- (c) “Small Hydropower Project - Financial Simulation Model” (*SmallFinSim*) provides EDC and MOWR with a simple tool for analyzing the commercial viability of small-scale hydropower projects that may be eligible for funding under the World Bank’s proposed PDF “second window”.

2.1.6 Requests for Qualifications/Proposals

Prepared Requests for Qualification and Proposal documents to solicit qualifications and competitive bids from developers for the development of power projects for both domestic and export power.

Requests for Qualifications and Proposals were drafted to solicit and select qualified bidders, and to request and evaluate competitive bids for the development of power projects by developers on a Build, Own, Operate and Transfer (BOOT) Basis. The following three draft documents were prepared and authored by the technical writer:

- “Request for Proposals for 402 MW Arun-III Hydroelectric Project on Build, Own, Operate and Transfer (BOOT) Basis”
- “Request for Proposals for Development of Medium Hydroelectric Project on Build, Own, Operate and Transfer (BOOT) Basis”
- “Request for Qualifications for Development of Hydroelectric Projects on Build, Own, Operate and Transfer (BOOT) Basis”

These documents were prepared to support the qualification and competitive bidding process for private power developments. The reports provide detailed background information needed by developers, the process for qualifications and/or bidding, and the evaluation criteria to be used by EDC. These documents also contain processes and detailed forms to facilitate bid preparation and review, as well as ensure a fair and transparent process.

As part of this activity, the Technical Writer prepared Annex A 1, Copies of Policies, Acts and Regulations Relevant to Power Development in Nepal, to serve as a resource document to assist developers in accessing this information.

In addition to the above documents, the Technical Writer reviewed and prepared a draft Request for Qualifications for the Arun-III project which EDC used to solicit qualified bidders for the development of this project.

2.1.7 Training

Organized formal training courses and workshops which built skills and transferred information relevant to the mandate of EDC to promote private power developments in Nepal.

While training was integral with the activities discussed above, the planning and implementation of this activity was considered a separate activity. As such, the major accomplishments of training are listed below and have been summarized in Section 2.3, Training and Study/Promotional Tours.

(a) Formal Training

- Finance and Economics
- Contract Law and Negotiation
- Basic Management
- Effective Negotiation for Power Sector

(b) Workshops

- Project Monitoring/Inspection
- Rate Design and Tariff Analysis
- Project Benefit Analysis
- LAN System

2.2 Reports

Reports prepared have been listed in Table 2-1 and have been listed in order of date completed.

Table 2-1
List of Reports

Title	Author(s)	Date
Phase I		
Review of Institutional and Regulatory Arrangements for Private Investment in Nepal's Power Sector <i>Final Report</i>	Lawrence M Haas Environmental/Social Planning Specialist	September 1995
Training Needs Analysis EDC Pilot Group <i>Final Report</i>	Lloyd Haase Human Resources Development Specialist	September 1995
Review of Licensing/Safety Standards and Procedures <i>Final Report</i>	Foster Pelton Specialist Power Operations/Safety	September 1995
Phase II		
Review of Project Inspection Procedures and Dam Safety <i>Final Report</i>	Foster Pelton Specialist Power Operations/Safety	February 1996
Strengthening EDC's Capacity for Environment Review and Management of Power Sector Projects <i>Final Report</i>	Lawrence M Haas Environmental/Social Planning Specialist	April 1996
Review and Recommendations Electricity Tariff Fixation Commission <i>Final Report</i>	Terry M Pratt Tariff Specialist	August 1996
Private Power Project Development - Financial Documentation <i>Final Report</i>	Foster Pelton Specialist Power Operations/Safety	August 1996
Risk Allocation and Mitigation for Private Sector Financing of Hydroelectric Projects in Nepal <i>Final Report</i>	Michael S Ashford Financial Contracts Specialist	August 1996
User's Manual Model Financial Pro Forma for Private Power Project (w/disk for Model) <i>Final Report</i>	Michael S Ashford Financial Contracts Specialist	August 1996
Request for Proposals for 402 MW Arun-III Hydroelectric Project on Build Own Operate and Transfer (BOOT) Basis <i>Second Draft Report</i>	James R Plummer Technical Writer	April 1997
The Export of Power from Nepal - Evaluation of Opportunities <i>Final Report</i>	Donald Priestman Export/Valuation Specialist	August 1997
Interagency Consultation Process for Environmental Review of Hydroelectric Developments <i>Draft Report</i>	Peter S Foote Environmental Specialist	March 1998
Request for Proposals for Development of Medium Hydroelectric Project on Build Own Operate and Transfer (BOOT) Basis <i>Draft Report</i>	James R Plummer Technical Writer	March 1998
Stakeholder Issues in Hydropower Development Projects <i>Draft Report</i>	Dr Jagadish C Pokharel Stakeholder Analyst	March 1998
Nepal Power Development Fund - Borrower's Implementation Plan (Recommendations and Guidelines for Fund Implementation) <i>Final Draft Report</i>	Randolph S Lintz Power Sector Development Fund Specialist	May 1998
Manual on Guidelines for Stakeholder Analysis <i>Draft Report</i>	Dr Jagadish C Pokharel Stakeholder Analyst	June 1998
Review of Potential for Exempting Smaller Hydroelectric Projects from the Full EIA Process <i>Draft Report</i>	Peter S Foote Environmental Specialist	June 1998

Title	Author(s)	Date
Summary of Existing Guidelines and Regulations for Hydropower Licensing in Nepal <i>Draft Report</i>	Peter S Foote Environmental Specialist	June 1998
Interagency and Public Consultation Guidelines for Application for Production License <i>Draft Report</i>	Peter S Foote Environmental Specialist	June 1998
Request for Proposals for Power Development Fund Administrator + Request for Expressions of Interests <i>Draft Report</i>	Randolph S Lintz Power Sector Development Fund Specialist	August 1998
Institutional Issues Associated with the Financing of Small Scale Hydropower Projects Lessons from the Developing World and Implications for Nepal <i>Draft Report</i>	Randolph S Lintz Power Sector Development Fund Specialist	August 1998
Small Hydropower Project - Financial Simulation Model (w/disk for Model) <i>Draft Report</i>	Randolph S Lintz Power Sector Development Fund Specialist	August 1998
Nepal Project Benefits Model PROBEN Model Documentation (w/disk for Model) <i>Draft Report</i>	Dan Ruiu Export/Valuation Specialist Clark C Smith Water Resource Engineer	August 1998
Request for Qualifications for Development of Hydroelectric Project on Build Own Operate and Transfer (BOOT) Basis <i>Seventh Draft Report (dr-7a)</i> <i>Annex A 1 - Copies of Polices Acts and Regulations Relevant to Power Development in Nepal</i>	James R Plummer Technical Writer	September 1998

2 3 Training and Study/Promotional Tours

2 3 1 Training Activities

The following training activities were undertaken during the course of the contract

(a) Workshops

The Power Operations/Safety Specialist demonstrated the steps in the inspection process by jointly inspecting selected sites with staff of EDC. He conducted field instruction on the procedures used in the inspection process and formulated the types of reports to be submitted. The specialist with staff from the Inspection Division of EDC, during the period February 17 - 20, 1996, visited the Marsyangdi hydroelectric project and the first and second Kulekhami hydroelectric projects.

The Tariff Specialist and Chief of Party presented a workshop for EDC staff on rate design and tariff analysis in July 1996.

The Technical Writer conducted a three day interactive review with senior EDC staff of the draft "Request for Proposals for Development of a Hydroelectric Project (Arun-III) on a Build, Own, Operate and Transfer (BOOT) Basis" in March 1997.

The Export/Valuation Benefits Specialist and Hydropower/Water Resource Engineer presented a workshop including training in the use of the NEPSIM model for the evaluation of benefits from power developments to thirteen EDC and MOWR staff in June 1997. NEPSIM model was later updated with PROBEN followed by another workshop in August 1998 which is described below.

The Stakeholder Analyst and Environmental Specialist presented a one day workshop to EDC and MOWR staff on the identification and managing of stakeholder issues, and the interagency consultation process which is part of the environmental assessment for power projects.

As part of the Local Area Network (LAN), special efforts were made to enhance the level of preparedness of EDC personnel that will have access to personal computers (PCS). Emphasis was put on the use of local trainers presenting four separate courses:

- LAN components and operations, and the use of the Windows NT operating system - four participants
- PC hardware and software for executives - five participants*
- beginner level course on PC hardware and software - seven participants
- intermediate level course on PC hardware and software - 12 participants

* To facilitate the attendance of EDC executives, Acres organized a PC mini-lab on the EDC premises. All the lessons for EDC executives were presented in that mini-lab.

Classes were presented in a "daily, two-hours per session" format. The LAN course was presented over a three week period, while the three courses on PC hardware and software were presented over a period of approximately two months. Based on the reactions from course participants, the level of satisfaction was high.

The COP and Export/Valuation Specialist along with the Water Resources Specialist presented a training course for the users of the Project Benefit Evaluation (PROBEN) computer program. The course was successfully presented to about 20 attendees from EDC, MOWR and other organizations. PROBEN is a powerful tool which can be used for:

- evaluating alternative policy impacts and formulating policy
- analyzing and comparing developer proposals
- negotiating with potential developers

(b) Finance and Economic
(April 25 - May 24, 1997)

Mr S B Malla	Sr Div Eng	EDC
Mr A Acharya	Sr Div Eng	EDC
Mr J K Mackey	Sr Div Eng	MOWR

(May 16 - June 15, 1997)

Mr D N Manandhar	Sr Div Eng	EDC
Mr S L Shrestha	Sr Div Eng	EDC
Mr R K Kshatri	Under Secretary	MOWR

(c) **Contract Law and Negotiation**
(August 30 - September 16, 1997)

Mr T N Adhikari	Legal Officer	EDC
Mr B Karki	Section Officer	EDC

(d) **Basic Management Program**
(September 1 - 26, 1997)

Mr L R Shrestha	Chief Accounting Officer	EDC
Mr M B Gewali	Under Secretary	EDC

(e) **Effective Negotiation for Power Sector Seminar
and Columbia River Study Tour**
(June 14 - June 30, 1998)

Acres in association with Technical Support Services and Macro International sponsored a three day seminar in Washington, DC on Effective Negotiation for Power Sector (also known as dispute resolution) Participants were also taken to FERC to meet with officials responsible for licensing This was followed by a study tour of the Columbia River with presentations on the treaty between United States and Canada for the shared use of benefits of the waters in the Columbia River The emphasis of this tour was to receive information on the lessons learned by the participating parties in this agreement on such matters as compensation for downstream benefits, environmental issues and changes in the market price of electric power The program included meetings with officials from Seattle City Light, Bonneville Power Administration, and B C Hydro as well as plant operating personnel

Mr L P Upadhyaya	Special Secretary	MOWR
Mr R D Sahu	Deputy Director General	EDC

(f) **Effective Arbitration, Mediation and Dispute Review**

Acres arranged for Mr Angira Acharya (EDC) to attend a two-week course in Washington D C on "Effective Arbitration, Mediation and Dispute Review" for solving disputes in infrastructure projects Unfortunately, the organizers, the Institute for Public - Private Partnerships, cancelled the course without any warning or justification one day before Mr Acharya's scheduled departure

2 3 2 Study/Promotional Tours

(a) **Presentation Materials**

Acres staff assisted in the updating and refining of formal promotional presentations to illustrate the projects available for development in Nepal Presentations were given at conferences and seminars held in the region as well as on promotional tours to the United States

(b) **Study/Promotional Tours to United States**

Under the sponsorship of the United States Energy Association, two persons from EDC and MOWR attended workshops and seminars in the United States during the period July 5 - 18, 1996

A study/promotional tour to the United States with the purpose of providing formal information to bankers, developers and other interested parties regarding the private sector power opportunities in Nepal took place from November 17, 1996 to December 6, 1996. Participants in the tour were

Dr K B Aryal	Deputy D G	EDC
Mr B B Thapa	Deputy D G	EDC
Mr B B Karki	Deputy D G	EDC
Mr S N Shukla	Minister	MOWR
Mr M P Ghumire	Under Secretary	MOWR
Mr B M Shakya	Joint Secretary	MOWR

(c) **Power Generation - Regional Conferences**

Mr B B Karki	Deputy D G	EDC	Delhi	September 17 - 19, 1996
Mr S B Malla	Sr Div Eng	EDC	Delhi	October 23 - 31, 1996
Mr B B Karki	Deputy D G	EDC	Singapore	September 7 - 13, 1997
Mr B B Karki	Deputy D G	EDC	Delhi	November 3 - 7, 1997
Dr K B Aryal	Deputy D G	EDC	Singapore	May 1998

(d) **Hydro Vision 98 Conference - Reno**
(July 27 - August 2, 1998)

Acres arranged for Mr Bidur B Karki and Mr Sunil B Malla to travel to Reno, Nevada in the United States in August to attend Hydro Vision 98 in order to present a paper to encourage private power development in Nepal

2.4 Procurement

2.4.1 Furniture and Equipment

Acres procured and maintained the furniture and equipment needed to carry out the work of specialists. Five office rooms were furnished and equipped with current computer hardware and software, printers and communications systems.

The following list summarizes the major types and number of items of furniture and equipment procured:

Office Furniture	Tables, desks, chairs, shelves, file cabinets, etc
Office Equipment	Fans, heaters, telephone system, etc
Desk Top Computers (PEP Office)	5 No
Desk Top Computers (EDC Office)	7 No
LAN Server	1 No
Lap Top Computer	1 No
Printers	6 No
Copiers	1 No
Computer Peripherals	Modems, power stabilizers, switches, etc
Computer Software	Windows 95, Word Perfect, Microsoft Office, Lotus, etc

2 4 2 LAN System

Acres completed the design, procurement and installation of a Local Area Network (LAN) for use by project specialists during the latter part of the contract (May 1998). The LAN was comprised of one server with five work stations and three printers. Following the success of this installation, Acres coordinated the extension of the LAN to include workstations in offices of the Director General, Deputy Director Generals (3) and the Computer Center. Training was provided as well.

2.5 Progress Reports

Progress reports were prepared by the Chief of Party and issued to USAID/Nepal and EDC during the course of the contract. These reports summarized the activities set forth in the work plan for the period being reported, the results achieved in each activity and any problems encountered. These reports also identified issues or subjects for further study.

In these progress reports, activities have been referenced 'alphabetically'. For example, the initial commodity acquisitions was referenced as Activity A, the institutional review/recommendations as Activity B, and so on. These alphabetical references have not been used in this final report, but have been cross referenced between these activities, the responsible specialist and deliverables (accomplishments) in Appendix A.

Copies of the progress reports for the following periods have been included in Appendix B:

- ▶ July - December 1995
- ▶ January - March 1996
- ▶ April - June 1996
- ▶ July - September 1996
- ▶ October 1996 - September 1997
- ▶ October - December 1997
- ▶ January - March 1998
- ▶ April - June 1998
- ▶ July - August 1998

In addition to the progress reports, interim reports were prepared and issued to USAID during the course of the contract.

3 Description of Reports

This section provides a summary (synopsis) of the purpose or content of each of the reports prepared during this assignment as well as some of the key recommendations

3.1 Review of Institutional and Regulatory Arrangements for Private Investment in Nepal's Power Sector

(Final report dated September 1995, authored by Lawrence M. Haas)

(a) Synopsis

This report provides an analysis of the external and internal institutional environment of the Electricity Development Center (EDC) and its role in promoting private power development in Nepal. The report was completed during the first stage of the Private Electricity Project (PEP) in September 1995, with the aim of providing input to EDC directly on evolving regulatory and institutional matters, and input on the orientation of future PEP support activities for EDC.

For the purposes of this report, the institutional environment is broadly defined. The existing legislative framework, regulatory structure, regulatory process, and the institutional arrangements to promote and facilitate private investment in Nepal's power sector are considered. Specific recommendations are provided on steps to strengthen the organizational capacity of EDC in regard to its role: firstly in providing administrative capability for economic, technical, and safety regulation for both public and private elements of the industry, secondly as His Majesty's Government of Nepal's (HMG/N) designated vehicle for formulation and delivery of private power investment promotion programs, and thirdly as the operational entity for the "one window" system for simplifying interaction between private investors and government authorities involved in power infrastructure.

(b) Recommendations

Summary, conclusions, and recommendations are provided on strengthening regulatory and institutional arrangements to provide immediate input to EDC on regulatory and institutional matters for private power development and input to decide the orientation of future technical and training support to EDC under the PEP project. In certain instances, recommendations address issues relating to both public and private sector segments of the industry. This recognizes the interdependent nature of joint public and private sector involvement in power infrastructure development and operation, and EDC's regulatory role covering both public and private sector participants in the power industry.

Categories used in providing recommendations are in Section 5 of this report and include 24 pages of detailed documentation under the following headings:

- General
- Legislative Framework and Laws
- Power Industry and Regulatory Structure
- Regulatory Process and Procedures
- Incentives and Provisions for Private Investment
- Institutional Roles and Linkages
- Organizational Structure and Institutional Capacity
- Priorities for the PEP

3 2 Training Needs Analysis

(Final Report dated September 1995, authored by Lloyd Haase)

(a) Synopsis

This report outlines a Human Resource Development (HRD) process for EDC, and presents results of a training needs analysis conducted for the selected pilot group, the Privatization Directorate, within the EDC professional staff

The HRD process provides a logical framework for relating training activities to the enhancement of on-job performance. The process has an annual cycle of activities interrelated to work plan preparation and execution. Maintenance of the HRD process may be considered to be a routine management responsibility, and a resource to achieve organizational objectives.

The training needs analysis considered the types of knowledge and skills required in EDC for the organization to implement its mandate, and more specifically, identified the areas where job-related knowledge and skills need to be enhanced through formal and non-formal training. The core aspect of the training needs analysis was the identification of individual training priorities and learning objectives.

The results of the analysis were used as an input to design the training program for the PEP Project extension scheduled to run from January 1, 1996 through January 31, 1997.

(b) Recommendations

The HRD process outlined in this report is recommended for adoption by EDC. HRD can be an effective and powerful management tool. The use of HRD procedures will help in achieving broader organizational objectives by maintaining and improving staff capabilities related to job performance. The capacity of an organization to initiate change, or to respond to changing external circumstances is also heavily dependent on its human resource capacity (ie, the sum of the knowledge, skills and attitudes existing within the organization). EDC itself is an organization with a complex, pro-active mandate operating in a dynamic field.

HRD nevertheless has to be organized in a systematic and effective manner. The methods of upgrading skills related to job performance should be simple, efficient and cost effective.

In addition to the above general recommendations, the report provides a number of specific recommendations to be utilized by EDC under the headings of

- Resources, which discusses programs, facilities and advisors/trainers
- Formulation of the Training Program
- Ongoing Implementation of the HRD process

3 3 Review of Licensing/Safety Standards and Procedures

(Final report dated September 1995, authored by Foster Pelton)

(a) Synopsis

This report reviews the safety and operational regulations for the licensing, construction, and operation of hydroelectric generation facilities under the purview of EDC. It focuses on the development of guidelines for the "process" of assuring compliance with defined safety standards over the construction and operational life of such facilities.

The report includes

- discussion of standards and procedures recognizing that EDC will have to establish detailed standards and procedures relating to the particular needs of Nepal
- analysis of the overall private power development framework
- recommendations for necessary levels of training for operations/safety staff to enhance EDC's capability for preparation and implementation of guidelines/safety standards related to the power sector
- examples of safety guidelines and operational monitoring policies for private power projects in other countries and a comparison to what are in-place in Nepal

(b) **Recommendations**

This reports suggests measures for institutional strengthening, recommends levels of the necessary staff training, and recommends concrete guidelines/standards for incorporation in the regulations

(c) **Other**

The Power Operations/Safety Specialist, provided a collection of documents related to existing International Safety Standards (civil, electrical, mechanical and environmental) of representative developed and developing countries related to design, construction, operation and maintenance of hydropower projects

3 4 Review of Project Inspection Procedures and Dam Safety

(Final report dated February 1996, authored by Foster Pelton)

(a) **Synopsis**

This report refers to the Electricity Act 2049 and the implementing regulations contained in the document "Electricity Regulation 2050" which provides authority and responsibility to EDC for reviewing applications and making recommendations to HMG/N regarding the issuance of licenses for the construction and operation of hydroelectric generation facilities

The safety and operational regulations for the licensing, construction, and operation of hydroelectric generation facilities under the purview of EDC, were reviewed in the report entitled "Review of Licensing/Safety Standards and Procedures " The recommendations in this report included items relating to the regulatory oversight of project construction and operation, and to dam safety

EDC is also responsible under the Electricity Act and the Electricity Regulation for monitoring both the construction and operation of licensed facilities This report focuses on recommendations and guidelines for regulatory oversight during the construction phase of projects, for the further development of quality control inspection programs, for the further development of formal procedures relating to dam safety, and for the review of existing/proposed projects and includes

- regulatory oversight during construction (Section 2) It is recommended that regulations be made to require holders of production licenses to provide documentation to EDC of design criteria to be adopted in the detail design phase and that prior to construction they should submit to EDC construction drawings and specifications together with details of any flow diversion measures, cofferdams, or other means to be used for controlling water during construction Production licensees should also submit to EDC a quality control inspection program (QCIP) plan, a sediment and erosion control plan, and a temporary emergency action plan prior to commencement of construction Typical QCIP, sediment and erosion control, and temporary emergency action plan requirements are set out in Section 3

- typical aspects of dam safety programs, including hazard potential classification, overall design parameters, routine operation and inspection procedures, major inspections, emergency action plans, and public safety plans (Section 4) It is recommended that EDC include dam inspections as part of a regular annual project inspection and that major inspections for dams be performed every five years
- operational projects are discussed in Section 5 of the report
- typical data sheets, inspection checklists, and suggested contents of a five-year dam inspection report are included in the Appendices

(b) **Recommendations**

In the conclusions and recommendations of this report (Section 6) it is noted that following the issue of production licenses by HMG/N for a hydroelectric power project, EDC is the responsible agency tasked with monitoring both the construction and operation of licensed facilities. This monitoring is to ensure that licensees are taking adequate steps to build sound projects in accordance with the Electricity Act 2049, the implementing regulations contained in the document Electricity Regulation 2050, together with the terms and conditions of the respective production licenses.

It is noted that EDC is also tasked with making recommendations to HMG/N regarding measures to be taken while designing and constructing dams, powerhouses and other structures and in connection with safety standards. At this time, for example, it is understood HMG/N has no formal dam safety requirements that production licensees should provide for.

In support of EDC's responsibilities, recommendations have been made under the following headings:

- overall recommendations
- construction - regulatory oversight
- quality control and inspection
- dam safety
- projects in operation

3 5 Strengthening EDC's Capacity for Environment Review and Management of Power Sector Projects

(Final report dated April 1996, authored by Lawrence M. Haas)

(a) **Synopsis**

This report reviews the environment assessment (EA) process in Nepal including the standardized environmental impact assessment (EIA) procedures for infrastructure projects. It then focuses on specific requirements and roles for environmental review, environmental management and environmental monitoring of public and private sector power projects licensed by EDC, including generation, transmission, distribution and rural electrification projects.

This report addresses:

- background and scope of work for the environment work package for the PEP assignment
- current policy and legal framework for incorporating environment concerns in project planning, and details the project-specific EIA process, procedures and roles for environment management of power sector projects

- conceptual and practical issues in environment review and management of power sector projects which all EDC's project officers should be conversant with
- options for strengthening EDC's internal capabilities relevant to its role in environmental management of power sector projects (via EDC's licensing and one-window responsibility)
- recommendations on updating environment provisions in the Electricity regulations

The Appendices provide useful information packages with background material for EDC's internal use, and suggestions on information packages EDC may make available to licensees

(b) **Recommendations**

Recommendations were included within the structure of the report as well as within the subsequent reports completed by the Environmental Specialist and the Stakeholder Analyst

3 6 Review and Recommendations - Electricity Tariff Fixation Commission

(Final report dated August 1996, authored by Terry M Pratt)

(a) **Synopsis**

This report serves to provide an analysis of Nepal's Electricity Tariff Fixation Commission (ETFC) and recommendations for strengthening its overall performance. A review is provided of the ETFC's goals and defining legislation and regulations, and the institutional arrangements that have developed in practice. Recommendations are provided to improve the regulatory and institutional arrangements, based on effective regulatory practices identified in other countries. Recommendations are also provided for a technical training program for ETFC personnel and for development of a data documentation center.

This report was developed in part through consultation with staff from the ETFC and from several other organizations. These persons have either contributed to the creation, development, or operation of the ETFC, or have dealt with the ETFC in their professional positions. A wide range of opinions were taken regarding current and required powers, structures, and operations of the ETFC.

The report has seven sections. Section 1 provides a background. Sections 2 and 3 provide a review of the regulatory and institutional framework, respectively. Section 4 presents operational guidelines for determining tariff rates. Section 5 provides detailed recommendations for improving the performance of the ETFC. Section 6 presents a comparison of the regulatory practices of other countries. Sections 7 and 8 provide recommendations for training programs for ETFC personnel and for creation of a Data Documentation Center, respectively.

(b) **Recommendations**

Recommendations have been summarized under the following two major headings in Sections 7 and 8

- Training
 - regulatory training which includes visits to regulatory agencies in other countries
 - economic, financial and technical training which includes the general use and limitations of the demand load forecast and investment analysis models

- Data Documentation Center which would include data such as
 - cost and efficiency data from licensees over a long period of time
 - tariff rate data
 - technical and cost data on different electricity generation, transmission, distribution technologies
 - economic data

In addition, the specialist provided a valuable list of documents which the ETFC should consider for its documentation center

3.7 Private Power Project Development - Financial Documentation

(Final report dated August 1996, authored by Foster Pelton)

(a) Synopsis

This report has been written as an introduction to and overview of the financial documentation required in the implementation of power projects undertaken by the private sector. The project finance approach is the basis of such implementation. The report should be read in conjunction with the report entitled, "Risk Allocation and Mitigation for Private Sector Financing of Hydroelectric Projects in Nepal" prepared by the Financial Contract Specialist which provides a financial model for the project finance approach and covers the financial analysis, risk analysis and risk mitigation of projects.

(b) Recommendations

The following key recommendations were made:

- Legal and financial staff of EDC should be given suitable training, in seminars and by other means, in the documentation and other aspects of project finance
- EDC should strengthen its legal expertise to deal with foreign developers who are assisted by international law firms with experience in the project finance approach
- EDC should select a project for promotion, and prepare a solicitation document using the financial, legal, and technical skills which were available

3.8 Risk Allocation and Mitigation for Private-Sector Financing of Hydroelectric Projects in Nepal

(Final report dated August 1996, authored by Michael S. Ashford)

(a) Synopsis

This report discusses how the process of identification and mitigation of risk is crucial to successful project finance. Because project finance relies in whole or part on the revenue stream of the given project facility for all O&M costs, taxes and royalties, debt servicing, and returns on equity investments, any risk that the flow of funds will be interrupted, regardless of how that risk is defined, will add to the cost of the project. In the worst case, if the risks are judged to be too high, the project will not be pursued. The report addresses risk allocation and mitigation as it applies to power development in Nepal under the following headings:

- List of Entities or Actors
- General Categories of Risks for Private Power Projects
- General Matrix of Risk Assessment and Mitigation
- Stages of Project Development and Levels of Risk
- Diagramming Changes in Risk Over Phases of Project Development

- Security Package Agreements Determining Risk Responsibility and Mitigation
- Conclusions and Recommendations

(b) **Conclusions**

The report concludes that the most important areas of risk to a private developer are

- credit-worthiness of the power purchaser
- Country risk of the host-country environment including
 - currency risk (availability and exchange)
 - interest rate changes
 - inflation
- transparency and legal strength of agreements reached through negotiation, including, but not limited to
 - economic and financial assumptions used in risk/return analysis and as laid out in the PPA
 - permanence of regulatory and permitting process

(c) **Recommendations**

Based on existing rules and regulations governing private power activity in Nepal and the experiences of negotiating private power projects to date, the report recommends that the following measures should be considered to ensure that the interests of private participants and HMG/N are continually served

- definitions of *force majeure* risks versus “special buy out events” need to be carefully defined and kept distinct from risks associated with changes in regulations
- investigation should be made of alternatives to direct and complete sovereign guarantees of payments by the NEA, as well as complete coverage of changes in foreign exchange rates (i.e. foreign exchange risk), for utilization now or in the future in negotiations with private developers. In particular, the opportunity to develop a revolving fund of World Bank partial-risk and partial-credit guarantees should be investigated to leverage multiple projects. Efficacy of this leveraging can be measured in terms of unit of fund guarantee per unit of kWh generation that is guaranteed

It was also recommended that under its current regulatory mandate of representing HMG/N in negotiations with private sponsors, the EDC should adopt and internalize the following capabilities

- utilization of a standardized risk
- assigning costs to identified risks
- credit analysis of the NEA
- establishment of a solid legal and regulatory environment for export sales to India
- development of the know how and capabilities for solicited bidding of private power projects for domestic and potential export sales
- development of a domestic medium- and long-term capital market

3.9 User's Manual Model Financial Pro Forma for Private Power Project

(Final report dated August 1996, authored by Michael S. Ashford)

(a) **Synopsis**

This manual provides the directions for application of a spreadsheet that was developed as an analytical financial model for use in forecasting the financial impact of both solicited and unsolicited hydro power projects in the private sector, under the review of EDC. The pro forma model is designed to allow the user to review buy back rates, ratios of debt and equity, internal rates of return, and other necessary financial indicators used in the assessment of proposed projects.

A comparison of the use of this Pro Forma Model and PROBEN is provided in Section 3 23 below

3 10 Request for Proposals for 402 MW Arun-III Hydroelectric Project on Build, Own, Operate and Transfer (BOOT) Basis

(Second draft report dated April 1997, authored by James R. Plummer)

(a) Synopsis

This draft document (RFP) sets forth the process for the solicitation and selection of a bidder for the development of a hydroelectric project on a build, own, operate and transfer (BOOT) basis. It is based on a competitive solicitation process with prequalified bidders.

This draft report is a generic document and was written for the following purposes:

- to set forth the proposed format and contents of the Request for Proposals (RFP) for both export and domestic hydropower projects
- to provide a starting point for the development of the evaluation process including the establishment of both price and non-price factors to be used in evaluation and ranking of proposals
- to provide an outline document from which project-specific RFP's for both export and domestic hydropower projects can be drafted with a minimum of changes
- to allow for further review, discussion, and comment on the scope, contents and format of the document

This draft document has used data from the Arun-III hydroelectric project in order to provide clarity of the content and scope of the RFP document. In addition, the use of the Arun-III project provided valuable technical data.

3 11 The Export of Power from Nepal - Evaluation of Opportunities

(Final report and draft Appendix B dated August 1997, authored by Donald Priestman and Rex Tolman - Appendix B)

(a) Synopsis

The report addresses two objectives:

- a review of the current status in Nepal with regard to the promotion of privately-developed hydropower projects for export
- the development of a methodology for valuation of export-related hydropower projects

The first part of this report includes:

- a brief review of the market for power exports and the current realities of export project financing (which has led to a recognition of the central role that the private sector will have to play)
- an outline of the conflicting interests of the various stakeholders, a discussion of the various power export costs and benefits which must be considered, and an overview of the steps that a private developer must follow prior to project approval
- a summary of the main bottlenecks and risks in private power development for export. Related issues of the relevant legislation, and the supporting institutional framework, are not addressed here, as they have been covered in other reports (see the Bibliography in Appendix D, References 3, 6, 11, 21 and 23)

The second part of the report addresses in more detail some of the key questions facing HMG/N in

promoting private power development for export. In response to the need for a methodology to quantify the direct benefits and costs, and to reflect the complex interrelationships between the various parties, the Nepal Export of Power Simulation Model (NEPSIM) was developed and is summarized in this report. The report closes with some examples of the insights that the NEPSIM model can provide, followed by a series of recommendations for the future.

The computer model NEPSIM which is referred to in this report entitled, "The Export of Power from Nepal - Evaluation and Opportunities" has been replaced by an enhanced version named PROBEN which carries out the same type of calculations as NEPSIM, but provides more accurate results. PROBEN also provides additional capabilities, such as risk calculations, which were not available in NEPSIM. For the use of PROBEN the reader is directed to the report entitled, "Nepal Project Benefits Model - PROBEN Model Documentation"

(b) Recommendations

The following lists some of the key recommendations made in Section 10 of this report:

- an up-to-date study of alternative power costs and acceptable import tariffs in the northern India export market area would be very helpful to both HMG/N and IPPs
- in negotiations with developers, EDC should try to reach agreement in principle on a basis for sharing any excess profits, perhaps along the lines suggested in Section 9
- some of the main potential bottlenecks to power export projects are SEB transmission and distribution infrastructure financing and associated debt service guarantees, importer power payment guarantees, and the IPP ability to convert Indian Rupees to foreign exchange. These problems will have to be resolved if the potential of power exports from Nepal to India is to be fully exploited. HMG/N should closely monitor developments and seek donor assistance in finding practical solutions
- a study is required of the likely macro-economic impacts of a typical IPP-developed power export project. This study of the overall project economics should serve as a guideline for similar studies on subsequent projects. Elements should include:
 - classification and quantification of all direct costs and benefits
 - explanation and quantification of appropriate shadow pricing and multipliers
 - analysis of the split between local and foreign currencies in capital and O&M expenditures and revenues
 - project impact on the national supply and demand for local and foreign currency
 - direct and indirect employment and spending
 - demand and supply of key commodities
 - impact on the balance of payments and the trade deficit
 - possible steps to maximize Nepal content, and recommendations on whether and when such steps should be implemented, considering the implications for financial viability
 - long-term planning forecasts of inflation rates in Nepal, India and the USA, relevant exchange rates, and the BOP deficit
 - guidelines on appropriate economic viability criteria and discount rates
- the principle for net benefit sharing must be agreed with India in advance as it will be very difficult to agree on a fair split once the decision to proceed has been made by HMG/N. Therefore, for any major project, negotiations should be initiated with GOI at the earliest practical date on the quantification and sharing of potential downstream benefits and costs

- an economic analysis is required to help HMG/N to choose between taking a share of power export revenues or a share of the power generated
- the process for project implementation illustrated in Figure 3 should be standardized as much as possible
- consideration should be given to a redesign of the electricity royalty structure so that capacity royalties account for a more significant share. Also the advisability of differential royalties for domestic power and for export should be considered
- the need for a one-window approach to private power development led to the establishment of the EDC. For this to be effective, the EDC needs appropriate authority as well as responsibility. Steps are required to ensure that power export policy commitments made by one branch of government (e.g. on taxation), are supported by other ministries
- steps should be taken to identify and resolve any legislative conflicts and inconsistencies with respect to power export. Similarly, policy clarification is required in a number of areas including import duty policy, particularly as it relates to goods which are available in Nepal, but which may be of inferior quality or insufficient quantity, the policy on corporate income tax, particularly with respect to the definition of the percent reduction available to IPPs, and whether or when Parliamentary approval is required for power export projects

3.12 Interagency Consultation Process for Environmental Review of Hydroelectric Developments

(Draft report dated March 1998, authored by Peter S. Foote)

(a) Synopsis

For this report, Acres conducted an assessment of current Nepalese regulations, guidelines, and experience with the agency consultation process for licensing hydroelectric projects, with the objective of determining if any improvements could be made to the process. This process included reviews of the existing Electricity Regulations, Environment Conservation Rules, EIA Guidelines, EIA documents of existing and proposed hydroelectric projects, and interviews with project management personnel, government agencies, NGO's, and a review of the U.S. Federal Energy Regulatory Commission (FERC) regulations as a reference document.

This report indicates that existing Nepalese guidelines and regulations do include general requirements for interagency and public consultations during the EIA and licensing process, but specific procedures are not provided. From experience to date with existing and proposed projects, the consultation process has been applied with varying degrees of effort. Generally, for more recent projects proposed by more experienced developers, such as the Nepal Electricity Authority (NEA), the consultation process has been better designed and executed.

Another objective of this report was to assess whether smaller hydroelectric projects in the range of just over 5 MW could be exempted from the full EIA requirements, which may place a heavy burden on potential developers of these smaller projects. The Environment Conservation Rules state that all projects greater than 5 MW must conduct the full EIA process. Although the legal implications of an EIA exemption process were beyond the scope of this assessment, a preliminary criteria and potential process for exempting projects up to 15 MW from the full EIA process has been presented. Developers of these projects would still be required to conduct an environmental review under the IEE process. Additional legal analysis of this

potential exemption process, however, must be conducted before further development of the process could proceed

(b) **Recommendations/Results**

Due to the variability in application of guidelines and regulations, and the potential confusion by developers, the report recommends that specific guidelines for interagency consultations be developed and included in the RFQ/RFP process. This recommendation was acted on in the Request for Qualifications for Development of Hydroelectric Project on Build, Own, Operate and Transfer (BOOT) Basis

The report also identifies the following two additional regulatory provisions which should be included in EDC's administration of hydroelectric project licenses: (1) procedures for the amendment of existing licenses, and (2) the relicensing of projects in the future

Parts of this report were further developed by the Environmental Specialist in the following reports

- Interagency and Public Consultation Guidelines for Application for Production License, June 1998
- Review of Potential for Exempting Smaller Hydroelectric Projects from the Full EIA Process, June 1998
- Summary of Existing Guidelines and Regulations for Hydropower Licensing in Nepal, June 1998

3 13 Request for Proposals for Development of Medium Hydroelectric Project on Build, Own, Operate and Transfer (BOOT) Basis

(Draft report dated March 1998, authored by James R. Plummer)

(a) **Synopsis**

This document (RFP) sets forth the process for solicitation and selection of a bidder for the development of a hydroelectric project on a build, own, operate and transfer (BOOT) basis. This RFP has been drafted for obtaining competitive proposals from prequalified bidders. See Section 3.24, Request for Qualifications for Development of Hydroelectric Projects on Build, Own, Operate and Transfer (BOOT) Basis

More specifically this draft is

- the first step in developing a generic guide document for use in preparing requests for proposals from prequalified applicants for specific medium hydroelectric projects which have been identified in the MHSP. Throughout the document the "generic" project is referred to as the "*Medium Hydroelectric Project*"
- intended primarily to be used for domestic power projects. To include the possibility that a developer may consider exporting some power, the document also refers to terms and conditions related to export. The evaluative criteria have been established for domestic power. If RFPs are considered for projects which could supply both domestic and export power, more complex evaluative criteria will need to be developed

The text part of the document includes

- Introduction
- Information for Bidders
- Instructions to Bidders
- Proposal Evaluation Process

- Evaluation Criteria
- Security Package and Financial Structure

The document also includes the following supporting appendices, exhibits and forms

- Policy and Legal Documents
- NEA System Information
- Technical Documents
- Project Technical Standards
- Draft Terms of Project Agreement
- Draft Terms of Power Purchase Agreement
- Draft Terms of Land Lease Agreement
- Acknowledgment of RFQ and Notification of Intent to Respond
- Pre-Bid Conference Notification and Confirmation of Attendance
- Form of Proposal Security (Bank Guarantee)
- Bidder's Submission Documentation
- Letter of Conveyance
- Supporting Documentation for Price Factors
- Supporting Documentation for Non-Price Factors
- Exceptions to Request for Proposal

(b) **Recommendations**

This initial draft document requires further development including such areas as

- conforming it to the changes made in the "preceding" document entitled "Request for Qualifications for Development of Hydroelectric Project on Build, Own, Operate and Transfer (BOOT) Basis"
- refining and testing the evaluative criteria
- completing reviews by EDC and other agencies, including the World Bank
- redrafting Appendix F, Power Purchase Agreement, to reflect experience in existing agreements to date

3 14 Stakeholder Issues in Hydropower Development Projects

(Draft report dated March 1998, authored by Dr J Pokharel)

(a) **Synopsis**

This report was prepared by the Stakeholder Analyst based on the following

- reviews of environmental studies and reports, and description of previous stakeholder participation from hydroelectric projects in Nepal that are completed, under construction, and planned
- interviews with project management personnel from the selected projects, as well as identified stakeholder groups including those from EDC, NEA, NGOs, private sectors, and related sectoral ministries
- reviews of published media report for the selected projects
- visits to selected project sites under three categories of projects to observe how stakeholder issues have or are being addressed These projects included—Jhimruk, Kulekhanı and Marsyangdı for completed ones, Kali Gandaki A, Khimti and Upper Bhote Koshi for the ones under construction

The report identifies a comprehensive list of stakeholder issues in hydroelectric development projects which differ with the project stage These issues are related to the stakeholders interest At the planning phase, the issues revolve around adequate information and knowledge about the project, during the construction phase, it is the impact on the interest and mitigation, and at the post-construction phase, it is mostly related to the local feeling of being ignored, depression and relationship among the stakeholders

The report then addresses the analysis of stakeholder issues by applying a number of criteria such as importance, nature, and ownership. The report then goes on to discuss management of issues in all three stages in the project and emphasizing the importance of having systematic process

(b) **Recommendations**

The report makes the following general recommendations

- EDC needs to do the following to ensure better management of the issues
 - ensure completeness of stakeholder issues
 - assess the importance of the issues
 - assess the urgency of addressing the issues
 - assess the connectedness of the issues
 - review the strategy to address the stakeholder issues
 - conduct periodic review
 - audit the relationship among the stakeholders in the post-construction period
- public disclosure of information to be made during the three phases of the project

3 15 Nepal Power Development Fund - Borrower's Implementation Plan

(Final draft report dated May 1998, authored by Randolph S Lintz)

(a) **Synopsis**

This report sets forth in detail the structure of the proposed Power Development Fund (PDF) as well as the guidelines for implementation

The PDF has been described¹ as follows

“For domestic power projects, HMG/N is planning to establish the PDF to assist in the financing. The proceeds of an International Development Association (IDA) credit would provide the initial funds of a PDF which would help alleviate various financial constraints that exist in Nepal, namely (i) lack of sufficient debt financing for infrastructure projects in general and power projects in particular, (ii) inadequate maturity of available debt financing, and (iii) the need to provide comfort to private investors wishing to become involved in “first time” projects. The structure of the proposed PDF would offer the private sector the opportunity to participate in the investment, ownership, operation and maintenance of new power facilities. Given the thinness of the commercial debt market in Nepal, which impedes the development of private projects financed on a limited recourse basis, the PDF would allow potential investors to access long-term financing.”

“The proposed PDF would offer a number of financial products and services as the technical capacity of the Fund Administrator increases and the demand for more sophisticated products and services warrants. The PDF would provide long-term financing, initially on the basis of subordinated debt, take out financing, and standby financing to Project Companies, and would also provide long-term resources to local financial institutions (styled as “Participating Credit Institutions”) for the co-financing of power projects.”

¹ Request for Qualifications for Development of Hydroelectric Project on Build Own Operate and Transfer (BOOT) Basis, Seventh Draft September 1998

“The proposed PDF would be a pooled fund contributed from the proposed IDA credit and other financing sources, together with reflows of debt service payments made by borrowers. It will comprise balances held in account established with a multinational bank and loans made under this facility. The proposed PDF would not be a major provider of funds for any project, rather it will co-finance projects with international and domestic lenders, including commercial banks, investment funds, export credit agencies, the International Finance Corporation, the private sector window of the Asian Development Bank, etc. The aim of the proposed PDF would be to maximize the inflow of private capital.”

“A PDF Investment Committee would be the executing agency for HMG/N, advised by a Fund Administrator contracted through competitive bidding. The Fund Administrator would only make financing decisions after a full evaluation of each project has been carried out to establish that it is technically, economically, and financially viable and environmentally acceptable. Final placement decisions will be made by the Investment Committee in collaboration with IDA.”

“In the event Sponsor [project developer] draws on funding made available by IDA for the proposed PDF, Sponsor will be required to fulfill the procurement and environmental requirements of the World Bank. The PDF’s exposure to any project cannot exceed 25 percent of the total cost.”

The report addresses the following issues

- fund objectives, design and organization, operating procedures, project cycle, lessons learned from Pakistan, benefits and risks
- options for financial products and services offered by the Fund
- organizational structure and management of the Fund
- administration of the Fund including the PDF Investment Committee and Fund Administrator
- eligibility criteria for PDF financing
- terms of repayment to the PDF
- evaluation and negotiation of the security package
- procurement and disbursement

In addition, the report provides extensive supporting information for implementation including guidelines, contract provisions and checklists

(b) **Recommendation**

The report is a final draft and should be reviewed by the author prior to implementation of the PDF if any further revisions are made

3 16 Manual on Guidelines for Stakeholder Analysis

(Draft report dated June 1998, authored by Dr J Pokharel)

(a) **Synopsis**

This manual was written to assist the user in conducting stakeholder analysis for power development projects, specifically hydroelectric projects

The manual is divided into different sections, with examples and illustrations provided as indicative material. The forms and formats are developed with a typical hydropower project in mind

The manual was prepared to facilitate identification of stakeholders, to understand their concerns, and to formulate appropriate strategies to manage stakeholder participation during private sector investment in hydropower development

(b) **Conclusions and Recommendations**

This manual on guidelines for conducting stakeholder analysis provides background information on the importance of conducting such an analysis. This manual also outlines a step-by-step procedure for identifying which stakeholders should be included in the project planning process, and how to plan for their participation in the process. The manual recommends that the stakeholder analysis be initiated as early as possible in the process, and that this analysis be conducted by a qualified team of social scientists, engineers, power sector experts and environmental scientists. A timely, well-executed stakeholder analysis, with meaningful inclusion of stakeholders in the project planning process, will greatly enhance the probability of successful completion of the project.

3 17 Review of Potential for Exempting Smaller Hydroelectric Projects from the Full EIA Process

(Draft report dated June 1998, authored by Peter S. Foote)

(a) **Synopsis and Recommendations**

This review examines the potential for implementing a regulatory process for exempting small hydroelectric projects, in the range greater than 5 MW capacity, from the full EIA process now required by the Environment Conservation Rules. It concludes that such a process is feasible from an environmental, technical, and regulatory perspective, but the legislative/legal procedures for implementing the process were not investigated. If EDC wishes to incorporate an EIA exemption process into the hydropower licensing regulations, several items must be accomplished. Criteria must be developed for the type and capacity of projects to be exempted and the category and scope of impacts that would be allowable for an exempted project. For an exemption process to be successful the various criteria should be developed through a process of consultations and review among EDC, Ministry of Population and Environment (MOPE), MOWR, other government ministries, and NGO's, to ensure that there is consensus among the potentially competing interests on water resource development. The exemption process should also outline the environmental review procedures, which would likely follow the IEE approval process. Finally, a change will also be required in the Environment Conservation Rules. Thus, if EDC's intention is to further promote this process, the next phase of work under the PEP should include specific tasks for completing these various requirements, including a legislative/legal analysis of how this exemption process could be implemented.

3 18 Summary of Existing Guidelines and Regulations for Hydropower Licensing in Nepal

(Draft report dated June 1998, authored by Peter S. Foote)

(a) **Synopsis**

This document summarizes the licensing and environmental requirements that potential hydropower developers will face if proposing a hydroelectric project in Nepal. The most time-consuming part of the regulatory procedures are those related to the analysis and documentation of the environmental impacts of the proposed project. Nepal's most recent environmental regulations are similar to those found in more developed countries, and should be followed in order to successfully complete a project. One of the most important aspects of a project's environmental impact assessment review is the agency and public

consultation program Addressing social and environmental issues early in the project planning, and continuing throughout the process, will greatly enhance the probability that the project will be successfully completed Developers are also encouraged to communicate regularly with EDC for assistance in proceeding through the regulatory process, and to employ personnel or consultants who have had experience with the Nepalese licensing and EIA process

3 19 Interagency and Public Consultation Guidelines for Application for Production License

(Draft report dated June 1998, authored by Peter S Foote)

(a) Synopsis

This guidelines document presents recommended minimum procedures for conducting agency and public consultations for the EIA process associated with licensing a hydroelectric project in Nepal Past experience has shown that a well-executed agency and public consultation process, in which all stakeholders are well-informed about the project, is more likely to enhance the development of a project than to impede its development These guidelines are intended to assist potential developers by describing a consultation framework for ensuring participation by all stakeholders in the EIA and licensing process These, however, should be considered a "starting point" in the consultation process, and developers are recommended to do more than the minimum to ensure full participation by all stakeholders

3 20 Request for Proposals for Power Development Fund Administrator

(Draft report dated August 1998, authored by Randolph S Lintz)

(a) Synopsis

This document sets forth the bidding process for the solicitation of services for the PDF Administrator It defines the following services sought in Section 1, Introduction

"The PDF Administrator will provide investment advice to a PDF "Investment Committee" nominated by HMG/N to make funding decisions for, and on behalf of, HMG/N for the financing hydropower projects in Nepal The PDF Administrator will also (i) negotiate the terms of loans approved by the Investment Committee and prepare the loan documentation, (ii) operate the PDF account, (iii) monitor borrower performance under loans from the PDF, (iv) handle debt service collections, (v) maintain the books of account of the PDF, and (vi) provide periodic reports to the Investment Committee and HMG/N HMG/N plans to award a cost-plus-fixed-fee contract to the successful Bidder to perform these tasks which are described in greater detail below The successful Bidder will be contracted for a period of five (5) years after which time the contract may be renewed at the option of HMG/N "

"HMG/N seeks a PDF Administrator to act as the exclusive investment advisor to the PDF Investment Committee as well as to manage all aspects of the PDF Given the financial sector's limited domestic experience with infrastructure project appraisal and financing, the local FI shall associate itself with a parent bank or a regional or international merchant bank with expertise in project financing on a limited recourse basis HMG/N will enter into an Administration Agreement, renewable by mutual accord, with the PDF Administrator which will set out the rights and obligations of both parties and the lending policies of the PDF The PDF Administrator will be required to establish an internal administration unit to carry out its functions headed by an individual skilled in infrastructure project finance "

This request for proposals includes

- Information for Bidders, background information, a description of the PDF and standard of care expected, the fee structure and conflict of interest issues
- Instructions to Bidders, the procedural requirements to be followed in the preparation of the proposal
- Proposal Evaluation Process, the process for evaluation, the criteria to be used, and the scoring system for price and non-price factors
- Bidder's Submission Documentation, the format to be used in the preparation and presentation of the proposal as well as listing the documentation to be provided with Bidder's proposal

(b) **Recommendations**

The draft should be updated following agreement by MOWR to proceed with the PDF implementation

3 21 Institutional Issues Associated with the Financing of Small-Scale Power Projects: Lessons from the Developing World and Implications For Nepal

(Draft report dated August 1998, authored by Randolph S Lintz)

(a) **Synopsis**

This study was done to assist in directing EDC's efforts to identify sustainable models for investment in small-scale projects that could contribute to Nepal's rural electrification deficit. A review of recent literature was performed on the subject of rural electrification to gather information on current and future programs and projects.

The report addresses that one of the key problems facing rural communities lacking electricity and the businesses that wish to expand their markets to include such communities is accessing adequate financing. The investment costs for mini-grid and stand-alone village systems are significant for such communities. For a rural village, the acquisition of a stand-alone system is an investment of significant proportion. While financial institutions have evolved in industrial nations to finance such investments, a financial network to support investment in affordable electricity generation and transmission systems in Nepal's rural areas, where electricity is lacking, has yet to become operational despite the World Bank's proposal to capitalize a PDF which would partially finance small-scale projects through its 'second window'. Therefore, the objective of creating sustainable rural electrification based on renewable sources of energy – that is, projects and markets that will survive without continued support from government, multilateral or even private entities over the long term – poses a challenge.

The report states that in the analysis of lessons learned from the developing world contained in this report, a conceptual framework has been provided for analyzing the financing and institutional arrangements used in promoting and executing rural electrification projects.

The report includes

- a review of the key aspects of such projects, referred to here as the "parameters relevant to rural electrification projects"
- considers the key factors in successful implementation — the "determinants for success"
- presents a series of models that have emerged in various recent projects in emerging markets both off-grid projects and grid-extension projects. These models capture the salient features of a wide range of projects, albeit with some case-specific variations
- various issues associated with financing small-scale projects in Nepal

- recommendations recently formulated by the Federation of Nepalese Chambers of Commerce for overcoming many of these issues
- conclusions regarding how Nepal might go about embarking upon a small-scale renewable energy electrification program based on small-scale hydroelectric schemes

In addition, this report provides an extensive bibliography of relevant documents available on these issues

(b) Recommendations

This report refers to the report prepared for the Federation of Nepalese Chambers of Commerce and Industry² that made a number of cogent recommendations regarding institutional and regulatory changes to promote hydropower development in general. The most salient points addressed by this document which could affect the financing of small-scale hydropower projects have been summarized below:

- a new Section 15A to the Electricity Act 2049 permitting the mortgaging of immovable properties and the pledging of shares of the licensee in electricity generation, transmission or distribution to foreign lenders investing in the project
- a new subsection of Section 12 to the Electricity Act prohibiting fees of any kind on the above mortgaging of immovable properties and the pledging of shares to foreign lenders
- a new Section 15B to the Electricity Act which waives the requirement for work permits for foreigners employed by a contractor with a valid license for electricity generation, transmission or distribution
- rewording of Subsection 7 of Section 12 of the Electricity Act stipulating that only one percent of customs duties and no value added or other tax shall be levied on the importation of plant, machinery, equipment and spare parts, construction equipment, and construction materials
- exemption of hydropower projects from value added tax
- a new Subsection 8 of Section 12 of the Electricity Act which waives the imposition of income tax on dividends resulting from investments in hydropower generation, transmission or distribution
- a new Subsection 9 of Section 12 of the Electricity Act which waives the imposition of local taxes of any kind on an individual or corporate entity involved in hydropower generation, transmission or distribution
- rewording of Subsection 10 of Section 12 of the Electricity Act stipulating that no additional or new tax, fees, charges or any form of revenue for the government whatsoever called shall be levied by any agency of HMG/N on a licensee other than those prevailing under existing laws on the date of issuance of the license
- a new Subsection 3 of Section 11 of the Electricity Act which stipulates that the licensee shall pay 26 percent of the royalty amount payable by the licensee to HMG/N directly to the District Development Committee where structures and facilities for electricity generation are located for local development in the district

² Nepcom Private Limited "Proposed Changes in Hydropower Legislation and Institutional Framework" discussion paper for Federation of Nepalese Chambers of Commerce and Industry July 1998

- EDC should be designated as the final authority to exercise the power of the “prescribed authority” under the Electricity Act. Furthermore, EDC shall be the responsible hydroelectricity development unit of HMG/N to develop or cause to develop hydroelectricity, to encourage private sector entrepreneurs for the development of hydroelectricity, and to follow up the works relating to hydroelectricity development

3 22 Small Hydropower Project - Financial Simulation Model

(Draft report dated August 1998, authored by Randolph S Lintz)

(a) Synopsis

The Small Hydropower Project - Financial Simulation Model (*SmallFinSim*) provides EDC and MOWR with a simple tool for analyzing the commercial viability of small-scale hydropower projects that may be eligible for funding under the World Bank’s proposed PDF’s “second window”

The report summarizes the PDF’s investment policy with regard to the second window as follows

- the PDF may finance (i) individual investments not exceeding twenty-five (25) percent of total project cost (defined to include interest and fees during construction, sponsor’s costs and initial working capital), (ii) projects utilizing proven technologies posing low risks of obsolescence, and (iii) projects respecting the environmental guidelines and resettlement policies of both HMG/N and the World Bank Group
- the PDF may not (i) fund projects which are not or cannot be licensed by MOWR’s EDC, (ii) take management control over any investment, (iii) make any investment which exposes the PDF to unlimited liability, (iv) invest in any single project more than one-fifth (1/5) of its capitalization allocated to the second PDF window, (v) invest in any single project which does not have a debt service coverage ratio of at least 1.2 times, or (vi) invest in projects with less than an eighty to twenty (80/20) percent debt to equity ratio

Accordingly, the intent of *SmallFinSim* is to assist in identifying a number of requisite factors to ensure conformity with the investment policy of the PDF’s second window

This tool is not intended to precisely model every aspect of a particular small hydropower project. Rather, it is intended to simply define relative orders of magnitude and the manner in which specific resources and variables should be applied in order to produce a commercially viable project eligible for PDF financing

3 23 Nepal Project Benefits Model - PROBEN Model Documentation

(Draft report dated August 1998, authored by Dan Ruu and Clark Smith)

(a) Synopsis

The PROBEN model is a custom developed tool for EDC to evaluate proposals and total project benefits as part of its mandate to promote private sector development of hydropower projects, and in particular opportunities for power export

Specifically, PROBEN has been designed to assist EDC to

- evaluate power export policy alternatives and formulate recommendations
- assess and compare developer’s proposals
- quantify the net benefits to Nepal, including downstream benefits
- assist in negotiations with potential developers and downstream beneficiaries

- understand the linkages between HMG/N policy, power production, export prices, project economics project finance and developer viability

PROBEN requires a number of inputs, upon which it calculates the resulting developer profitability, downstream benefits, and HMG/N benefits. The level of detail of the inputs can be very detailed or quite general, depending upon the available information. PROBEN has been designed to have the flexibility to handle a wide range of project types and input assumptions. Care has been taken to make it as automatic and user-friendly as possible.

While PROBEN has been designed primarily for the analysis of power export projects, it has the flexibility to provide useful insights on projects fully dedicated to serving power consumers in Nepal, and could therefore also be a useful tool for NEA and WECS.

PROBEN replaced NEPSIM, which is referred to in the report, "The Export of Power from Nepal - Evaluation and Opportunities", and provides additional capabilities, such as risk analysis and a simplified forecast model.

(b) **Recommendations**

A Project Energy Sale Calculations Module needs to be built to link the results of the load forecasts to the main calculations routines of PROBEN. The system energy demand (load) may have, depending on the Power Purchase Agreement provisions, a direct impact on the quantity of energy the project sells to its customer(s) in each year. This module will calculate the amounts of energy which the project will be expected to deliver (sell) to the system in each year. The conceptual design for this program module was completed and included in Appendix G.

(c) **Comparison of PROBEN with Pro Forma**

The PROBEN Model was developed to complement as well as extend the power and flexibility of financial analysis of Pro Forma Model which is summarized in Section 3.9. Some of the technical differences between these two models are:

- Pro Forma has more detailed input for project cost estimates which is closer to a developer's analysis
- Pro Forma has additional input for profit distribution and retained earnings
- For the allocation of funds, Pro Forma uses discrete inputs, while PROBEN has preset inputs
- For tariffs, Proforma has one input for capacity and one for energy, while PROBEN allows for a greater degree of revenue possibilities such as primary power, secondary, peak, etc
- Pro Forma provides an output Balance Sheet for developer, while PROBEN develops a rate of return analysis
- PROBEN provides extensive graphs for revenues, taxes, etc providing more possibilities of visual analysis and presentation of data, while Pro Forma has very limited report generation
- PROBEN includes calculations of downstream benefits which are not in the Pro Forma model
- PROBEN includes a module for Risk Analysis and the potential for adding the module, "Conceptual Development of Project Energy Sale Calculation"

3 24 Request for Qualifications for Development of Hydroelectric Project on Build, Own, Operate and Transfer (BOOT) Basis

(Seventh draft report dated September 1998, authored by James R. Plummer)

(a) Synopsis

This document sets forth the qualification process for the selection of bidders for the development of hydroelectric projects on a build, own, operate and transfer (BOOT) basis. The document is the Seventh Draft Report (dr-7a) entitled "Request for Qualifications for Hydroelectric Projects on Build, Own, Operate and Transfer (BOOT) Basis" and has been based on the work of previous drafts, the comments received from the World Bank as well as comments received from EDC.

Draft 7a has been revised to include the following four (4) projects

(1) Kabeli-A Hydroelectric Project	35 MW
(2) Rahughat Khola Hydroelectric Project	24 MW
(3) Likhu Khola 4 Hydroelectric Project	34 MW
(4) Khimti Khola 2 Hydroelectric Project	27 MW

The text part of the document includes

- Invitation to Prequalification
- Information for Applicants
- Instructions to Applicants
- Qualification (criteria) of Applicants

The document also includes the following supporting appendices and forms

- Policies, Acts and Regulations
- NEA System Information
- Technical Documents
- Summary of Existing Guidelines and Regulations for Hydropower Licensing in Nepal
- Summary of Terms and Conditions of Project Agreement and Power Purchase Agreement
- Form of Application
- Acknowledgment of RFQ and Notification of Intent to Respond

In addition, Annex A 1, Copies of Policies, Acts and Regulations Relevant to the Development of Hydropower Projects has been prepared as a separate resource document for developers.

(b) Recommendations

Clarifications and recommendations regarding the completion of this draft have been detailed in Acres memoranda dated September 17, 1998 and include key issues such as

- Section 2.3, Description of Power System, needs to be updated with NEA 1998 year data along with an updating of Appendix B, NEA System Information
- Section 2.6, Studies and Reports, as well as the corresponding parts of Appendix C, Technical Documents, needs to be revised as after feasibility studies have been completed for Kabeli-A, Rahughat Khola and Likhu Khola by MHSP
- schedule information must be added to show how the proposed projects fit into the NEA system planning

- Appendix E should be refined to reflect EDC's current experience in preparation of project and power purchase agreements for private developments

4 Methods of Work

The method of work for drafting reports generally included the process as outlined in the following subsections

- ▶ Review of existing documentation
- ▶ Interviews with EDC, other government staff, bankers and project developers
- ▶ Reviews provided by EDC, the World Bank and other experts

A final subsection is included to summarize software used in this assignment

4.1 Review Existing Documentation

The starting point for most reports involved the research and review of existing documents which were relevant to power development in Nepal. These documents included policies, acts and regulations published by HMG/N as well as documents published by institutions such as the World Bank and the U S Federal Energy Regulatory Commission

The following examples are provided as sources of documents that were researched and used by specialists for preparation of their reports

- ▶ Policies, acts and regulations as well as guidelines published by HMG/N which were relevant to power development in Nepal. These have been referenced in a number of the reports as well as listed in Appendix A of the "Request for Qualifications for Development of Hydroelectric Project on BOOT Basis" and compiled in Annex A.1 for this same report
- ▶ Safety guidelines and operational monitoring policies for private power projects in other countries such as used in "Review of Licensing/Safety Standards and Procedures"
- ▶ References on which the Specialist-Power Operations/Safety has drawn from in preparing the report "Review of Project Inspection Procedures and Dam Safety" included
 - *Engineering Guidelines for the Evaluation of Hydropower Projects*, U S Federal Energy Regulatory Commission - April 1991 and various later dates
 - *Operating Manual for Inspection of Projects and Supervision of Licenses for Water Power Projects*, U S Federal Energy Regulatory Commission - 1989
 - *Guidelines for Public Safety at Hydropower Projects*, U S Federal Energy Regulatory Commission - March, 1992
 - *Guidelines for Rehabilitation of Civil Works of Hydroelectric Plants* American Society of Civil Engineers
- ▶ FERC regulations such as "U S Code of Federal Regulations, Chapter 18, Subpart J Exemption of Small Conduit Hydroelectric Facilities, and Subpart K Exemption of Small Hydroelectric Power Projects of 5 Megawatts or Less Federal Energy Regulatory Commission Hydropower Licensing Regulations Washington, D C" in the report "Review of Potential for Exempting Smaller Hydroelectric Projects from the Full EIA Process"
- ▶ Environmental impact assessments for projects such as the "1995 Environmental Impact Assessment Mitigation Management and Monitoring Plan, Kali Gandaki "A" Hydroelectric Project Detailed Design Kali Gandaki "A" Associates, Morrison Knudsen Corp, Norconsult International, IVO International LTD, in

association with Asian Development Bank, United Nations Development Program, and Finnish International Development Agency” in the report “Interagency Consultation Process for Environmental Review of Hydroelectric Developments”

- ▶ The World Bank documents such as (a) “Guidelines for Procurement under IBRD Loans and IDA Credit” (b) standard bidding documents such as “Procurement of Works” and (c) “Submission and Evaluation of Proposals for Private Power Generation Projects in Developing Countries” for the drafting of the reports “Request for Qualifications for Development of Hydroelectric Project on BOOT Basis” and “Request for Proposal for Development of Medium Hydroelectric Project on BOOT Basis”

4 2 Interviews

Most of the reports included information provided from interviews with

- ▶ EDC staff assigned to guide and support PEP
- ▶ Staff from other government ministries and departments such as the
 - Ministry of Water Resources
 - Ministry of Population and Environment
 - Ministry of Finance
 - Electricity Tariff Fixation Commission
 - Water and Energy Commission Secretariat
 - Medium Hydro Study Project (MHSP)
- ▶ Officials from the World Bank, local and international banks and financial institutions and project developers

4 3 Reviews

EDC reviewed many of the documents and provided valuable comments and clarifications. In addition, EDC and MOWR staff provided useful comments through workshop participation.

The World Bank provided constructive input into reports such as the “Request for Qualifications for Development of Hydroelectric Projects on BOOT Basis” and the “Nepal Power Development Fund - Borrower’s Implementation Plan”

Valuable reviews and guidance were also provided by senior staff at WECS and the Medium Hydro Study Project as well as Acres home office.

Internal reviews were generally performed by the Chief of Party and Project Manager. In addition, reviews by other technical experts were often performed, especially when material in one report affected that in another. For example, the evaluation process developed in the “Request for Proposals for Development of Hydroelectric Project on BOOT Basis” was reviewed by the Export/Valuation Specialist to ensure that comparable data would be included in proposals to perform a total project benefit analysis using PROBEN. Finally, proofing and formatting of documents for final report documentation was done by the Project Administrator.

4 4 Software

The software used for the preparation of reports and documentation included the following

- ▶ Most reports were drafted in WordPerfect for Windows. Some reports were prepared in Microsoft Office and transferred into WordPerfect, Version 6.1
- ▶ Spreadsheets and models were prepared in Lotus 1-2-3 except the model "Small Hydropower Project - Financial Simulation Model" which was prepared in Excel
- Figures and tables were prepared in Lotus, Excel and Power Point, and where possible imported into the report text as an image. Figures not prepared or available in electronic format were "cut and paste" into the text
- ▶ Flow charts were generally prepared in Power Point
- ▶ One schedule was prepared using Microsoft Project

The final report documentation included files for all text in WordPerfect, Version 6.1 and financial models and spreadsheets in Lotus except for "Small Hydropower Project - Financial Simulation Model" which was prepared in Excel

42

5 Recommendations

Recommendations based on the accomplishments of this project are summarized under the following three headings

5.1 Recommendations Included in USAID/Nepal's Private Sector Hydropower Development Project

EDC's need to increase its administrative and regulatory capacity to facilitate further development of the country's hydroelectric resources was recognized by USAID/Nepal's ongoing support through the Private Sector Hydropower Development Project's Special Objective 4, namely,

"Increased Private Sector Participation and Investment in Environmentally and Socially Sound Hydropower"

Special Objective 4 is to be achieved through the provision of ongoing consulting services with the focus to meet the following two interlinked accomplishments

- ▶ Intermediate Result 1 Improved Enabling Environment for Private Sector Investment in Hydropower
- ▶ Intermediate Result 2 Increased Environmental and Social Soundness in Hydropower Investment

In its support of USAID/Nepal's objectives for the Private Sector Hydropower Development Project, Acres formulated six primary strategies in its proposal which are restated here as recommendations for the continuation of the program to support private power developments in Nepal. These recommendations are

- ▶ Strengthen the institutional processes developed under the PEP contract
- ▶ Assist in streamlining these processes for all ongoing and new projects
- ▶ Assist in the day-to-day implementation of the processes required for the implementation of projects starting with the qualification of bidders through the bidding and negotiation phases to technical and environmental monitoring
- ▶ Assist in modifying and broadening the regulatory framework dealing with private sector projects
- ▶ Broaden the privatization skills of key EDC and MOWR staff to enhance their effectiveness in structuring private sector projects
- ▶ Broaden the promotional skills of key EDC and MOWR staff to enhance their effectiveness in promoting private sector development in Nepal

5.2 Recommendations Included in Individual Reports

Recommendations have been included as appropriate in many of the individual reports referenced in this Final Report. Some of these recommendations have been summarized in Section 3, Description of Reports, in order to provide information as to the nature and extent of the recommendations. The reader is directed to the specific reports for a better understanding of intent and scope of the recommendations. For example, in the summary of the report "Review of Institutional and Regulatory Arrangements for Private Investment in Nepal's Power Sector" two paragraphs are provided under "Recommendations" while the report text includes twenty-four pages of the discussion of recommendations.

The recommendations made in the reports fall within categories which are in line with the objectives of the PEP and also support USAID/Nepal's Special Objective 4 such as

- ▶ Strengthening the institutional structure of EDC
- ▶ Broadening its regulatory role
- ▶ Increasing EDC skills and capabilities through formal training and workshops
- ▶ Final updating of reports following reviews and approvals

5.3 Summary Recommendations

Based on the objectives of this contract and the significant accomplishments achieved, there are several general recommendations or conclusions that can be made. These are:

- Continue the institutional support and organizational strengthening which has been a primary focus of PEP
- ▶ Continue on-the-job and formal training programs both in country and overseas. In particular, training through interactive seminars or workshops should be increased to promote the transfer of and application of skills relevant to EDC's mandate. For example, a workshop such as "Effective Negotiation for Power Sector" (also known as dispute resolution) is an excellent program to achieve this objective.
- ▶ Increase emphasis on team building between technical experts and EDC counterparts with the goal of increased participation of counterparts in the preparation and review of reports and documents.
- ▶ Increase emphasis on the follow up of reports, and in particular the conclusions and recommendations, to evaluate the usefulness and effectiveness of these activities and to better structure future USAID assistance.

It is also recommended that consideration should be given to having the key specialists in PEP review and comment on final changes or revisions to the following reports/documents/manuals in order to ensure that the original intent of the document or manual has not been compromised:

- ▶ Nepal Power Development Fund - Borrower's Implementation Plan
- ▶ Request for Qualifications and Request for Proposals for Development of Hydroelectric Projects for Development of Hydroelectric Project under Build, Own, Operate and Transfer (BOOT) Basis
- ▶ Nepal Project Benefits Model - PROBEN Model Documentation

44

Appendices

Appendix A

List of Activities, Responsible Specialists and Deliverables

Activity	Ref No ⁽¹⁾	Responsible Specialist	Performed ⁽³⁾	Deliverables
Commodities Acquisition	A	Stephen Thompson Chief of Party	Aug 95 - Sept 97	Commodities and equipment for office
		Dan Ruiu ⁽²⁾ Chief of Party	Dec 97 - Aug 98	Commodities and LAN system
Institutional Review/ Recommendations	B	Lawrence Haas Environmental/Social Planning Specialist	Aug 95 - Sept 95	Review of Institutional and Regulatory Arrangements for Private Investment in Nepal's Power Sector - <i>Final Report</i>
Human Resource/ Training Assessment	C	Lloyd Haase Human Resources Development Specialist	Sept 95	Training Needs Analysis EDC Pilot Group - <i>Final Report</i>
Environmental Regulation Review	D	Lawrence Haas Environmental/Social Planning Specialist	Oct 95 - Mar 96	Strengthening EDC's Capacity for Environment Review and Management of Power Sector Projects - <i>Final Report</i>
Power Operations and Safety	E	Foster Pelton Power Operations and Safety Specialist	Aug 95 - Feb 96	Review of Licensing/Safety Standards and Procedures - <i>Final Report</i>
				Review of Project Inspection Procedures and Dam Safety - <i>Final Report</i>
Financial Contracts Specialist	F	Michael Ashford Financial Contracts Specialist	Apr 96 - Aug 96	Risk Allocation and Mitigation for Private-Sector Financing of Hydroelectric Projects in Nepal - <i>Final Report</i> User's Manual Model Financial Pro Forma for Private Power Project (w/disk for Model) - <i>Final Report</i>
Contract/Legal Specialist	I	Foster Pelton Contracts/Legal Specialist	May 96 - Aug 96	Private Power Project Development Financial Documentation - <i>Final Report</i>
Electricity Tariff Regulation Review	J	Terry Pratt Tariff Specialist	Jun 96 - Aug 96	Review and Recommendations Electricity Tariff Fixation Commission - <i>Final Report</i>

Activity	Ref No ⁽¹⁾	Responsible Specialist	Performed ⁽³⁾	Deliverables
Power Development Fund	K	Randolph Lintz Financing Specialist	Feb 97 Aug 98	Nepal Power Development Fund - Borrower's Implementation Plan - <i>Final Draft Report</i> Request for Proposals for Power Development Fund Administrator - <i>Draft Report</i> Institutional Issues Associated with the Financing of Small-Scale Hydropower Projects Lessons from the Developing World and Implications for Nepal - <i>Draft Report</i> Small Hydropower Project - Financial Simulation Model - <i>Draft Report</i>
RFQ and RFP Development	L	James Plummer	Feb 97 - Aug 98	Request for Proposals for 402 MW Arun-III Hydroelectric Project on Build Own Operate and Transfer (BOOT) Basis - <i>Second Draft Report</i> Request for Proposals for Development of Medium Hydroelectric Project on Build Own Operate and Transfer (BOOT) Basis - <i>Draft Report</i> Request for Qualifications for Development of Hydroelectric Project on Build, Own, Operate and Transfer (BOOT) Basis - <i>Seventh Draft Report</i>
Export Related Issues and Valuation of Benefits (Phase 1)	M	Don Priestman Export Valuation Specialist Rex Tolman Hydropower/Water Resource Engineer	Feb 97 - Dec 97 Mar 97 - Jul 97	The Export of Power from Nepal - Evaluation of Opportunities - <i>Final Report</i> Appendix B - NEPSIM User's Manual and Model Documentation
Export Related Issues and Valuation of Benefits (Phase 2)	N	Dan Ruu Export Valuation Specialist Clark Smith Water Resources Coordination Specialist	Feb 98 - Aug 98 Feb 98 - Aug 98	Nepal Project Benefits Model - PROBEN Model Documentation - <i>Draft Report</i>

Activity	Ref No ⁽¹⁾	Responsible Specialist	Performed ⁽³⁾	Deliverables
Review of Environmental Regulations	O	Peter Foote Environmental Specialist	Jan 98 - Jun 98	Interagency Consultation Process for Environmental Review of Hydroelectric Developments - <i>Draft Report</i> Review of Potential for Exempting Smaller Hydroelectric Projects from the Full EIA Process - <i>Draft Report</i> Summary of Existing Guidelines and Regulations for Hydropower Licensing in Nepal - <i>Draft Report</i> Interagency and Public Consultation Guidelines for Application of Production License - <i>Draft Report</i>
Review of Stakeholder Issues	P	Dr Jagadish Pokharel Stakeholder Analyst	Feb 98 - Mar 98	Stakeholder Issues in Hydropower Development Projects - <i>Draft Report</i> Manual on Guidelines for Stakeholder Analysis - <i>Draft Report</i>
Legal Specialist		Mr Ratna Sansor Shrestha Legal Specialist	Jun 98	Final Draft Report Presented at FNCCI Workshop

Notes

- (1) Column 'Ref' is the alphabetical reference where used in the Quarterly Reports. The activities for references G and H were not undertaken.
- (2) Commodities procured under Dan Ruiu were not reported under Activity A.
- (3) 'Performed' is the approximate period over which this activity was performed.

Appendix B

Quarterly Reports

Private Electricity Project

**Acres International -
CFED Inc.**

Quarterly Report for Period Ending September 30, 1995

*Phase I
July - December 1995*

Prepared for

**Electricity Development Center
HMG/Nepal**

and

**United States Agency for International Development
Mission to Nepal**

**Private Electricity Project
Contract NO 367-0167-C-00-5117-00
Acres International Corporation, Amherst, New York,
Center for Financial Engineering in Development
Washington, D C,**

1 Introduction

Following the provisions of the Contract, this report serves as the discussion outline for the quarterly meeting of EDC, USAID and the Contractor to review the progress of the activities set forth in the Phase I Work Plan for the Private Electricity Project. This report lists the strategic deliverables of the Work Plan as identified in the joint meeting with USAID and EDC on July 21 and defines the progress made toward achieving those defined goals and deliverables.

Included in the discussion, is the identification of any problems encountered in achieving those goals and any suggestions for the modification or restructuring of the Phase I Work Plan objectives and timetable.

While the final completed reports of the various short term consultants will be a part of the general final report, the conclusions and recommendations of those consultants finished with their assignments are attached as an annex to this quarterly report.

Upon completion of the progress meeting of Sept 22, suggestions and recommendations will be included in the final draft of this document.

2 Work Plan Activities (Phase I)

Phase I Activities included the following components

Component Activity	Status As of September 20	
	Original Schedule	Actual Schedule
Activity A Commodities Acquisition		
1 Photocopier 1 ea	August 4	On order - Due
2 Computer 2 ea	August 4	In-Service Sept 19
3 Printers 2 ea	August 4	In-Service Sept 19
4 Phone and fax line		Local Service only, No IDD
5 Misc Office Equip	August 4	Aug 19 Office Move
Responsible Party COP and EDC	Chief of Party, EDC, USAID	Scheduled Activity Comp Aug 31 Actual Sept 19 (No IDD)

Results from Activity A

Final procurement of commodities and establishment of operational office

Implementation Problems

The contractor was informed, upon arrival in Kathmandu, that EDC offices would be relocated on or about August 17. As such, there was not sufficient lead-time to procure the additional telephone service prescribed under the Contract. At this time there is only local telephone service available in the Contractor's office. The Contractor using local hotel facilities for international communications. The result is a somewhat higher cost than would have otherwise been incurred.

Additionally, the new office location lacked security devices on the windows. This created the inconvenience of having to move temporary computers and printers back and forth from the hotel locations to the office on a daily basis. The installation of the security bars during the week of Sept 11 resolved the security problem.

A Summary of Activities and Schedules

Component Activity	Status As of September 20	
	Original Schedule	Actual Schedule
Activity B Institutional Review/Recommendations		
1 Review Electricity Act	Aug 13	<i>Completed</i>
2 Review Electricity Regulations	Aug 13	<i>Completed</i>
3 Review HMG Financial Policy	Aug 13	<i>Completed</i>
4 Gather Data on Other Countries	Aug 13 COP, I P	<i>Completed</i>
5 Compare Compatibility of Acts	Aug 13	<i>Completed</i>
6 Liaison with Human Resource Planner Training and Recommendation	Sept 1	<i>Ongoing at this time</i>
7 Present Report & Recommend	Oct 1	<i>Scheduled</i>
Responsible Party	Institutional Planner	Larry Haas

Results from Activity B

Specific written recommendations on the following

- Strengthening of institutional structures supporting private sector electricity programs, including recommendations on restructuring, if necessary
- Enhancing regulatory frameworks dealing with private sector
- Further developing legislative authority for the development of the private power promotion program

- Expanding legislative authority to solicit proposals from the private sector and issue licenses for selected projects
- Expanding the authority to negotiate power exchange agreements with neighboring countries
- Increasing EDC's advisory role on refinement of existing rules and regulations and developing new rules and regulations needed to conduct efficient and effective private power program
- Types and levels of training for inclusion in the formal training component of the project (This effort to be coordinated with the Human Resources/Training Specialist)
- Examples of other country's power export policies and comparison to what is in-place in Nepal Provide comparison of Asia region regarding, incentives, taxes, export fees, compensation to host governments, etc
- A comparison of institutional structure and encountered problems in the development of private power sectors in other countries as compared to existing and proposed institutional and organizational structure of the private power sector in Nepal

As indicated in the above table the activity is nearing completion and is on schedule. The conclusions and recommendations, with emphasis on the regulatory and institutional framework for private power promotion, have been presented to EDC, comments received and the final stages of drafting the report are being completed. This level of effort consisted of 45 person-days of short term technical assistance and is in accordance with the approved budget.

Component Activity	Status As of September 20	
Activity C Human Resource/ Training Assessment	Original Schedule	Actual Schedule
1 Review Staffing EDC	Sept 5-15	<i>Activity is on schedule</i>
2 Review Job Functions	Sept 5-15	
3 Analysis Training Needs	Sept 5-15	
4 Integrate Findings with I P	Sept 21-28	
5 Present Report & Recommd	Draft	<i>Sept 28</i>
Responsible Party	Human Resource Development Specialist	Lloyd Haase

Results from Activity C

Recommendations on organizational staffing and training programs to

- Further define the degree and type of formal and informal training anticipated in the Project Activity C is the fundamental component needed to allow for the training design and further detailed schedule for Phases II of the Work Plan
- In coordination with the Institutional Planner and Power Operations/Safety Specialist, provide any recommendations with regard to the staffing and functional organization of EDC

Problems Encountered

No problems were encountered with the design in the scope of work. Due to the length of the individual interview process, it became apparent that the interview process would have to be limited to the core group in the privatization cell of EDC. Selected others from the planning group and the safety and inspection cells were also interviewed in order to obtain sufficient background information for development of specific aspects of the training program.

The Human Resources specialist has developed a sustainable process for continued evaluation and monitoring of the training and educational needs of the EDC. As a part of the training component within this Contract, it is recommended that this process be continued as a sustainable output, conducted on an on-going basis within EDC. This will be expanded in the training component.

Component Activity	DEFERRED TO PHASE II	
Activity D Environmental Regulation Review	Start and Completion Schedule	
1 Review Existing Guidelines	Oct 15	
2 Compare with others		
3 Monitoring Guidelines		
4 Licensing Req. and Procedures		
5 Present Initial Findings	Oct 30	
Responsible Party	Environmental/Social Planner	<i>Lawrence Haas</i>

Status

As noted above, this component originally planned for completion in Phase I of the Work Plan is being deferred at this time. When the Work Plan was originally proposed it was anticipated that the Environmental/Social Planner, Mr. Larry Haas, could complete his assignment under the Institutional Planner consultancy and initiate the first segment of the environmental regulation review. Prior schedule commitments preclude extending his assignment to start the environmental activity. This

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will be initiated later in the last quarter of 1995 or in the first segment of the Phase 11, starting in January of 1995. There will be no resultant adverse impact on the Project schedule or the proposed budget as a result of this rescheduling.

Component Activity	Status As of September 20	
Activity E Power Operations and Safety	Original Schedule	
		Actual Schedule
1 Review Existing Guidelines	Aug 14	<i>All activities completed on scheduled</i>
2 Provide Comparisons	Aug 14	
3 Recommend Rules	Aug 14	
4 Training Recommendations	Aug 14	
5 Present Initial Findings	Sept 14	<i>Part 1 of two part assignment</i>
Responsible Party	Power Op Safety Specialist	Foster Pelton

Results from Activity E

- Recommendations regarding the standards and procedures to be applied by EDC in the process of licensing and monitoring shall form the basis of this consultancy. Based on the consultants experience in design and construction monitoring, the consultant will, within five working days, interview the appropriate staff of EDC regarding the problems and provide a written recommendation of specific tasks to be completed besides the prescribed deliverables in this Terms of Reference.
- Review of the existing institutional setup for implementation of guidelines/safety standards in power sector and recommend necessary measures for institutional strengthening.
- Provide collection of documents available related to existing International Safety Standards (Civil, Electrical, Mechanical & Environmental) of representative developed and developing countries related to design, construction, operation and maintenance of hydropower projects.
- Recommendation on necessary levels of training to enhance EDC's capability on preparation and implementation of guidelines/safety standards related to the power sector.
- Examples of other country's safety guidelines and operational monitoring policies for private power projects and a comparison to what are in-place in Nepal.
- Recommend concrete safety guidelines/standards for incorporation in corresponding regulations.

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Problems Encountered

No major or problems were encountered in the performance of this activity. What was identified was the extent of the need to develop standards and procedures for the continued monitoring of the design and construction of those projects under construction license and the need to develop criteria for ongoing monitoring during the life of the project.

SUMMARY

1 Summary level of effort for the period July 1 through October 4, 1995

Staffing Level of Effort for Period

Position	Actual	Budget
Chief of Party-----	72	(NA)
Institutional Planner-----	45	44
Spec Power Op /Safety-----	24	22
Human Resources Spec -----	24	22

Person-Days for Chief of Party is specified as total for project, not by specific period

Contingency line-item person-months are available to adjust the specific overages set forth above. These will be reflected in the budget analysis presented in the Phase II Work Plan.

2 Activity Schedule for Period of October through December, 1995

- Technical activities will be concluded for Phase I by the first week in October. The Chief of Party will be away from post in Kathmandu until January 1996. During this period, there will be limited activity to complete the evaluation and recommendations of the Institutional Planner and Human Resources Specialist. These recommendations will be incorporated into the design of Work Plan Phase II, training component and additional technical assistance for the period January through December 1996.
- The proposed Work Plan will be mailed to USAID/Nepal and EDC for preliminary review prior to the return of the Chief of Party. During this period there is a proposed level of effort of 15 person days for the Chief of Party to review information and formulate the reference Work Plan for submission to AID and EDC.
- Training preparations for EDC staff will continue on a limited basis and will be coordinated by the Contractor's Office Administrator. This activity will be agreed to by EDC, USAID Training Office, and the Contractor.
- Documents and periodicals identified as deliverables under the terms of reference for the Power Operations/Safety consultancy will be accumulated and delivered to EDC.

Private Electricity Project

Acres International

Quarterly Report

March 31, 1996

**Phase II
January - March, 1996**

Prepared for

**United States Agency for International Development
Mission to Nepal**

**Private Electricity Project
Contract NO 367-0167-C-00-5117-00
Acres International Corporation
Amherst, New York**

1 Introduction

Subsequent to the provisions of the Contract, this report serves as the basis of a progress report of the activities set forth in the Work Plan for the Private Electricity Project (PEP), for the period ending March 31, 1996. This report lists the strategic deliverables of the Work Plan as identified and agreed to by EDC and USAID in the joint meetings and defines the progress made toward achieving those defined goals and deliverables.

Included in the discussion, is the identification of any problems encountered in achieving those goals and any suggestions for the modification or restructuring of the activities identified in the Phase II Work Plan objectives and timetable.

While the final completed reports of the various short term consultants will be a part of the overall final report, excerpts from the conclusions and recommendations of those consultants finished with their assignments are attached as an annex to this quarterly report.

Based on discussions and recommendations of the quarterly meeting to discuss progress, suggestions and modification will be incorporated in the remainder of the Phase II Work Plan.

Attached to this report are Annexes containing portions of the report deliverables highlighting the summary findings and recommendations. These include the following:

- Annex A - Environmental/Social Planner Report Summary
- Annex B - Power Safety/Operations Report and Recommendations

2 Work Plan Activities (Phase II)

Phase II Activities January - March, 1996, included the following components:

- Environmental/Social Planner review and recommendations
- Power Operations and Safety Specialist, Part II review and report
- Preparation of Promotion Presentations by EDC and PEP Chief of Party
- Review of export related issues for further study - PEP Chief of Party
- Preparation of Terms of Reference and Scope of Work for
 - Financial Contracts Specialist Contract/Legal Specialist Tariff/Rate Specialist
- Continuation of the development of the Training Schedule and Budget

Each of these activities is discussed in more detail in the following section. The detailed overview identifies the anticipated deliverables and discusses findings, and any problems encountered, with recommendations included in the applicable annexes.

The summary activity schedule in chart "A" provides an overview of the completed, ongoing and projected technical assistance for EDC provided by PEP through the March 1997 end-of-contract period. The activities depicted in red are completed activities, the green tasks are those which are approved and/or on-going at this time and the activities in blue denote those tasks which are scheduled, but not totally finalized as to scope of work and definite timing for the tasks.

3 Environmental/Social Planner - Work Plan Activity D

A Summary of Activities and Schedules

Activity "D" Environmental Regulation Review	Start and Completion Schedule	
Part A	January 15, 1996	<i>Completed March 28, 1996</i>
1 Review Existing Guidelines		<i>Two Part Deliverable</i>
2 Consolidate Criteria		
3 Review Regulations and Licenses for Mitigation and Impact		
4 Highlight Requirements and Priorities for Updating		
5 Recommend on Institutional Arrangement and Interaction		
6 Recommend on Training for EDC staff on Environment		
Present report on Part A	February 28, 1996	<i>Report may be as short workshop</i>
7 Recommend Assessment Requirements	Incorporation of input from Part A, and start of Part B	
8 Guidelines for Licenses		
9 Guidelines for Public Consultation Process		
10 Envir Provisions for RFP's		<i>Workshop Session Scheduled for April 24</i>
Total Level of effort	65 person days, including travel	Completion by March 28, 1996
Responsible Party	Environmental/ Social Planner	<i>Lawrence Haas</i>

B Results from Activity D

Recommendations on

- Review of present environmental and social planning criteria, guidelines and standards, and relevant legislation covering hydropower and thermal generation projects, as well as transmission and distribution projects, with consultation with appropriate HMG officials and agencies
- Review and recommend provisions to strengthen socio-economic and environment assessment requirements in the Electricity Regulations, model license agreements, reporting formats, survey report format, etc relating to the scope and detail of private developer activities during both survey and production license periods
- Review and recommend on specific provisions in the Electricity Regulations and model licenses for cost-effective mitigation of social and environmental impacts and treatment of residual impacts during construction and operation phases of hydropower projects
- Scope out requirements for including socioeconomic and environmental provisions in structured RFP's for hydro and thermal generation projects
- Highlight future requirements and priorities for incorporating socioeconomic and environmental provisions in the Electricity Regulations and licenses for transmission and distribution projects
- Recommend on institutional arrangements, EDC's interaction with other government agencies and organizational measures to help EDC effectively function as the one-window entity for private developer-government interaction on these matters
- Examples of how to use project management software on existing computers to track the licensing and approval process for projects under the jurisdiction of EDC

C Problems Encountered in Activity D

No problems were encountered in the preparation of the deliverables and the comprehensive recommendations set forth from the scope of work. Many of the environmental requirements suggested are all-encompassing and in some instances, still being reviewed by the Ministry of Health and Environment in terms of their level of application to certain aspects of the hydro-power projects, both existing and planned.

These guidelines and recommendations will have to be discussed further with EDC staff and a course of action developed, to fully implement and operationalize the environmental tracking and monitoring procedures.

4 Power Operations and Safety Specialist - Part II

A Summary of Activities and Schedules

Activity "E" Power Operations & Safety Part 2	Start and Completion Schedule	
1 Preparation time in Acres office	January 10 and January 11	
2 Arrival in Kathmandu	January 14, 1995	
3 Recommend Rules		
4 Field Inspection Trip & Report	<i>Scheduled by EDC</i>	
5 Present Initial Findings	<i>(to be determined by EDC)</i>	
6 Level of Effort	44 person days, including travel and home office preparation	Completion by March 1, 1996
Responsible Party	Power Op Safety Specialist	<i>Foster Pelton</i>

B Results from Activity E

As a continuation of the first part of the Power Operations and Safety component, the consultant coordinated with EDC staff and provided the following

- Recommendations regarding specific regulations with regard to regulatory oversight during the construction phase of projects
- Guidelines for further development of quality control and inspection programs for use by EDC monitoring and safety staff including the areas of sediment and erosion control as well as development of emergency action plans
- Assisted in the further development of formal procedures relating to dam safety, including hazard potential classification, routine operation and inspection procedures, independent consultant safety inspection procedures and long term emergency action plans
- Demonstrate the steps in the inspection process by jointly inspecting selected sites or sites with staff of EDC Conducted field instruction on the procedures used in the inspection process and formulated the types of reports to be submitted
- Conducted field tours of Marsyandi and Kulekhani hydro-sites with EDC inspection and safety personnel

C Problems Encountered in Activity E

Writing definitive standards for inspection of projects is somewhat difficult in Nepal, as there are already a mix of construction and operational standards being used and or proposed for various projects. This is a naturally occurring complication when dealing with a large mix of multinational suppliers and international funding organizations. While all countries have some form of construction standards, no one can be as a general overall "best suited" recommendation for Nepal. Rather the activity was to demonstrate how to know if what is being reviewed meets rational criteria for construction and safety and how to compare what is being proposed or inspected to other criteria already being used in these types of projects.

In addition, EDC will have to implement the project tracking and informational database in their tracking programs over a period of time. As a follow on to this, the Chief of Party will work with EDC to provide recommendations on how to proceed with this operational development in the areas of safety and inspection.

5 Preparation of Promotion Presentations by EDC and PEP Chief of Party

A Presentation Package for EDC Use in India

On February 9 through 11, representatives of EDC attended meetings in Delhi and Bombay and gave presentations on the opportunities for private sector involvement in the power sector in Nepal. The Chief of Party and EDC staff refined existing presentations and assisted in the developing the formal and technical slides for this trip.

B Formal Overview Presentation

At the request of EDC, PEP developed a more formal and refined presentation using Power Point Multimedia Software to illustrate the projects available for development in Nepal. This presentation was given to the Global Infrastructure Funding conference held in Kathmandu on April 8-10. Further refinement of this presentation will be completed as a part of the ongoing promotional activities associated with the PEP.

6 Review of Export Related Issues for Further Study

At the request of the Director General of EDC, the Chief of Party in conjunction with advisors at WECS, provide the draft of a discussion paper on salient areas for further review and recommendation regarding power export related matters. In accordance with the provisions of the PEP Contract, the discussion papers on export related matters, including export tariffs, transmission wheeling, tax incentives and development of financing proposals, will culminate in the development of a technical consulting assignment to provide detailed analysis and further recommendations. This has been identified as a necessary preparatory step in the formulation of the promotional activities defined under PEP. This activity is included in the short term technical assistance funding in the contract. A copy of the discussion paper is included with this report to provide examples of the types of issues to be addressed in the forthcoming assignment.

7 Preparation of Terms of Reference and Scopes of Work

As provided in the Work Plan, three additional scopes of work have been identified and associated terms of reference prepared for short term consultants in the following categories

- Financial Contracts Specialist
- Contract/Legal Specialist
- Tariff/Rate Specialist

The Financial Contract Specialist has been approved for mobilization and is scheduled to be on-site by April 14. This activity is for a period of 80 days and has the major responsibility of formulating a financial modeling program to enable EDC to better analyze the financial ratios, returns and total cost effectiveness of projects presented for licensing approval.

The Contract/Legal Specialist activity will concentrate on the development of model contract documents for use in future project negotiations and solicitation. Besides the traditional contracts concerning the power purchase agreement and project agreement, the consultant will develop the matrix of necessary financial and legal documents required for completion of project financing and operation. Final approval of this terms of reference is pending, but work is anticipated to begin on this task on or around May 10, 1996.

The Tariff/Rate Specialist will formulate the operational guidelines and regulations for the transparent operation of the Tariff Fixation Commission. The Tariff Fixation Commission is charged with the setting of the necessary electricity tariff levels for those projects proposed to be licensed under the Electricity Act and subject to permitting through EDC. This activity was identified as a requisite requirement for the PEP and the interactions of the approvals and regulatory schemes of the Tariff Fixation Commission will have impact on the oversight process of EDC. Approval of this terms of reference is pending, but is anticipated that this work would be completed during the next quarter.

8 Continuation of the Development of the Training Schedule and Budget

The tables included in this section summarize the anticipated formal training activities by category, international, regional and local components. The course shown and the estimates of time for the training are derived from quotations and estimates from the respective organizations sponsoring the activities. Because of the diversity of the available training programs and courses offered, the exact course activity may vary from those set forth in the attached summary tables.

Persons identified as potential candidates for international and regional training are to begin the completion of language qualification testing and processing of visa and other related approval documentation by no later than May 15. Necessary materials and assistance for this activity will be coordinated through the AID Training office and supervised by the PEP Office Administrator.

9 Line Item Budget Reallocations

As a result of the withdrawal of CFED from participation in the project, certain adjustments were required in the overall project budget for PEP. These changes resulted in the availability of additional funds for allocation to identified line item components. This request for change of use has been submitted to USAID/Nepal for approval and is pending at this time.

PRIVATE ELECTRICITY PROJECT
 TRAINING PLAN SUMMARY
 1996-1997

INTERNATIONAL

Activity	Length of Activity	Country	No of Positions	EDC Group	Tuition	Total Cost Est
Economics Finance Training	One Month 20 Days of Training	USA, Facilities in Washington, D C	Six	Private Sector Cell	\$25,000 Inc All Books Materials	\$61,300
Contract Law and Negotiations	3 Weeks	USA	Two	Legal And Private Cell	\$3,000 each	\$16,480
Environment Assessment Training	3 Weeks	USA	One	Private Sector Cell	\$8,000	\$12,835
Study Tours of Us IPP Sites and Projects	4 Weeks	USA	Six	Mixed	NA	\$53,300

Total for activity \$143,915

*Airfare estimated at \$2000 00 round tnp except for study tour at \$4000
 Lodging and per diem at \$135 00 average per day per person*

Private Electricity Project

Acres International

Quarterly Report

June 30, 1996

Phase II
April - June, 1996

Prepared for

**United States Agency for International Development
Mission to Nepal**

**Private Electricity Project
Contract NO 367-0167-C-00-5117-00
Acres International Corporation
Amherst, New York**

1 Introduction

Subsequent to the provisions of the Contract, this report serves as the basis of a progress report of the activities set forth in the Work Plan for the Private Electricity Project (PEP), for the period ending June 30, 1996. This report lists the strategic deliverables of the Work Plan as identified and agreed to by EDC and USAID in the joint meetings and defines the progress made toward achieving those defined goals and deliverables.

Included in the discussion, is the identification of any problems encountered in achieving those goals and any suggestions for the modification or restructuring of the activities identified in the Phase II Work Plan objectives and timetable.

While the final completed reports of the various short term consultants will be a part of the overall final report, excerpts from the conclusions and recommendations of those consultants finished with their assignments are attached as an annex to this quarterly report.

Based on discussions and recommendations of the quarterly meeting to discuss progress, suggestions and modification will be incorporated in the remainder of the Phase II Work Plan.

Attached to this report are Annexes containing portions of the report deliverables highlighting the summary findings and recommendations. These include the following:

- Annex "A" - Financial/Contracts Specialist - Interim findings
- Annex "B" - Contracts/Legal Specialist - Interim findings
- Annex "C" - Power Sector Development Fund - World Bank Recommendations

2 Work Plan Activities (Phase II)

Phase II Activities March - June, 1996, included the following components:

- Financial/Contracts Specialist - Completion of first half of assignment
- Contracts/Legal Specialist - Completion of first half of assignment
- Preparation of Promotion Presentations by EDC and PEP Chief of Party
- Review of export related issues for further study - PEP Chief of Party
- Continuation of the development of the Training Schedule and Budget
- Recommendations for the development of a Power Sector Development Fund
- Meetings with AID Washington, Chief of Party and Project Manager

Each of these activities is discussed in more detail in the following section. The detailed overview identifies the anticipated deliverables and discusses preliminary findings, any problems encountered, with recommendations included in the applicable annexes.

The summary activity schedule in Chart "A" provides an overview of the completed, ongoing and projected technical assistance for EDC provided by PEP through the March 1997 end-of-contract period. The activities depicted in red are completed activities, the tasks highlighted in green are

those which are approved and/or on-going at this time and the activities in blue denote those tasks which are scheduled, but not completed or implemented as of June 30, 1996

3 Financial Contracts Specialist - Work Plan Activity "F"

A Summary of Activities and Schedules

Activity "F" Part 2 Financial Contracts Specialist	Start and Completion Schedule	
1 Develop methodologies for financial analysis and appraisal	April 13, 1996	<i>Two part activity consisting of approx 40 days in each part</i>
2 Development of analytical pro-forma financial model	On or about May 24, 1996	
3 Development of matrix for risk analysis for project appraisal	Arrive in Kathmandu for Part B on or about July 14, 1996	Partially completed during first half of assignment
4 Detailed comparison of other countries financial policies		
5 Recommendations on training		
6 Present Findings & Report	Final workshop on findings prior to Aug 30 departure	Final presentation & report on or about August 20, 1996
Total Level of effort	80 person days, including travel	
Responsible Party	Financing, Contract Specialist	Mike Ashford

B Results from Activity "F"

Recommendations on

- Development of methodologies or approaches for financial analysis and appraisal of private power projects
- Consultant will develop an analytical financial model to use in forecasting the financial impact of both solicited and unsolicited hydro power projects in the private sector, under the review of EDC. The proposed pro-forma model should be designed to allow user to review buy-back rates, ratios of debt and equity, internal rate of return and other necessary financial indicators used in the assessment of proposed projects. The exact parameters will be determined after initial discussions between the consultant, EDC staff and the Chief of Party

- Provide recommendations on and develop a matrix for risk analysis for project appraisals
- Provide examples of other country's private power financial policies and comparison to what is in-place in Nepal Provide comparison of Asia region regarding, incentives, taxes, export fees, compensation to host governments, etc
- Problems encountered in the development of private power sectors in other countries in the areas of setting levels of financial guarantees and establishing risk management criteria as compared to existing and proposed policies and regulations applicable to the private power sector in Nepal
- Recommendations regarding types and levels of financial training and risk analysis for supplementing the formal training component of the PEP Project

C Problems Encountered in Activity "F"

No problems have been encountered in the preparation of the deliverables and the comprehensive recommendations set forth from the scope of work The preparation of the financial forecasting model has involved the joint cooperation of the EDC counterpart staff, the project Chief of Party and the short term consultant The software program resulting from this effort will be left with EDC staff for use in the future evaluations of proposed projects A discussion on the program and a sample output from the program will be included in the short term consultant's final report with the conclusion of the second half of this activity

4 Private Power Promoter - Activity "G"

The short term technical assignment for this activity is not scheduled until late in the third or fourth quarter of the project work plan The activity is still budgeted The job description and terms of reference will be prepared in August and submitted to EDC and USAID in late August 1996

5 Power System Planning Engineer/Analyst - Activity "H"

As a result of the recommendations and findings of the Institutional Planner and after discussions with the Director General of EDC, this Activity was deleted from the overall scope of the assignments under the current Work Plan After reviewing the institutional setting of EDC, NEA and WECS, the parties have agreed that the power system planning process originally anticipated to be performed in-part by EDC should be the complete responsibility of NEA Therefore, the originally proposed assignment for the Power System Planning Engineer would have been redundant with on-going activities at NEA As per the terms of the PEP Contract, the funds originally budgeted in this activity were reallocated to other short term assignments

6 Contracts/Legal Specialist - Activity "I"

A Summary of Activities and Schedules

Activity I Contracts/Legal Specialist	Start and Completion Schedule	
1 Comparison of Power Purchase Agreements - terms and conditions with other areas	May 10, 1996	
2 Standardization of Agreements		
3 Identification of additional issues impacting agreements		Completed June 15, 1996
4 Development of pricing and risk strategies and discuss implications	Second part start July 13, 1996	Part 2 of two part assignment
5 Development of "One Window" check list for closing documents	66 person days, including travel and home office preparation	Completion by August 14, 1996
Responsible Party	Contract/Legal Specialist	Foster Pelton

B Results from Activity "I"

The Specialist continues to complete the objectives outlined in the original work plan and scope of work. A more detailed report of the first half of the assignment is included in Annex B. Portions of the following objectives have been completed or are in-progress:

- Review power purchase agreements with other countries and power sales agreements with private power producers
- Assist in the drafting of standardized provisions for inclusion in the project agreements between Nepal and private power developers
- Analyze energy pricing strategies and assist in refined approaches
- Provide input and assistance to the Chief of Party and other consultants in the development of the Private Power Promotional activities
- Develop a "One Window" documentation "check list" for all documents necessary to effectuate a financial closing between a private developer and HMG/N. This should include suggested formats and where applicable a discussion as to the reasons for such documentation

C Problems Encountered in Activity "I"

One of the difficult tasks facing the development of standardized contracts for privatized electric generation projects is regarding the area of hydropower generation. While thermal power stations are generally more "building block" designer friendly, whether coal, oil or gas fired, hydropower stations present unique problems because of the differing types of hydro generation and the site conditions and operation risks associated with site location and conditions with hydropower can add a new dimension to the negotiated contract provisions. Therefore the Contract Specialist has had to take into consideration some of these unique features. In this regard, there may not be the ability to have what the industry refers to "model agreements" but rather have consistent provisions for risk sharing which must be incorporated into such hydro agreements. This will be dealt with in detail in the final reports.

7 Preparation of Promotion Presentations by EDC and PEP Chief of Party

A Formal Overview Presentation

At the request of EDC, PEP staff updated and refined a formal promotional presentation to illustrate the projects available for development in Nepal. This presentation has been given at many conferences and seminars held in the region in recent months. Further refinement of this presentation will be completed as a part of the ongoing promotional activities associated with the PEP.

B Presentation for US EA Tour to the United States

Under the sponsorship of the United States Energy Association two persons from EDC and the MOWR were selected to attend the workshops and seminars in the United States during the period July 5 - 18. In preparation, promotional materials were developed for presentations and distribution during this tour.

8 Review of Export Related Issues for Further Study

As described in the March Quarterly Report, the Director General of EDC, requested the Chief of Party in conjunction with advisors at WECS, to provide a draft discussion paper on salient areas for further review and recommendation regarding power export related matters. In accordance with the provisions of the PEP Contract, the discussion papers on export related matters, including export tariffs, transmission wheeling, tax incentives and development of financing proposals was prepared. It was originally anticipated that funds would be available in the existing budget to initiate another terms of reference for this newly defined activity. Because of the shifting of a substantial portion of the funds originally allocated to the Power System Planning Specialist to the Financial Contracts Specialist to lengthen the assignment, funds are no longer available for short term technical assistance on export related matters. Additional funding for this activity will be discussed in the quarterly review meeting with the parties.

9 Preparation of Terms of Reference and Scopes of Work

As provided in the Work Plan, two additional scopes of work remain to be implemented under the existing approved contract. The associated terms of reference have been or are being prepared for short term consultants in the following categories:

- Tariff/Rate Specialist
- Private Power Promoter

The Tariff/Rate Specialist will formulate the operational guidelines and regulations for the transparent operation of the Tariff Fixation Commission. The Tariff Fixation Commission is charged with the setting of the necessary electricity tariff levels for those projects proposed to be licensed under the Electricity Act and subject to permitting through EDC. This activity was identified as a requisite requirement for the PEP and the interactions of the approvals and regulatory schemes of the Tariff Fixation Commission will have impact on the oversight process of EDC. Approval of this terms of reference has been received and it is anticipated that work in this area will begin during the first week in July.

The Private Power Promoter assignment is still being review at this time to define the level of activity and the timing for this work. The status of this position will be discussed during the review meeting for this report.

10 Continuation of the Development of the Training Schedule and Budget

Tables were included in the previous report which summarize the anticipated formal training activities by category, international, regional and local components. The courses shown and the estimates of time for the training are derived from quotations and estimates from the respective organizations sponsoring the activities. Because of the diversity of the available training programs and courses offered, the exact course activity may vary from those set forth in the attached summary tables.

Persons identified as potential candidates for international and regional training have been scheduled to complete the completion of language qualification testing by no later than July 15. Necessary materials and assistance for this activity will be coordinated through the AID Training office and supervised by the PEP Office Administrator.

11 Line Item Budget Reallocations

As a result of the withdrawal of CFED from participation in the project, certain adjustments were required in the overall project budget for PEP. These changes resulted in the availability of additional funds for allocation to identified line item components. This request for change of use has been submitted to USAID/Nepal for approval and is pending at this time.

Private Electricity Project

Acres International

Quarterly Report

September 30, 1996

**Phase II
July - September, 1996**

**Prepared for
United States Agency for International Development
Mission to Nepal**

**Private Electricity Project
Contract No 367-0167-C-00-5117-00
Acres International Corporation
Amherst, New York**

1 Introduction

Subsequent to the provisions of the Contract, this report serves as the basis of a progress report of the activities set forth in the Work Plan for the Private Electricity Project (PEP), for the period ending September 30, 1996. This report lists the strategic deliverables of the Work Plan as identified and agreed to by EDC and USAID in the joint meetings and defines the progress made toward achieving those defined goals and deliverables.

Included in the discussion, is the identification of any problems encountered in achieving those goals and any suggestions for the modification or restructuring of the activities identified in the Phase II Work Plan objectives and timetable.

While the final completed reports of the various short term consultants will be a part of the overall final report, excerpts from the conclusions and recommendations of those consultants finished with their assignments are attached as an annex to this quarterly report.

Based on discussions and recommendations of the quarterly meeting to discuss progress, suggestions and modification will be incorporated in the remainder of the Phase II Work Plan.

Attached to this report are Annexes containing portions of the report deliverables highlighting the summary findings and recommendations. These include the following:

- Annex "A" - Financial/Contracts Specialist -Final Report
- Annex "B" - Contracts/Legal Specialist -Final Report

2 Work Plan Activities (Phase II)

Phase II Activities July - September, 1996, included the following components:

- Financial/Contracts Specialist - Completion of second half of assignment
- Contracts/Legal Specialist - Completion of second half of assignment
- Tariff/Rate Specialist - Completion of assignment
- Preparation of Promotion Presentations by EDC and PEP Chief of Party
- Review of export related issues for further study - PEP Chief of Party
- Continuation of the development of the Training Schedule and Budget
- Development of additional areas of technical assistance

Each of these activities is discussed in more detail in the following section. The detailed overview identifies the anticipated deliverables and discusses preliminary findings, any problems encountered, with recommendations included in the applicable annexes.

The summary activity schedule in Chart "A" provides an overview of the completed, ongoing and projected technical assistance for EDC provided by PEP through the March 1997 end-of-contract period. The activities depicted in red are completed activities, the tasks highlighted in green are those which are approved and/or on-going at this time and the activities in blue denote those tasks which are scheduled, but not completed or implemented as of September 30, 1996.

3 Financial Contracts Specialist - Work Plan Activity "F"

A Summary of Activities and Schedules

Activity "F" Part 2 Financial Contracts Specialist	Start and Completion Schedule	
Completion of Part 2	On or about July 14, 1996	
3 Development of matrix for risk analysis for project appraisal	Arrive in Kathmandu for Part B on or about Aug 30, 1996	Partially completed during first half of assignment
4 Detailed comparison of other countries financial policies		
5 Recommendations on Training		
6 Present Findings & Report	Final workshop on findings prior to Aug 30 departure	Final presentation & report on or about August 20, 1996
Total Level of effort	80 person days, including travel	<i>Deliverables completed</i>
Responsible Party	Financing, Contract Specialist	Mike Ashford

B Results from Activity "F" Part 2

Recommendations on

- Development of methodologies or approaches for financial analysis and appraisal of private power projects
- Consultant developed an analytical financial model to use in forecasting the financial impact of both solicited and unsolicited hydro power projects in the private sector, under the review of EDC. The proposed pro-forma model is designed to allow user to review buy-back rates, ratios of debt and equity, internal rate of return and other necessary financial indicators used in the assessment of proposed projects
- Development of a matrix for risk analysis for project appraisals
- Examples of other country's private power financial policies and comparison to what is in-place in Nepal. Comparison were provided of Asia region regarding, incentives, taxes, export fees, compensation to host governments, etc
- Examples of problems encountered in the development of private power sectors in other countries in the areas of setting levels of financial guarantees and establishing risk management criteria as compared to existing and proposed policies and regulations applicable to the private power sector in Nepal

15

- Recommendations regarding types and levels of financial training and risk analysis for supplementing the formal training component of the PEP Project

C Problems Encountered in Activity "F" Part 2

No problems have been encountered in the preparation of the deliverables and the comprehensive recommendations set forth from the scope of work, The preparation of the financial forecasting model involved the joint cooperation of the EDC counterpart staff, the project Chief of Party and the short term consultant. The software program resulting from this effort will be left with EDC staff for use in the future evaluations of proposed projects. A discussion on the program and a sample output from the program is included in the short term consultant's final report.

4 Private Power Promoter - Activity "G"

The short term technical assignment for this activity has been placed on hold at this time. EDC is reviewing the necessity of this activity and will provide comments later.

5 Power System Planning Engineer/Analyst - Activity "H"

As noted in the June Report, this activity was considered redundant and has been postponed indefinitely.

6 Contracts/Legal Specialist - Activity "I" Part 2

A Summary of Activities and Schedules

Activity "I" Part 2 Contracts/Legal Specialist	Start and Completion Schedule	
4 Development of pricing and risk strategies and discuss implications	Second part start July 13, 1996	Part 2 of two part assignment
5 Development of "One Window" check list for closing documents	66 person days, including travel and home office preparation	Completed by August 14, 1996
Responsible Party	Contracts/Legal Specialist <i>Foster Pelton</i>	

B Results from Activity "I"

The Specialist completed the objectives outlined in the original work plan and scope of work. A more detailed report of the assignment is included in Annex B. The following objectives have been completed:

- Review power purchase agreements with other countries and power sales agreements with private power producers

76

- Assist in the drafting of standardized provisions for inclusion in the project agreements between Nepal and private power developers
- Analyze energy pricing strategies and assist in refined approaches
- Provide input and assistance to the Chief of Party and other consultants in the development of the Private Power Promotional activities
- Develop a "One Window" documentation "check list" for all documents necessary to effectuate a financial closing between a private developer and HMG/N This should include suggested formats and where applicable a discussion as to the reasons for such documentation

C Problems Encountered in Activity "I"

One of the difficult tasks facing the development of standardized contracts for privatized electric generation projects is regarding the area of hydropower generation. While thermal power stations are generally more "building block" designer friendly, whether coal, oil or gas fired, hydropower stations present unique problems because of the differing types of hydro generation and the site conditions and operation risks associated with site location and conditions with hydropower can add a new dimension to the negotiated contract provisions. Therefore the Contract Specialist has had to take into consideration some of these unique features. In this regard, there may not be the ability to have what the industry refers to "model agreements" but rather have consistent provisions for risk sharing which must be incorporated into such hydro agreements. This will be dealt with in detail in the final reports.

7 Tariff/Rate Specialist - Activity "J"

A Summary of Activities and Schedules

Activity "J" EDC - <i>Tariff Fixation Commission</i> Electricity Tariff Regulation Review	Start and Completion Schedule	
1 Review existing guidelines and mandates of Tariff Fixation Commission	June 30, 1996	August 12, 1996
2 Develop operational guideline	Completed	
3 Provide examples of regulatory pricing guidelines	Completed	
4 Provide recommendations on tariff pricing structures	Completed	
5 Present workshop	July 31	
6 Present Findings & Complete Final Report	August 6	August 10
7 Level of Effort	44 person days	

Activity "J" EDC - Tariff Fixation Commission Electricity Tariff Regulation Review	Start and Completion Schedule	
Responsible Party	Private Power/Legal Chief of Party	Terry Pratt Steve Thompson

B Results from Activity J

- Recommendations on uniform rules and regulations for regulated utilities under Tariff Fixation Commission jurisdiction
- Provide guidelines for TFC staff regarding pricing structure methodology
- Provide specific recommendations regarding additional training in the areas of cost of service and rate of return analysis
- Present workshop on rate design and tariff analysis

C Problems Encountered in Activity "J"

No problems were encountered in the preparation of the deliverables. This activity was a preliminary institutional overview of the Tariff Fixation Consideration and focused primarily on a number in recommendations for the improved transparency and functionality of the Commission. Follow-on work will be necessary to develop the technical capability of the staff of the Commission. An approach similar to the main approach used by PEP in the assistance to the other sectors of EDC should be employed as soon as possible.

8 Training - Preparation of Promotion Presentations by EDC and PEP Chief of Party

A Formal Overview Presentation

At the request of EDC, PEP staff updated and refined a formal promotional presentation to illustrate the projects available for development in Nepal. This presentation has been given at many conferences and seminars held in the region in recent months. Further refinement of this presentation will be completed as a part of the ongoing promotional activities associated with the PEP.

B Study Tour Plans

EDC has requested PEP to formulate a study tour/promotional tour to the United States. The purpose of the tour is to provide formal information to Bankers, Developers and other interested parties, regarding the Private Sector Power opportunities in Nepal. PEP anticipates the tour to take place in November of 1996, an approximate duration of three to four weeks.

C Continuation of the Development of the Training Schedule and Budget

Tables were included in the previous report which summarize the anticipated formal training activities by category, international, regional and local components. The courses shown and the estimates of prime for the training are derived from quotations and estimates from the respective organizations sponsoring the activities. Because of the diversity of the available training programs and courses offered, the exact course activity may vary from those set forth in the attached summary tables.

Persons identified as potential candidates for international and regional training have been scheduled to complete the completion of language qualification testing. Necessary materials and assistance for this activity will be coordinated through the AID Training office and supervised by the PEP Office Administrator.

One of the problems with the implementation of selected training programs is HMG requiring all EDC staff to remain in-country pending the outcome of the Mahakali deliberations in Parliament. This has caused compression in the training schedule and the slippage of attendance in some courses which may be hard to replicate. New schedules are being developed to recover the lost window of opportunity for certain training activities.

9 Review of Export Related Issues for Further Study

As described in the March Quarterly Report, the Director General of EDC, requested the Chief of Party in conjunction with advisors at WECS, to provide a draft discussion paper on salient areas for further review and recommendation regarding power export related matters. In accordance with the provisions of the PEP Contract, the discussion papers on export related matters, including export tariffs, transmission wheeling, tax incentives and development of financing proposals was prepared. It was originally anticipated that funds would be available in the existing budget to initiate another terms of reference for this newly defined activity. Because of the shifting of a substantial portion of the funds originally allocated to the Power System Planning Specialist to the Financial Contracts Specialist to lengthen the assignment, funds are no longer available for short term technical assistance on export related matters. Additional funding for this activity will be discussed in the quarterly review meeting with the parties.

10 Mahakali Treaty

The Expanding Role of EDC

EDC is mandated as the implementing agency for matters pertaining to private power development. The cancellation of Arun III launched the private power effort at a far faster pace than was originally envisioned. In addition to the effort to negotiate for the medium sized domestic use, private sector projects, EDC also has the responsibility to assist MOWR in the development of the larger export oriented projects.

The recent Nepal Parliament ratification of the long awaited Mahakali Treaty launches Nepal closer to the realization of the development of the larger, export oriented hydroelectric projects and will require EDC to become involved in the more complex issues surrounding the evaluation, financing and marketing of larger multi-use development projects.

While the Mahakali Treaty deals with a number of issues specific to the Mahakali River region and the Pancheshwar Project reparticular, within the umbrella Treaty there exists a more definitive Power Trade Agreement between Nepal and India that defines the parameters for trans-border sales of electricity for both the public and private sector. This Power Trade Agreement applies to any project being proposed, not just Pancheshwar and is significant in that it sends a clear signal to potential developers and investors that both India and Nepal are ready to support such projects on a clearly defined basis. Provision within the Agreement state

- Any party may enter into a power export trade agreements whether government, semigovt or private in nature
- The parties negotiating the export agreements will determined their own parameters, including price, without intervention of either government
- The respective government will assist to implement the agreements in accordance with existing laws and regulations (Each country has a "One Window" policy for private investment in power)
- The developers will be granted all incentives and concessions of their respective countries
- The Power Trade Agreement is in effect for fifty years and will be reviewed every ten years for updates or revisions

Taken in its overall spint, the Power Trade Agreement signals that individuals are free to the existing budget to negotiate contracts within existing rules and regulations without the involvement of either government. Obviously, both governments become involved in the final approval process, but the road block experienced in previous negotiations by requiring developers to involve governments in the early stages of negotiations has been removed.

Also included within the Mahakali Treaty are certain time bound actions on behalf of Nepal and India to implement the following

- Completion of a Detailed Project Report on Pancheshwar Multipurpose Project within six months of signing of the Treaty
- Formation of the Mahakali River Commission and drafting of rules of procedure
- Develop an Agreement for the financing and implementation of the project
- Agreement on assessment of benefits for purposes of the Detailed Project Report "While assessing the benefits from the Project during the preparation of the DPR, net power benefit shall be assessed on the basis of, inter alia, saving in costs to the beneficiaries as compared with the relevant alternatives available"¹

¹ Lohani letter/Jan 1996

- Establishment of the Pancheshwar Development Authority within one year of signing of the Treaty

11 Areas of Additional Technical Assistance

A Current Situation

The success of PEP in implementation of the initial goals and objectives can be clearly demonstrated in the fact that two private power projects have been brought to financial closure and numerous other projects are being offered to meet the domestic growth requirements of Nepal's electricity needs. However, based on the sequent of events starting with the announcement of the cancellation of Arun III and culminating with the ratification of the Mahakali Treaty, the role of the EDC and PEP have shifted significantly from that envisioned by the initial proponents of the use of the private sector to fill the gap in generation prior to Arun III. HMG and the power sector have shifted from a project driven environment (Arun III) to one of strategic planning and market driven decision making. The viable market in Northern India has created yet another "window of opportunity" not unlike that envisioned when HMG took the first steps to solve the domestic crisis with a private power initiative. Once again, HMG must take advantage of the timing of such an opportunity to gain the market advantage and ensure that a portion of the larger export benefits of serving this load will accrue to the economic growth of Nepal.

The PEP affords this advantage again to HMG. As shown on the enclosed charts, goals and objectives of PEP in providing the training and analytical skills to EDC to meet the challenges of negotiations with the private sector has been completed. However, during the course of the PEP institutional and legal reviews it became clear that there are a number of issues regarding the valuation and packaging of the export related projects which need further clarification and evaluation. In addition, the World Bank has offered to create a Power Sector Development Fund of up to US\$ 175 million for use in the further development of private sector electric projects. The Bank in its letter to HMG dated July 1, 1996, recommended that EDC act as the secretariat to the Fund Administrator for the purpose of evaluating requests for use of the fund.

The institutional reform for EDC has advanced well and results have been positive. However, with the newly added responsibilities for export related projects, Mahakali administration and secretariat for the Power Sector Development Fund, EDC has defined areas of additional assistance which PEP could provide.

B Areas of Assistance

Export-Related Issues and Valuation of Benefits

Of paramount importance is the necessity for Nepal to complete the valuation of the export related projects in terms of taxes, royalties, and added benefits associated with the larger projects, including the value, either positive or negative on the environment. This area relates not only immediately to the Mahakali Treaty and the related Pancheshwar Project, but how the process is defined will impact all export related projects. This work would involve the more detailed analysis of the particular valuation of export related projects as they pertain to the existing incentives offered by HMG. Areas for review would include tax exemption levels and durations, value for wheeling or moving power

over existing NEA transmission facilities, valuation of the project in terms of royalties, water control, irrigation and other non-power types of concerns. Reviews must also be completed on the existing laws and regulations to assess any potential conflicts with existing legal and financial frameworks, including policies and Acts for promotion of such export projects.

Rate Structure Analysis and Tariff Design

PEP assistance was provided to the EDC and the Tariff Fixation Commission regarding the institutional and organizational structure of the newly formed Tariff Fixation Commission. In much the same manner as PEP assisted EDC in the formulation of its rules and regulations, recommendations in the areas of regulatory rules and procedures was provided to the Commission. These recommendations have been adopted and EDC has requested additional assistance from PEP in the more detailed aspects of evaluating proposed electricity tariff design to provide consistent evaluation for those utilities requesting changes in tariff rates. The transition from conventional public sector financing to the more innovative private sector process will require the Commission to evaluate rate increase requests and establish tariff levels to assure a fair return to the utility as well as the utilities' lenders. Again, providing the training and knowledge to apply such practices will be yet another signal to the private developers that Nepal is progressing in its goal towards more privatization in the power sector.

Promotional Activity Coordinator

The promotional activities for the export related projects must be expanded to include the preparation of a more formal and well written brochure regarding the power sector opportunities of Nepal. In addition, it has been suggested that a video be produced highlighting the various project sites which have the potential for export related promotion. A compilation of the various rules, regulations, policies and guidelines be developed and consolidated into one publication which can also be incorporated into the promotional activities. This activity should be under the direction of one person to coordinate the activities and work with the various local agencies and officials to accomplish this.

Power Development Fund Specialist

As a result of the recommendation by the World Bank that the EDC become the secretariat for the implementation of the proposed Power Sector Development Fund, EDC has requested the assistance of a short to medium term consultant on these matters. Specialist will work in conjunction with the Project Team Leader, The World Bank and EDC on the implementation and development of the proposed 175 million dollar Power Sector development Fund. Specialist will be the coordinator and advisor on the development of rules and procedures for use by the fund manager in establishing the criteria for on-lending of the fund, investment policies and strategies and provide ongoing advice to the appointed Fund Manager and Asset Manager.

Capital Markets/Project Finance Specialist

Working in conjunction with the Team Leader, the Finance Specialist would assemble a realistic set of criteria for one of the selected projects in terms of what could be expected to be seen with a typical project finance scenario. Several derivatives of type of financing could be demonstrated, dedicated

developer builds site for own consumption, developer builds site and sells power to both another private developer as well as the NEA grid. Examples of guarantee of risk authority, fee for giving sovereign guarantee to power development fund or project financing. This activity would include meetings with project development officials in India, high level discussion with persons working in the capital markets areas in South Asia. Is it possible to get a credit rating on a project in India or Nepal? Will it influence the debt raising ability of the project?

Hydropower Engineer

Assistance of a specialist in Hydropower Engineering is needed to assist in the development of the overall evaluation of the various project benefits from the multi-purpose design of the larger projects. A strategy must be developed to assess the overall shared benefits of such projects in order to value the level of export taxes and to define and quantify the risk/benefit valuation for export discussions. Multiple areas of expertise such as environmental, irrigation, power and land use contribute to this strategy development.

Environmental Specialist

Assessing and evaluating the financial impact of the positive and negative environmental aspects of the larger projects is a major component of the overall strategy development. The Environmental Specialist will provide input to the team and coordinate the strategy to assure that all aspects of the environmental impact are assessed and valued for purposes of export discussions.

Technical Writer/RFP Coordinator

One of the deliverables proposed under this extension is the preparation of extensive documents for soliciting proposals on the larger export related projects. These formal requests for proposals will take into consideration numerous areas of technical design, financing and descriptions of project criteria and evaluation, including the development of evaluation criteria. A separate person is proposed to coordinate the production and completion of the technical and time consuming tasks involved with producing such materials. The input data from the other consultants will be formulated and assembled by the Coordinator as directed by the Team Leader and EDC staff.

C Key Outputs from the Proposed Extension

In addition to the tasks described in each component assignment, the objective will be to have the project team assemble reports in the following areas:

- Development of the overall Privatization Scheme for the Pancheswor Project, including multi-use valuation of water resources and development of presentation for proposals with criteria for financial evaluation.
- Provide input and recommendations in the upcoming negotiations between EDC and the Snowy Mountain Group (SMG) on the West Seti 750 MW project. EDC has received notice that SMG wishes to begin formal negotiations late this fall or in January regarding the development of this project for dedicated export sale to India's private sector and northern grid.

- Using existing engineering and technical data, assist EDC in the preparation of formal request for proposals for Arun III and Upper Karnali hydro projects
- Recommendations on the formation of the Pancheshwar Development Authority, including rules and procedures for the operation of the Development District
- Preparation of the prequalifications requests for Request for Proposals on projects selected from the Medium Hydro Screening and Ranking Study
- Assist in the preparation of the formal requests for proposals for projects selected from the screening and ranking process

12 Summary and Recommendations

As set forth in the various activity reports, no major problems were encountered in the implementation of the Work Plan technical assistance activities during the period ended September 30, 1996

Minor conflicts in the scheduling of the training components have occurred, but there is sufficient time remaining under the current contract period, through March 31, 1997, to complete the projected training activities

Because of the change in focus in the private power sector resulting from the culmination of the Mahakali Treaty and the Power Trade Agreement, EDC has requested additional assistance from USAID for certain study areas. In addition, the World Bank proposed Power Development Fund has resulted in the Bank requesting immediate assistance from USAID to provide qualified persons to assist HMG/N in the development of Power Development Fund guidelines and implementation regulations. These requests are being discussed between Acres and USAID/Nepal.

Private Electricity Project

Acres International Corporation

Quarterly Report

September 30, 1997

Phase II

October 1996 - September 1997

Prepared for

**United States Agency for International Development
Mission to Nepal**

**Private Electricity Project
Contract No 367-C-00-95-05117-00
Acres International Corporation
Amherst, New York**

1 Introduction

This report summarizes progress on the activities set forth in the Work Plan for the Private Electricity Project (PEP), for the period from October 1, 1996 to September 30, 1997. This report identifies the deliverables of the Work Plan as agreed with EDC and USAID in joint meetings and defines the progress made toward achieving those defined goals and deliverables. The identified reports completed during this period by the short term consultants have been issued separately to USAID and EDC.

Some of the conclusions and recommendations of the consultants have been noted herein. Also included is the identification of the more significant problems encountered in achieving the goals and suggestions for the modification or restructuring of the activities identified in the *Phase II Work Plan* objectives and timetable.

Based on discussions and recommendations, activities noted in Section IX, Areas of Additional Technical Assistance, have been proposed for incorporation in the Work Plan for Phase II to be extended to March 31, 1998.

2 Work Plan Activities (Phase II)

Phase II Activities October 1996 through September 1997, included the following components:

- Power Development Fund Specialist Activities
- Technical Writer/RFP Coordinator Activities
- Export Related Issues and Valuation of Benefits Specialist Activities
- Hydropower Engineer Activities
- Preparation of Promotion Presentations by EDC and PEP Chief of Party
- Implementation of Study Tours, Conferences and Training Programs
- Development of additional areas of technical assistance

Each of these activities is discussed in more detail below identifying the deliverables and significant findings, and any problems encountered.

Chart A, Summary Activity Schedule, attached to this report is a summary of the activities undertaken during the reporting period from January 1, 1997 through September 30, 1997. In addition, Chart A shows the activities which have been proposed during the extension period from October 1, 1997 through March 1998. The proposed activities and estimated durations presented in this report are conceptual and based on Section IX, Areas of Additional Technical Assistance.

3 Power Development Fund Specialist - Work Plan Activity "K"

A Summary of Activities and Schedules

Activity "K" Part 1 Power Development Fund Specialist	Level of Effort and Status of Activity	
1 <i>Draft Borrower Implementation Plan (BIP)</i> Nepal Power Development Fund Recommendations and Guidelines for Fund Implementation	(1) Completed draft	July 29, 1997
	(2) Issued draft	August 29, 1997
2 <i>Draft Request for Proposals</i> For Fund Administrator for the Nepal Power Development Fund	(1) Completed draft	July 22, 1997
Total Level of Effort	62 person days, excluding travel	<i>Deliverables completed</i>
Responsible Party	Financing Specialist	Randy Lintz

B Results from Activity "K" Part 1

Recommendations on

- Consultant developed the *draft* "Borrower Implementation Plan" which will serve as the procedures manual for the Fund Administrator, EDC, Ministries and World Bank for the administration of the Power Development Fund for investment in private power projects
- Consultant developed the *draft* Request for Proposals to solicit proposals from Nepalese financial institutions to serve as Fund Administrator for the Nepal Power Development Fund. This document will also serve as the resource document to develop the Terms of Reference (Request for Qualifications) for financial institutions seeking qualification for the submission of proposals

C Problems Encountered In Activity "K" Part 1

No problems have been encountered in the preparation of the deliverables. The draft Borrower Implementation Plan was prepared by the consultant in cooperation with EDC and MOWR staff and Chief of Party. The draft will receive further review by EDC, MOWR and the World Bank, and based on these reviews may require further updating.

4 Technical Writer/RFP Coordinator - Activity "L"

A Summary of Activities and Schedules

Activity "L" Part 1 Technical Writer/RFP Coordinator	Level of Effort and Status of Activity	
1 Review and Assistance on Preparation of Request for Qualifications for 402 MW Arun-III Hydroelectric Project on BOOT Basis	Draft(fourth) completed	March 27, 1997
	Revised draft completed	July 21, 1997
2 Draft Request for Proposals for 402 MW Arun-III Hydroelectric Project on Build, Own, Operate and Transfer (BOOT) Basis	Second Draft completed	April 11, 1997
3 Draft Request for Qualifications for Five(5) Medium Hydroelectric Project on Build, Own, Operate and Transfer (BOOT) Basis	First Draft completed	July 17, 1997
4 Draft Request for Qualifications for Dudh Koshi Hydroelectric Project on Build, Own, Operate and Transfer (BOOT) Basis	First Draft completed	July 22, 1997
5 Draft Request for Qualifications for Upper Karnali Hydroelectric Project on Build, Own, Operate and Transfer (BOOT) Basis	Second Draft completed	July 22, 1997
Level of Effort (Excluding travel time and office support)	94 person days	<i>Deliverables completed by July 31, 1997</i>
Responsible Party	Contacts Engineer/ Technical Writer	<i>Jim Plummer</i>

B Results from Activity "L", Part 1

The Technical Writer Specialist completed the following objectives outlined in the original work plan and scope of work

- Review of the format, content and evaluation criteria for the request for qualifications for Arun-III, as well as assistance to EDC in completing the document for issuing

- Preparation of a *generic* draft document for the Request for Proposals for the development of hydroelectric projects for both domestic and export purposes based on the Arun-III Hydroelectric Project. The document was drafted in a generic format in order to
 - Set forth the proposed format and contents of the request for proposal documents for both export and domestic projects
 - Provide a starting point for the development of the evaluation process including the establishment of both price and non-price factors to be used in evaluation and ranking of proposals
 - Provide an outline document from which project specific RFP's for both export and domestic hydropower projects can be drafted with minimum changes
 - Provide a document to promote further review, discussion and comment of scope, contents and format for the solicitation of competitive proposals from developers

- Preparation of draft Requests for Qualifications for the seven medium hydro projects identified in the Medium Hydro Study Project in the following documents
 - Request for Qualifications for Five(5) Medium Hydroelectric Project on Build, Own, Operate and Transfer (BOOT) Basis
 - Request for Qualifications for Dudh Koshi Hydroelectric Project on Build, Own, Operate and Transfer (BOOT) Basis
 - Request for Qualifications for Upper Karnali Hydroelectric Project on Build, Own, Operate and Transfer (BOOT) Basis

C Problems Encountered in Activity "L", Part 1

One of the difficulties in drafting the requests for qualifications and requests for proposals for the development of hydroelectric generation projects by independent power producers is the lack of precedence of the use of competitive proposals. While there is some precedence in the use of the competitive process in thermal generation projects, most of the qualification documentation and evaluative criteria needed to be developed specifically to reflect the unique requirements of hydroelectric projects.

5 Export Related Issues/Valuation of Benefits Specialist - Activity "M"

A Summary Of Activities And Schedules

Activity "M"	Export Related Issues and Valuation of Benefits	Level of Effort and Status of Activity	
1	User's Manual and Model Documentation Nepal Export Of Power Simulation Model referred to as "NEPSIM"	Manual completed	June 1997
2	The Export of Power from Nepal Evaluation of Opportunities	Report completed	August 1997
3	Workshop and training in the use of the NEPSIM model for the evaluation of benefits	Workshop - Training	June 1997
Level of Effort	(Excluding travel time and office support)	a) 186 person days b) 59 person days	<i>Don Priestman</i> <i>Rex Tolman</i>
Responsible Parties		a) Export Valuation Benefits Specialist b) Hydropower/Water Resource Engineer	<i>Don Priestman</i> <i>Rex Tolman</i>

B Results from Activity M

Through the combined efforts of the Export Valuation Benefits Specialist and the Hydropower Water Resource Engineer the following objectives outlined in the original work plan and scope of work were completed

- The Nepal Export of Power Simulation Model (NEPSIM) User's Manual and Model Documentation was completed and issued in June 1997
- The NEPSIM model has been custom-developed as a tool for His Majesty's Government of Nepal as part of the effort to encourage private sector development of hydropower projects, in order to exploit opportunities for power export. Specifically, it has been designed to assist EDC to
 - Evaluate power export policy alternatives and formulate recommendations
 - Assess and compare developer's proposals
 - Quantify the net benefits to Nepal, including downstream benefits

- Assist in negotiations with potential developers and downstream beneficiaries
- Understand the linkages between HMG/N policy and power production

The NEPSIM model requires a number of inputs, from which it calculates the resulting developer profitability, downstream benefits, and HMG/N benefits. The input detail varies from detailed to general, depending upon available information. The model has been designed to have the flexibility to handle a wide range of project types and input assumptions, while at the same time being user-friendly.

- The report on the Export of Power from Nepal Evaluation of Opportunities was completed. The objectives of this report were
 - To review the current status in Nepal with regard to the promotion of privately-developed hydropower projects for export
 - To develop a methodology for valuation of export-related hydropower projects

The first part of the report reviews the market for power exports and the current realities of export project financing followed by an outline of the sometimes conflicting interests of the various stakeholders, a discussion of the various power export costs and benefits which must be considered, and an overview of the steps that a private developer must follow prior to project approval. The first part ends with a summary of the main bottlenecks and risks in private power development for export.

The second part addresses in more detail some of the key questions facing HMG/N in promoting private power development for export. In response to the need for a methodology to quantify the direct benefits and costs and to reflect the complex inter-relationships between the various parties, the use of NEPSIM Model, which has been discussed above, has been summarized. This part concludes with some examples of the insights that the NEPSIM model can provide, followed by a series of recommendations.

- Thirteen EDC and MOWR staff were trained in the use of NEPSIM, and the software, full model documentation, and appropriate computer hardware. The NEPSIM Model should prove to be an extremely powerful tool to Nepal in the years ahead for
 - Evaluating alternative policy impacts and formulating policy
 - Analyzing and comparing developer proposals
 - Negotiating with potential developers

C Problems Encountered In Activity "M"

No problems were encountered in the preparation of the deliverables. This activity was effectively carried out by the Export Valuation Specialist and Hydropower Engineer in cooperation with EDC and MOWR staff.

6 Training - Promotion Presentations

A Formal Overview Presentation

At the request of EDC, PEP staff updated and refined a formal promotional presentation to illustrate the projects available for development in Nepal. Presentations have been given at conferences and seminars held in the region. Further refinement of this presentation will be completed as a part of the ongoing promotional activities associated with the PEP.

B Study/Promotional Tour

A study/promotional tour to the United States with the purpose of providing formal information to Bankers, Developers and other interested parties, regarding the Private Sector Power opportunities in Nepal took place from November 17, 1996 to December 6, 1996. Participants in the tour were

Dr K B Aryal	Deputy D G EDC
Mr B B Thapa	Deputy D G EDC
Mr B B Karki	Deputy D G EDC
Mr S N Shukla	Minister MOWR
Mr M P Ghimire	Under Secretary MOWR
Mr B M Shakya	Joint Secretary MOWR

C Training Programs

Tables were included in the March 1996 report summarized the anticipated formal training activities. The following courses were implemented and the listed participants attended.

(i) Power Generation 96 - Conference

Mr B B Karki - Deputy D G - EDC	Delhi	Sept 17 - 19, 1996
Mr B B Karki - Deputy D G - EDC	Singapore	Sept 7 - 13, 1997
Mr B B Karki - Deputy D G - EDC	Delhi	Nov 3 - 7, 1997

(ii) Finance & Economic - Training

(April 25 - May 24, 1997)

Mr S B Malla	Sr Div Eng	EDC
Mr A Acharya	Sr Div Eng	EDC
Mr J K Mackey	Sr Div Eng	MOWR

[May 16 - June 15, 1997]

Mr D N Manandhar	Sr Div Eng	EDC
Mr S L Shrestha	Sr Div Eng	EDC
Mr R K Kshatri	Under Secretary	MOWR

(iii) Regional Conference - Delhi Oct 23 - 31, 1996

Mr S B Malla Sr Div Eng EDC

(iv) Contract Law and Negotiation - Training Aug 30 - Sept 16, 1997

Mr T N Adhikari Legal Officer EDC
Mr B Karki Section Officer EDC

(v) Basic Management Program - Training Sept 1 - 26, 1997

Mr L R Shrestha Chief Accounting Officer EDC
Mr M B Gewali Under Secretary EDC

Participants for the international and regional training completed language qualification testing. Necessary materials and assistance for this activity was coordinated through the AID Training office and supervised by the PEP Office Administrator.

7 Areas Of Additional Technical Assistance

A Current Situation

The success of PEP in implementation of the goals and objectives can be demonstrated in the progress achieved to date in the areas of the Power Development Fund implementation, preparation of documents for competitive selection of project developers and the NEPSIM Model for the evaluation of total benefits.

B Areas of Assistance

The areas of continued assistance needed to maintain momentum and meet the need to support the efforts of EDC to promote privatization of power development in Nepal are set forth below by identifying the Technical Specialist required and the anticipated scope of work.

Power Development Fund Specialist

The World Bank and EDC have progressed significantly on the terms and conditions of an Administration Agreement for the implementation and development of the proposed 175 million dollar Power Development Fund. The implementation of this fund is of major importance in the overall plan to stimulate the investment by the private sector in the development of hydropower in Nepal. The Specialist needs to continue to assist in the preparation of the Letter of Invitation and the associated Terms of Reference (Request for Qualifications) to solicit responses from financial institutions interested in being qualified to submit proposals for Administrator of the fund. In addition, the Specialist will be needed to complete the Request for Proposals as well.

as revise the Borrow Implementation Plan based on further reviews and inputs by EDC, MOWR and the World Bank

Technical Writer/RFP Coordinator

The completion of the draft document(s) for the request for qualification for developers interested in submitting competitive proposals for the development of hydroelectric projects is considered of paramount importance. Moreover, this process needs to continue in parallel with the implementation of the Power Development Fund which is a source of funding to made available to developers. The Technical Specialist will be needed to prepare redrafts of the documents including the evaluation criteria as well as technical descriptions of potential projects for review with both EDC and the World Bank. The Technical Specialist will also be needed to draft a corresponding request for proposals for any of the medium hydro projects selected for development based on the system planning studies being undertaken by NEA. This document will be structured from the generic document prepared to date and the inputs from the other consultants, EDC and the World Bank.

Export Related Issues And Valuation Of Benefits

Of major importance is the necessity for PEP to continue the development and application of the NEPSIM Model for the evaluation of total benefits for the export related projects in particular. The issues of taxes, royalties and other infrastructure benefits associated with projects, including the increase or decrease in value resulting from environment impacts needs further refinement and incorporation in the model. The Technical Specialist along with the Hydropower Engineer are needed to refine the model for greater flexibility in the financial calculations.

Hydropower Engineer

Assistance of a specialist in Hydropower and Water Resource Engineering is needed to assist in the continued development of the overall evaluation of the various project benefits from the multi-purpose design of the larger projects. Multiple areas of expertise such as environmental, irrigation, power and land use contribute to this strategy development.

Environmental Specialist

The Environmental Specialist needs to support several needs. Firstly he will work with the Stakeholder Analyst in the development of a guidelines manual for conducting analysis of issues raised by stakeholders, and will assist in the preparation of a stakeholder issues report that will review previously-raised issues, and will recommend EDC procedures for public disclosure of future stakeholder and environmental issues. Secondly, since the assessment positive and negative environmental impacts for the larger projects is a major component of the overall strategy development, the Environmental Specialist is needed to provide input to the work of the Export Value Specialist assure that impacts are assessed and valued for purposes of export discussions. Finally, the Environmental Specialist will also review existing guidelines for interagency consultations and interactions during licensing of hydroelectric projects in Nepal, and will provide recommendations on institutional improvements that could be made to improve this interagency consultation process.

Stakeholder Analyst

One of the main components of the PEP is to assist EDC to develop the capacity to both promote privatization and deal with public relations from a wide range of stakeholders, both governmental and non-governmental. It is anticipated that EDC will have to respond to an increasing number of requests from NGOs regarding environmental aspects of the hydropower projects under licence or to be licenced. As this licencing process is increasing it is important that the work of the Stakeholder Analyst progresses in parallel. The Stakeholder Analyst would be a local consultant and would work closely with the Environmental Specialist.

C Key Outputs from the Proposed Extension

Based on the tasks described in the assignments for technical specialists, the overall objectives of the project team will be to provide assistance and to achieve the following:

- Agreement of EDC, MOWR and the World Bank on the Terms of Reference, and the subsequent solicitation of interested financial institutions in submitting proposals to administer the Power Development Fund
- Completion and issuing a Request for Qualifications for the development of projects identified in the Medium Hydro Study Project
- Refinement and further development of the NEPSIM Model for the evaluation of total project benefits to provide more flexibility in financial calculations
- Review of existing guidelines for interagency consultations and interactions during licensing of hydroelectric projects and recommendations on strengthening of the process
- Develop the guidelines for EDC to conduct stakeholder analysis and procedures for EDC regarding public disclosure of environmental and stakeholder issues

8 Summary and Recommendations

As set forth in the various activity reports, the goals and deliverables in the Work Plan for technical assistance activities for the period ending September 30, 1997 were met.

The World Bank's proposed Power Development Fund has resulted in the preparation of processes and documentation that should be continued in order to implement the Fund and establish the Fund Administrator. At the same time the drafting of documents for a competitive solicitation process for project developments as well as the start of this process needs to be supported. In addition, the related refinement of the tools for the evaluation of total benefits needs to continue in order to be ready to evaluate both competitive and sole sourced proposals for the development of hydroelectric projects in Nepal. All facets of the development must be kept in balance with the evaluation of environmental impacts as well as the need to deal with stakeholder issues.

Private Electricity Project

Acres International Corporation

Quarterly Report

December 31, 1997

**Phase II
October 1997 - December 1997**

**Prepared for
United States Agency for International Development
Mission to Nepal**

**Private Electricity Project
Contract No 367-C-00-95-05117-00
Acres International Corporation
Amherst, New York**

1 Introduction

This report summarizes progress for the activities set forth in the Work Plan for the Private Electricity Project (PEP), for the period from October 1, 1997 to December 31, 1997. This report identifies the deliverables in the Work Plan and discusses the progress made toward achieving those goals. Draft reports completed during this period by specialists have been issued separately to EDC.

The results of work carried out by the specialists have been noted under each activity. In addition, significant problems encountered in achieving the goals have been discussed as well as the modifications or restructuring of the activities identified in the *Phase II Work Plan* to reflect the changed level of effort in some of the key activities. Chart A, Summary Activity Schedule reflects a revised Work Plan (Revision 4) for the extension period.

Based on discussions and recommendations, Section IX, Areas of Technical Assistance Included in Extension, outlines activities which have been incorporated in the revised Work Plan for Phase II which has been extended to March 31, 1998.

2 Work Plan Activities (Phase II)

Phase II Activities October 1997 through December 1997, included the following components:

- Power Development Fund Specialist Activities
- Technical Writer/RFP Coordinator Activities
- Export Related Issues and Valuation of Benefits Specialist Activities

Each of these activities is discussed in more detail below identifying the deliverables and significant findings, and any problems encountered.

Chart A, Summary Activity Schedule, attached to this report is a summary of the activities undertaken during the reporting period from October 1, 1997 through December 31, 1997. Chart A also shows the proposed activities for the period January 1, 1998 through March 31, 1998.

3 Power Development Fund Specialist - Work Plan Activity "K"

A Summary of Activities and Schedules

Activity "K" Power Development Fund Specialist	Level of Effort and Status of Activity	
1 Draft Borrower Implementation Plan (BIP) Nepal Power Development Fund Recommendations and Guidelines for Fund Implementation	- Completed draft - Issued draft - Reviewed - received comments from EDC, MOWR, World Bank	July 29, 1997 August 29, 1997 <i>BIP to be revised by Specialist, February - March period</i>
2 Draft Request for Proposals For Fund Administrator for the Nepal Power Development Fund	- Completed draft	July 22, 1997
3 Draft Letter of Invitation (LOI) For Fund Administrator	- Completed Draft	December 30, 1997
4 Draft Terms of Reference (TOR) Or Request for Qualifications For Fund Administrator	- Completed Draft	December 26, 1997 <i>Further review by MOWR, EDC, World Bank to finalize</i>
Total Level of effort	18 person days*	<i>Deliverables completed</i>
Responsible Parties	Financing Specialists	Randy Lintz Dan Ruiu

* Estimated level of effort by Randy Lintz, Dan Ruiu and Chief of Party during this period

B Results from Activity "K "

- EDC, MOWR and the World Bank have provided comments on the *draft* "Borrower Implementation Plan" which will serve as the procedures manual for the administration of the Power Development Fund for investment in private power projects. The draft will be revised to incorporate these comments along with any others that result from further reviews and the "harmonizing" of the document with the Administration Agreement.
- No further work was done on *draft* Request for Proposals to solicit proposals from Nepalese financial institutions to serve as Fund Administrator for the Nepal Power Development Fund, pending approval of the TOR.
- The Specialists drafted the Letter of Invitation (LOI) for advertising the solicitation of qualifications and proposals. This draft was reviewed by EDC, MOWR and the World Bank.

98

Comments were incorporated and the document was accepted pending final approval by MOWR

- The Specialists also drafted the Terms of Reference (TOR) (Request for Qualifications) for the Fund Administrator. This draft was also reviewed by EDC, MOWR and the World Bank along with the LOI. Comments were incorporated and the revised document was resubmitted for further study and approval by EDC, MOWR and the World Bank.

C Problems Encountered In Activity "K"

Owing to the number of issues that have needed to be resolved, the preparation of the final drafts for the LOI and TOR have extended beyond the target date of December 31, 1997. This has increased the level of effort for this activity as well as affecting the selection process for the Fund Administrator and the implementation of the fund.

The draft TOR will receive further review by EDC, MOWR and the World Bank, and based on these reviews may require further revisions before issuing. This process has been supported by the Financial Specialist, Chief of Party and Project Manager.

4 Technical Writer/RFP Coordinator - Activity "L"

A Summary of Activities and Schedules

Activity "L" Technical Writer/RFP Coordinator	Level of Effort and Status of Activity	
1 Review and Assistance on Preparation of Request for Qualifications for 402 MW Arun-III Hydroelectric Project on BOOT Basis	Draft Completed Revised Draft <i>EDC have issued the revised draft to solicit qualifications for Arun</i>	March 27, 1997 July 21, 1997 October 1997
2 Draft Request for Proposals for 402 MW Arun-III Hydroelectric Project on Build, Own, Operate and Transfer (BOOT) Basis	Second Draft completed	April 11, 1997
3 Draft Request for Qualifications for Five(5) Medium Hydroelectric Project on Build, Own, Operate and Transfer (BOOT) Basis	First Draft completed	July 17, 1997
4 Draft Request for Qualifications for Dudh Koshi Hydroelectric Project on Build, Own, Operate and Transfer (BOOT) Basis	First Draft completed	July 22, 1997

Activity "L" Technical Writer/RFP Coordinator	Level of Effort and Status of Activity	
5 <i>Draft Request for Qualifications for Upper Karnali Hydroelectric Project on Build, Own, Operate and Transfer (BOOT) Basis</i>	Second Draft completed	July 22, 1997
6 <i>Draft Request for Qualifications for Seven (7) Medium Hydroelectric Project on Build, Own, Operate and Transfer (BOOT) Basis</i>	<i>Third Draft completed and submitted for review by EDC</i>	December 19, 1997
Level of Effort	30 person days	<i>Deliverable completed by December 19, 1997</i>
Responsible Party	Contracts Engineer/Technical Writer	<i>Jim Plummer</i>

B Results from Activity "L"

The Technical Writer Specialist completed the following objectives outlined in the original work plan and scope of work

- Meetings with the World Bank in Washington and EDC in Kathmandu to discuss major issues related to the preparation of a redraft for the Request for Qualifications
- Preparation of a redrafted Request for Qualifications to include all seven (7) medium hydro projects identified in the Medium Hydro Study Project in the following document
 - Request for Qualifications for Seven (7) Medium Hydroelectric Project on Build, Own, Operate and Transfer (BOOT) Basis related to the Specialist's scope of work, EDC issued the Request for Qualifications for the 402 MW Arun-III Hydroelectric Project on BOOT basis using the document completed during the previous report period

C Problems Encountered in Activity "L"

Three separate requests for qualifications had been prepared for the seven projects identified in the Medium Hydro Project Study. Following review of these documents with EDC and the World Bank, it was decided to redraft the Request for Qualification to include all seven projects in one document since the selection of projects for development could not be made until the system study being undertaken by NEA is available in March 1998. In addition, the method of selection criteria had to be resolved between a pass/fail or point system. Moreover, the Bank requested that the redraft include all the preparation of all the forms needed to be completed by Applicants for prequalification. While the target for delivery of the draft Request for Qualifications was completed in advance of the Work Plan target date of December 31, 1997, the added level of effort for this task and the further

reviews to be undertaken by EDC and the World Bank will extend this activity into the first quarter of 1998

5 Export Related Issues/Valuation of Benefits Specialist - Activity "M"

A Summary Of Activities And Schedules

Activity "M" Export Related Issues and Valuation of Benefits	Level of Effort and Status of Activity	
1 <i>User's Manual and Model Documentation</i> Nepal Export Of Power Simulation Model referred to as "NEPSIM"	Manual completed	June 1997
2 <i>The Export of Power from Nepal Evaluation of Opportunities</i>	Report completed	August 1997
3 Workshop and training in the use of the NEPSIM model for the evaluation of benefits	Workshop - Training	June 1997
4 Review and identification of refinements for the NEPSIM Model	Outline Prepared	December 1997
Level of Effort	12 person days	<i>Don Priestman</i>
Responsible Parties	Export Valuation Benefits Specialist	Don Priestman Dan Ruiu

B Results from Activity M

The Export Valuation Benefits Specialist focussed efforts during this period in the following objectives outlined in the original work plan and scope of work were completed

- Response to any questions or need for clarifications related to the use of the Nepal Export of Power Simulation Model (NEPSIM) and User's Manual including the supporting Model Documentation which had been completed and issued in June 1997
- Review and identification with Chief of Party and Project Manager of possible refinements which could be made to the NEPSIM Model to increase its flexibility of financial analysis and to include risk analysis

C Problems Encountered In Activity "M"

No problems were encountered in the preparation of the deliverables This activity was effectively supported by the Export Valuation Specialists

6 Training - Promotion Presentations

A Formal Overview Presentation

No new formal promotional presentation materials were prepared during this period

B Study/Promotional Tour

Only one study/promotional tour was supported during this period for the following participant to attend the Regional Conference for Power Generation 98 in Delhi November 4-7, 1997

Mr B B Karki Deputy D G EDC

7 Areas Of Technical Assistance Included in Extension

A Current Situation

Owing to the unfortunate sudden loss of the Chief of Party at the end of the previous reporting period, the Consultant needed to make immediate revisions to the Work Plan and to re-deploy staff while continuing to support the key on-going activities. The achievement of the goals and objectives was demonstrated in the progress achieved to date in the areas of the Power Development Fund implementation, and the preparation of Request for Qualifications for developers based on a competitive selection process.

B Areas of Assistance

As noted above, the Work Plan had been revised and approved in late October. The following subsection discusses the planned activities for this extension in light of the Scope of Services and Key Results.

Power Development Fund Specialist

The Specialist plans to continue to assist in the preparation of the Letter of Invitation and the associated Terms of Reference (Request for Qualifications) to solicit responses from financial institutions interested in being qualified to submit proposals for Administrator of the fund. In addition, the Specialist plans to complete the Request for Proposals as well as revise the Borrow Implementation Plan based on further reviews and inputs by EDC, MOWR and the World Bank.

Technical Writer/RFP Coordinator

The Technical Specialist plans to prepare redrafts of the Request for Qualifications including the evaluation criteria as well as technical descriptions of potential projects for review with both EDC and the World Bank. The Technical Specialist plans to draft a corresponding request for proposals to be used for medium hydro projects selected for development based on the system planning studies currently being undertaken by NEA. This document will initially be drafted in a generic format with inputs from the other specialists, EDC and the World Bank. The preparation of Requests for

Proposals for *specific projects* will be prepared following the acceptance of this generic document and the identification of projects in the NEA System Planning Studies

Export Related Issues and Valuation Benefits Specialist

The Specialist plans to continue the development and application of the NEPSIM Model for the evaluation of total benefits. The issues of taxes, royalties and other infrastructure benefits associated with projects, including the increase or decrease in value resulting from environment impacts will need further refinement in the model. The Technical Specialist along with the Hydropower Utilization Specialist plan to refine the model for greater flexibility in the financial calculations and to consider the addition of a risk module.

Hydropower Utilization Specialist

The Hydropower Utilization Specialist plans to assist the Export Related Issues and Valuation Benefits Specialist in the continued development of the NEPSIM Model for the evaluation of the total project benefits for the large multi-purpose projects. The Specialist's expertise in multiple areas such as environmental, irrigation, power and land use will be needed to contribute to this strategy for further development and refinement of the NEPSIM Model and supporting documentation.

Environmental Specialist

The Environmental Specialist plans to support several needs. Firstly he plans to work with the Stakeholder Analyst in the development of a guidelines manual for conducting analysis of issues raised by stakeholders, and to assist in the preparation of a stakeholder issues report that will review previously-raised issues and recommend EDC procedures for public disclosure of future stakeholder and environmental issues. Secondly, since the assessment positive and negative environmental impacts for the larger projects is a major component of the overall strategy development, the Environmental Specialist is needed to provide input to the work of the Export Value Specialist assure that impacts are assessed and valued for purposes of export discussions. Finally, the Environmental Specialist also plans to review existing guidelines for interagency consultations and interactions during licensing of hydroelectric projects in Nepal, and to provide recommendations on institutional improvements that could be made to improve this interagency consultation process.

Stakeholder Analyst

The Specialist plans to assist EDC to develop the capacity to deal with public relations from a wide range of stakeholders, both governmental and non-governmental. It is anticipated that EDC will have to respond to an increasing number requests from NGOs regarding environmental aspects of the hydropower projects under licence or to be licenced. As the licencing process is increasing, it is importance that the work of the Stakeholder Analyst progresses in parallel. The Stakeholder Analyst will work closely with the Environmental Specialist.

C Key Outputs from the Proposed Extension

Based on the tasks described in the assignments for technical specialists, the overall objectives of the project team will be to provide assistance and to achieve the following

- Agreement of EDC, MOWR and the World Bank on the Terms of Reference, and the subsequent solicitation of interested financial institutions in submitting proposals to administer the Power Development Fund
- Completion and issuing a Request for Qualifications for the development of projects identified in the Medium Hydro Study Project
- Refinement and further development of the NEPSIM Model for the evaluation of total project benefits to provide more flexibility in financial calculations
- Review of existing guidelines for interagency consultations and interactions during licensing of hydroelectric projects and recommendations on strengthening of the process
- Development of guidelines for EDC to conduct stakeholder analysis and procedures for EDC regarding public disclosure of environmental and stakeholder issues

8 Summary and Recommendations

As set forth in this report, the goals and deliverables in the revised Work Plan for technical assistance activities for the period ending December 31, 1997 were met, namely

- The drafting of an LOI and TOR to solicit interested financial institutions to administer the World Bank's proposed Power Development Fund
- The drafting of Request for Qualification documents for a competitive solicitation process for project developments

From the revised work plan, the level of effort to support EDC will increase significantly through the first quarter of 1998 as efforts increase in all activities. With this increased level of activity, it is important to plan for continuity of support through the following period

Private Electricity Project
Acres International Corporation

Quarterly Activity Report

January - March, 1998

— Prepared for

United States Agency for International Development
Mission to Nepal

Prepared by

Private Electricity Project
Contract No 367-C-00-95-05117-00
Acres International Corporation
Amherst, New York

105

1 Introduction

The Acres report to USAID, dated Dec 31, 1997, summarized the results obtained by the Private Electricity Project (PEP) personnel, over the period from October 1, 1997 to December 31, 1997. This report identifies the progress made toward achieving the project goals in the first quarter (January 1 to March 31) of 1998.

2. Work Plan Activities (Phase II)

Phase II Activities January 1998 through March 1998, included the following components

- Power Development Fund Specialist Activities
- Technical Writer/RFP Coordinator Activities
- Export Related Issues and Valuation of Benefits Specialist Activities
- Hydropower Utilization Specialist Activities
- Environmental Specialist Activities
- Stakeholder Analyst Activities

Each of these activities is discussed in more detail below identifying the status of deliverables, activity particulars, and problems encountered

3 Power Development Fund Specialist - Work Plan Activity "K"

Activity	Status	
<p>1 Prepare Draft Borrower Implementation Plan (BIP) for the Nepal Power Development Fund and issue Recommendations and Guidelines for Fund Implementation</p>	<p>The Borrower Implementation Plan, including Recommendations and Guidelines for Fund Implementation, was completed</p> <ul style="list-style-type: none"> • Review by EDC and MOWR may be required No comments were received in April 1998 	<p>Completion date was March 31, 1998</p>
<p>2 Prepare Letter of Invitation (LOI) soliciting expression of interest from local financial institutions which are interested in being short listed to bid on the PDF Administrator contract</p>	<ul style="list-style-type: none"> • Completed EDC to seek MOWR permission to advertise 	<p>Completion date was March 1, 1998 Reviewed and accepted by EDC and the World Bank</p>

106

Activity	Status	
<p>3 Prepare Terms of Reference (TOR) and Instructions for Bidders for the Short Listing of Qualified Local Financial Institutions for PDF Administrator, the document will be available to all interested bidders</p>	<ul style="list-style-type: none"> • Final TOR document was completed • EDC to seek MOWR approval to distribute 	<p>Completion date was March 1, 1998 Reviewed and accepted by EDC and the World Bank</p>
<p>4 Prepare Request for Proposals (RFP) The RFP will be sent to the short listed local financial Institutions which are seeking to be awarded a contract to serve as PDF Fund Administrator for the Nepal Power Development Fund</p>	<ul style="list-style-type: none"> • The Third Draft was completed • Review by EDC and MOWR required for finalization No comments were received on the Third Draft in March/April 1998 	<p>Completion date was March 9, 1998</p>

Comments on Activity "K"

- EDC, MOWR and the World Bank have provided comments on the draft "Borrower Implementation Plan" which will serve as the procedures manual for the administration of the Power Development Fund (PDF) for investment in private power projects. The draft was revised to incorporate these comments along with others that resulted from subsequent reviews and from the "harmonizing" of the document with the PDF Administration Agreement. The final document was sent to USAID and EDC, giving a chance to EDC to request last minute changes, if any. None was received so far.
- The third draft Request for Proposals, that solicits proposals from Nepalese financial institutions which are interested to serve as Fund Administrator for the Nepal Power Development Fund, was prepared and distributed to EDC and USAID.
- The specialist generated several drafts of the Letter of Invitation (LOI) for advertising the solicitation of qualifications and proposals. These drafts were reviewed by EDC, MOWR and the World Bank. Comments were incorporated and the document was accepted by EDC and the World Bank. By early March 1998, EDC asked MOWR to approve the publication of the letter in the local and international press. Until now (May 1998), MOWR did not answer.
- The specialist also completed the final version of the TOR for the PDF Administrator. Nine successive drafts, along with the LOI, were prepared by the specialist and reviewed by EDC, MOWR and the World Bank. This rather unusually high number of drafts was required mainly to reconcile the successive differences of opinions between the World Bank and the MOWR personnel. The latest comments were incorporated on February 27, 1998 and the revised

107

document was presented by EDC to MOWR for approval to distribute MOWR did not return the document or any comments on it

- The consultant also reviewed, following a request from EDC, the possible conditions for negotiations of PDF Issues and prepared comments on the World Bank letter on this subject. The comments were handed over to EDC/MOWR and were incorporated by the Nepali officials in the draft answer to the Bank. A list of Issues was prepared related to the PDF Administration Agreement and was submitted to EDC for discussion.

Problems Encountered in Activity "K"

- Owing to the number of problems that needed to be solved, the preparation of the final drafts for the LOI and TOR extended beyond the initial target date of December 31, 1997. This has increased the level of effort for this activity as well as has affected the selection process for the PDF Administrator and the implementation of the fund. The absence of a decision from HMG/N on whether to proceed or not with the PDF has slowed down the process considerably.

4 Technical Writer/RFP Coordinator - Activity "L"

Activity	Status	
<i>Preparation and Review of the Request for Qualifications (RFQ) for Developers</i>	Draft #4 completed and submitted to EDC	January 22, 1998
	Draft #5 completed and submitted to EDC and USAID	February 23, 1998
	Work on Draft #6 90% completed	Expected completion date April 8, 1998

Comments on Activity "L"

The Technical Writer Specialist (TWS) completed the following objectives outlined in the original work plan and scope of work:

- Meetings with EDC in Kathmandu to discuss major issues related to the preparation of the fourth and fifth drafts for the Request for Qualifications.
- Preparation of a redrafted Request for Qualifications to include the revised load forecast for the electric power system of Nepal.

Also, the TWS started the work for including in Draft #6 the revised technical characteristics and drawings for the seven medium hydro projects designed by the Medium Hydroelectric Study Project (MHSP) team.

Problems Encountered in Activity "L"

- The World Bank's request, that the revised RFQ draft include the preparation of all the forms needed to be completed by the applicants for prequalification, caused a considerable increase in the amount of work required for the completion of this task
- Additional work will be made necessary by the expected release of the modified, draft Long Term Generation Development Plan of Nepal
- While the delivery of the initial draft Request for Qualifications was completed in advance of the Work Plan target date of December 31, 1997, the additional efforts that will be required to complete this task due to further reviews to be undertaken by EDC and the World Bank will extend this activity beyond the first quarter of 1998

5 Export Related Issues/Valuation of Benefits Specialist - Activity "M" and Water Resources Coordination Specialist - Activity "N"

Activity	Status	
1 <i>Adjust the Debt Service Calculation Methodology and Allow for Choice of Calculation Method in NEPSIM</i>	Work completed and submitted to EDC and USAID	Completion date was March 28, 1998
2 <i>Modify NEPSIM and Make Specific Allowance For Finance Commitment Fees</i>	Work completed and submitted to EDC and USAID	Completion date was March 28, 1998
3 <i>Refine Method of Calculation of Assets Depreciation and Resulting Taxation</i>	Work completed and submitted to EDC and USAID	Completion date was March 28, 1998
4 <i>Modify User Manual to Include additional Instructions for Changes in the Model</i>	Work completed and results submitted to EDC and USAID	Completion date was March 29, 1998

Comments on Activities "M" and "N"

- The initial activities included the analysis of the different degrees of feasibility/potential usefulness of the program alterations proposed by the initial team of program developers and the assignment of priorities to each proposed alteration
- An informal survey of the present EDC and MOWR users was carried out with the active support and participation of the EDC project manager. The survey was organized to identify other necessary program alterations, if any. No requests for changes were received from the users as a result of this survey

- Investigations were initiated to find possible ways of cooperating with MOWR and WECS personnel for the identification and systematic classification of existing data on downstream benefits in Nepal and India
- A review was carried out and information was gathered on the methods utilized for the quantification of downstream benefits of hydroelectric developments
- The Export/Valuation of Benefits Specialist function was carried out by the Chief of Party. In the second half of the first quarter of 1998, a considerable amount of his time had to be used for the planning and justification of the activities and budget estimation associated with the April - June 1998 contract extension

Problems Encountered in Activities "M" and "N"

- During the first quarter of 1998, the Export Valuation Specialist who is also the project Chief Of Party (COP), had to devote a significant part of his available work time to the overall coordination of in-progress project activities, reporting and planning of future activities
- The Water Resources Coordination Specialist arrived in Kathmandu, as scheduled, on February 20, 1998. However, in the relatively short time period remaining after his arrival, he made serious efforts to accelerate the work process. As a result, the work was completed according to the accelerated schedule presented in the January - February 1998 Interim Activity Report submitted by Acres to USAID

6 Environmental Specialist - Activity "O"

Activity	Status	
1 <i>Draft Report on Interagency Consultation Process</i>	Work completed	Completion date was March 10, 1998
2 <i>Review and Finalize Report on Interagency Consultation Process</i>	Work completed. The final report was delivered to EDC and USAID	Completion date was March 31, 1998
3 <i>Assist in the Preparation of Draft Guidelines Manual for Stakeholder Analysis</i>	Work completed	Completion date was March 31, 1998
4 <i>Assist in the Preparation of Stakeholders' Issues Report</i>	Work completed	Completion date was March 31, 1998

Comments on Activity "O"

- The initial activities aimed at getting updated information on the specific environmental problems associated with the hydroelectric developments in Nepal. These initial activities included interviews with NEA and BPC personnel and a data-gathering field trip to the Kali Ghandaki "A" and Jhimruk project sites. A second field trip, to the Khulekhani, Upper Bhote Koshi and Khimti project sites, was organized in March 1998.
- To ensure the necessary continuity in methodology and avoid effort duplication, the specialist also carried out a brief review of the award-winning Environmental Screening Methodology developed by Acres International for the Medium Hydropower Study Project in Nepal.
- One of the main objectives of the specialist's work was to identify possibilities of streamlining and introducing simplified procedures. The target was to recommend streamlining measures which could be implemented without affecting the protective role of the Nepal environmental regulations that hydro developers have to comply with. A review of US FERC Exemption Process was carried out to identify measures which could be applied under the specific conditions prevailing in Nepal.
- Discussions were held with the Export Valuation Specialist on the most adequate methodology for assessing the downstream irrigation benefits of hydroelectric developments in Nepal.

Problems Encountered in Activity "O"

- Computer hardware failures, combined with the lack of spare equipment and long time delays for getting imported spare parts created difficulties which had to be surmounted by working additional time.
- Electricity supply interruptions in the building repeatedly caused serious problems in the month of February. If the building electricity supply problem cannot be solved satisfactorily, consideration should be given to buying a back-up electricity generator for the PEP offices.

7 Stakeholder Analyst - Activity "P"

Activity	Status	
1 Write "Draft Manual on Guidelines for Stakeholder Analysis"	Work completed The draft Guidelines Manual was delivered to EDC and USAID	Completion date was March 31, 1998
2 Prepare "Draft Report on Stakeholder Issues in Hydropower Development Projects"	Work completed The draft Report was delivered to EDC and USAID	Completion date was March 31, 1998
3 Prepare and present to EDC Personnel a Workshop on Stakeholder Issues	Work completed The workshop was attended by EDC and MOWR personnel	The workshop took place on March 22, 1998

Comments on Activity "P"

- The activities of the Stakeholder Analyst paralleled in many domains those of the Environmental Specialist. Both specialists worked in close cooperation. The two, accompanied by an EDC engineer, went on the information gathering field trips organized in February and March 1998.
- The frequency of the meetings and interviews with representatives of various stakeholders which started in February was considerably increased in the first half of March 1998. This made it possible to gather the necessary information and complete the work on the Stakeholder Analysis Guidelines and on the Stakeholder Issues Report on time.

Problems Encountered in Activity "P"

The Stakeholder Analyst encountered problems similar to those met by the Environmental Specialist, namely

- Computer hardware failures, combined with the lack of spare equipment and long time for getting imported spare parts
- Very long and frequent (daily) electricity supply interruptions in the building

8 Summary and Recommendations

All Acres tasks were completed, both those regarding the deliverables and those regarding the completion of various activities specified in the revised Work Plan for technical assistance activities for the period ending March 31, 1998.

112

The preparation of the final version of some of the deliverables depended on whether the various parties (EDC, MOWR, MOPE, World Bank, etc.) which reviewed the draft documents could solve their differences and reach agreement on mutually acceptable positions. In a few cases, the latest versions of the reports/documents produced by the consultants were not labelled "final" because, for reasons beyond the control of Acres, such agreements were not reached. The experience accumulated so far on this matter indicates that, when this happens, supplementary iterations are required and work delays may occur. The level of activity and effort required to support EDC under these conditions may often exceed the initial provisions. Appropriate measures should be taken to ensure the continuity of support and the cooperation between the various participants in the process through the April - June contract extension period.

113

Private Electricity Project
Acres International Corporation

Quarterly Activity Report

April - June, 1998

Prepared for

**United States Agency for International Development
Mission to Nepal**

Prepared by

**Private Electricity Project
Contract No 367-C-00-95-05117-00
Acres International Corporation
Amherst, New York**

1 Introduction

This activity report examines the results obtained by the Private Electricity Project (PEP) personnel over the period from April 1 to June 30, 1998. The report is presented in the same format that was used for the January 1 to March 31, 1998 report.

2 PEP Activities (As Specified in Amendment #6)

The PEP related activities, specified in Amendment #6 to the USAID Contract No. 367-C-00-95-05177-00, included several components. Specifically, the contract amendment specified the expected level of effort and activities of the following specialists:

- Chief of Party/Export Valuation Specialist Activities
- Power Development Fund Specialist Activities
- RFP Coordinator Activities
- Water Resources Engineer Activities
- Environmental Specialist Activities
- Stakeholder Analyst Activities
- Legal Specialist (Local) Activities

Each of these activities is discussed in more detail below, identifying the tasks and the associated deliverables, describing the work carried out, and the more significant problems encountered.

3 Chief of Party/Export Valuation Specialist Activities

3.1 Summary of Activities and Deliverables

A summary of the main activities carried out by the Chief of Party is presented in the following table:

Activity/Deliverables	Status	
1 <i>Coordinate all aspects of TA support provided</i>	The COP coordinated the TA provided by Acres specialists to EDC throughout the April 1 - June 30 extension period.	Completion date June 30, 1998
2 <i>Work with the Water Resources Engineer to update the final simulation model</i>	The joint work on the update resulted in the replacement of the old NEPSIM model with a new, more comprehensive model (PROBEN).	Completion date June 30, 1998

Activity/Deliverables	Status	
3 <i>Coordinate and administer the services of a Local Legal Specialist (LS)</i>	Activities completed, including the preparation of <ul style="list-style-type: none"> • Terms of Reference • Contract • Informal reviews of reports submitted by LS 	Completion dates <ul style="list-style-type: none"> • April 21 • May 22 • June 20 (all 1998)
4 <i>Design and Implement a mini Local Area Network (LAN) for use by PEP personnel</i>	Completed The LAN is composed of one server, five workstations and three printers	In-service Date May 11, 1998
5 <i>Coordinate (in Kathmandu) and finalize the action required for EDC/MOWR staff training, including</i> <ul style="list-style-type: none"> • <i>Short term training on management, contract and financial aspects</i> • <i>Promotional study tours to USA and other destinations</i> 	Completed <ul style="list-style-type: none"> • Short course on "Effective Negotiations for the Power Sector" in Washington D C • Tour of Columbia River plants combined with study of Columbia River Treaty • Participation to Workshop on "Hydro Asia 98" in Singapore 	Completion Dates <ul style="list-style-type: none"> • June 20, 1998 • June 30, 1998 May 31, 1998
6 <i>Manage the acquisition of commodities specified as deliverables in the contract extension,</i> <ul style="list-style-type: none"> • <i>Printer</i> • <i>Photocopier</i> • <i>LAN System</i> 	Completed Combined equipment (printer/photocopier) was purchased at a considerable cost saving over the cost of a separate printer and photocopier The savings were used to acquire an additional PC that, with USAID's approval, was handed over to EDC	Completion Date June 20, 1998

3 2 Work Completed/Accomplishments

The coordination of activities of the specialists which worked on PEP during the April - June 1998 extension was achieved through daily discussions and reviews of the work in progress, supplemented by information sessions with EDC management and USAID personnel. Efforts were made to maintain a rather informal style communication that encouraged fruitful exchanges of ideas and efficient solution finding. The specialists' reports were reviewed and discussed by the authors with the COP whenever necessary during the draft preparation and before the printing of the final version of the report.

A somewhat different procedure was used for the reports issued by the Legal Specialist. His reports were discussed in joint meetings attended, in addition to the LS and COP, by personnel from US

Embassy, USAID and the Federation of Nepali Chambers of Commerce and Industry (FNCCI) The contributions made by these participants are gratefully acknowledged The final draft report and recommendations were presented in a workshop that was attended, in addition to the parties mentioned above, by personalities from the private sector and high ranking officials of HMGN, including the Deputy Prime Minister The suggestions and recommendations made by the participants to the workshop were recorded and were critically reviewed for subsequent incorporation in the final report

The LAN equipment and the contractor for LAN installation were selected using competitive bidding A maintenance contract was signed with the equipment supplier However, due to the careful selection of the equipment and contractor, the number of outages which required emergency maintenance intervention was extremely low for a new installation of this type

The acquisition of the supplementary commodities specified in the contract as deliverables was completed successfully

3 3 Problems Encountered

One of the deliverables specified in the contract was the review and new printing of the "Regulations" booklet that was published by EDC some time ago Acres offered the necessary funds and support to EDC, but the (now retired) Director General of EDC, Mr Vijaya Shrestha, decided to postpone this activity a later (fall 1998) date This matter was beyond Acres control

4 Power Development Fund Specialist Activities

4 1 Summary of Activities and Deliverables

A summary of the activities carried out by the Power Development Fund Specialist is presented in the following table

Activity/Deliverables	Status	
1 <i>Review and Assist in Short Listing of Candidates for PDF Administrator</i>	MOWR was not interested in asking for proposals	Completion date depends on the date when applications are received
2 <i>Revise Borrower Implementation Plan (BIP)</i>	• The BIP revision, including the Implementation Guidelines revision, was completed	Completion date was May 31, 1998

Activity/Deliverables	Status	
<p>3 Continue support of PDF implementation/Revised RFP for PDF Administrator</p>	<ul style="list-style-type: none"> • A revised RFP was provided to MOWR (Mr S B Pun) for review • PEP offered to hold a workshop on PDF The offer was not accepted by MOWR staff 	<p>Completion date was June 2, 1998</p>

4.2 Work Completed/Accomplishments

The intention of this assignment was to revive interest in the Power Development Fund (PDF) through a series of workshops and meetings with key players within His Majesty's Government of Nepal (HMGN) who would ultimately be responsible for PDF implementation. We wanted to "fast-track" the PDF implementation. For a variety of reasons alluded to below, the "key players" manifested little interest in the proposed workshop approach and only one meeting was actually held with a Ministry of Water Resources (MOWR) official.

The specialist's scope of work for the April through June extension also called for refinement of the Power Development Fund Borrower's Implementation Plan (BIP) and for support to PDF implementation on an "as needed" basis. Given that a number of additional comments from both MOWR and the World Bank surfaced after the submission of the BIP in early April, these comments were incorporated during this assignment. A "final" BIP dated May 1998 has been produced and circulated to the Electricity Development Center (EDC), MOWR and the World Bank.

The BIP was revised and updated as a result of comments received from both MOWR and the World Bank. The financial projections were also revised and updated to reflect fresh data on the proposed costs of three "first window" projects.

A meeting was held with the Resident World Bank Infrastructure Specialist, S. G. Joshi, to discuss the status of the PDF, and, most importantly, to gauge the reaction of HMGN to World Bank Country Director, Hans M. Rothenbuhler's letter to the Ministry of Finance and MOWR regarding the World Bank's desire to capitalize the PDF on an incremental basis based on demand for resources. Mr. Joshi informed us that there had been no reaction on the part of HMGN since the letter was sent on March 11th and that M. Rothenbuhler had been trying to arrange a meeting with the new Minister of Water Resources for over a month.

A meeting was arranged with some degree of difficulty with the Special Officer on Duty at MOWR, S. B. Pun, to discuss the status of the PDF, and to assess the reaction of MOWR to the World Bank Country Director's March 11 letter to MOWR Permanent Secretary Dhungel. Although Mr. Pun had significantly been involved in the PDF development process, he appeared unsure of his present role and unknowledgeable of the new government's position vis-a-vis PDF implementation other than to inform us of the interest on the part of the new Minister of Water Resources in smaller projects that could qualify under the PDF's "second window".

4 3 Problems Encountered

As alluded to above, on March 11, 1998, Hans M. Rothenbuhler, World Bank Country Director for Nepal, sent a letter to Messrs. Bhattarai and Dhungel, of the Ministry of Finance and Ministry of Water Resources, respectively, explaining a new position of the World Bank vis-a-vis the Bank's proposed Power Development Project (PDP) in general, and a subset of the PDP, the Power Development Fund, in particular. Since that time, a new government has come to power and with it a new Minister of Water Resources, and at least two new MOWR Secretaries – Mr. Dhungel, former Permanent Secretary, is no longer with MOWR. A response to Mr. Rothenbuhler's letter has yet to be issued by MOWR despite Mr. Lintz's comments to the letter prepared for the EDC on March 13th. These developments have effectively put the PDP, and more importantly, the PDF in limbo. PEP personnel made repeated offers to both EDC and MOWR for Acres assistance to revive the interest in the PDF among the new members of the government by conducting seminars/workshops focussing on private sector project finance in general and the features of the proposed PDF in particular. Both entities were uncommittal and did not respond to any of these offers.

4 4 Recommendations Regarding Program Continuation

The specialist made the following recommendations:

- Leadership must be forthcoming on the part of someone within MOWR or EDC in order to obtain permission from the Minister of Water Resources to advertise for expressions of interest to administer the PDF. Such permission would set in motion the following activities ultimately leading to PDF implementation:
 - Advertise in the local and international press requesting "Letters of Expression of Interest" from local financial institutions teamed with international merchant or parent banks to be short listed (i.e., pre-qualified) to bid on the PDF Administration contract to be issued by HMGN.
 - Arrange for the distribution of Terms of Reference for PDF Administrator and Instructions for Bidders to all interested parties.
 - Deadline for receipt of "Letters of Expression of Interest" – 30 days after publication of the request in the press.
 - Score and rank "Letters of Expression of Interest" and short list at least four local financial institutions eligible to bid for the PDF Administration contract – 15 days from closing date.
 - Issue Request for Proposals from (RFP) pre-qualified local financial institutions – within 15 days from the time of short listing.
 - Hold Bidders' conference outside Nepal to clarify any and all questions related to the Request for Proposals – within 10 days of the issuance of the Request for Proposals.
 - Score and rank proposals, notify most highly qualified local financial institution of intent to negotiate PDF Administration Agreement – within 45 days of the issuance of RFPs.

- Negotiate PDF Administration Agreement with the most qualified local financial institution – within 10 days of notification of most highly ranked firm
- Infrastructure Finance Specialist in place – within 30 days of the signing of the PDF Administration Agreement with HMGN

If the chronological order of events is adhered to, a PDF Administration contract could be awarded within 3½ months of the date of advertising

- To assist EDC find ways to use the Power Development Fund to fund new power projects, particularly those 10 megawatts and below (as apparently preferred by the new Minister of Water Resources), a study should be conducted in close collaboration with EDC to
 - Identify existing and potential institutional issues which may constrain the development of projects eligible for funding under the PDF's "second window" and other sources of investment in smaller projects
 - Describe institutional issues associated with the financing of smaller power projects
 - Provide recommendations for improving the EDC ability to identify projects eligible for funding under the second window of PDF

4 5 Conclusions

Acres' early April submission of the Borrower's Implementation Plan for the Power Development Fund was a major deliverable under the USAID-funded Private Electricity Support Project. The BIP took over a year to finalize with a significant amount of effort expended by Acres, the World Bank, the Ministry of Water Resources, and the Electricity Development Center. The BIP has been updated to include comments received from by the World Bank and HMGN after the submission of the March version of the BIP. Now that a "final" BIP is in place, it can provide detailed guidance for the implementation of the PDF. However, given the developments over the past three months, one can only conclude that

- There has been little movement toward finalization of the PDF Administration Agreement between HMGN and the World Bank
- HMGN's interest in the PDF has not yet resulted in concrete steps towards PDF implementation
- No one in MOWR has stepped forward to "champion" the cause of the PDF and ensure its implementation

5 RFP Coordinator Activities

5.1 Summary of Activities and Deliverables

A summary of the activities carried out by the RFQ Coordinator is presented in the following table

Activity/Deliverables	Status	
<p>1 <i>Preparation of revised draft for Request for Qualifications for Hydroelectric Projects on BOOT Basis</i></p>	<ul style="list-style-type: none"> • Interim Draft-6 based on EDC comments and on latest info, re Long Term Development Plan • Draft-6 based on the World Bank detailed comments dated, May 2, 1998 • The draft included evaluation methods compatible with total project benefit evaluation methodology 	<p>Issued to EDC April 5, 1998</p> <p>Review and letters prepared for EDC and World Bank May 28, 1998</p> <p>Revision and additions completed and issued to EDC June 9, 1998</p>
<p>2 <i>Review and Selection of Prequalified Bidders</i></p>	<p>EDC did not receive any submissions from bidders to review</p>	<p>It could be completed in 30 to 60 days from the date when bids are opened</p>
<p>3 <i>Draft of Generic Request for Proposals for Development of Medium Hydroelectric Project on BOOT basis</i></p>	<p>Draft-1 was completed as a "generic" document for review and comment</p>	<p>Submitted to EDC April 7, 1998</p>

5.2 Work Completed/Accomplishments

The RFP Coordinator completed the following objectives outlined in the original work plan and scope of work

- Meetings with EDC to review the approach for revising the RFQ based on comments received from the World Bank in Washington. A detailed response to these comments was provided to EDC as well as a draft response from EDC to the World Bank
- Preparation of Draft-6, Request for Qualifications based on comments received from the World Bank, dated May 2, 1998, and our understanding of EDC's position which differs from the World Bank on the following key issues, namely
 - Qualification criteria based on a point system rather than a pass/fail system
 - Projects grouped into two groups rather than three groups

121

- Qualification criteria set for each group, that is, Group A Projects and Group B Projects, and not for individual projects

Some of the significant revisions and additions made in Draft-6 include

- Document renamed "Request for Qualifications (RFQ) for the Development of Hydroelectric Projects on Build, Own, Operate and Transfer (BOOT) Basis", leaving out "Medium" from the title page and throughout the RFQ
- Section 1, Invitation for Prequalification, has been rewritten and could be used as a draft for an "advertisement", and a Project Location Map has been prepared showing the locations of the seven projects being considered for development
- Section 2, Information for Applicants, has been revised, clarifications added and appendices expanded as described below
 - Revisions and clarifications have been made in a number of paragraphs
 - Appendix A, Policies, Acts and Regulations, has been expanded to include environmental regulations and supplemented with Annex A 1 which includes copies of policies, acts and regulations pertaining to hydropower development which have been listed in the Appendix
 - Appendix B, NEA System Information, has been expanded with relevant power station information and power development map
 - Appendix C, Technical Information, has been updated to include current technical descriptions including tables, maps and drawings from the Feasibility Reports and the Environmental Impact Assessments for the Group B Projects Tamur-Mewa, Dudh Koshi-1 and Upper Karnali Hydroelectric Projects Annex C 1, Copies of Table of Contents from Feasibility Studies and Environmental Impact Assessments for these projects, has been prepared as a separate document
 - Attachment 1, Price List of Available Studies and Reports, has been prepared listing documents which can be purchased from EDC
 - Appendix D, Summary of Existing Guidelines and Regulations for Hydropower Licensing in Nepal, has been added to provide an outline of the licensing procedures including guidelines for carrying out Environmental Impact Assessments This appendix has been based on the draft report currently being prepared by the Environmental Specialist
- Section 3, Instructions to Applicants has been reorganized several paragraphs added to conform to the World Bank's current standard procurement guidelines
- Section 4, Qualification of Applicants, has been reorganized and revised to follow the Bank's suggestions for clarifications and preciseness including

- Qualification requirements including Exhibit A, Form of Application, have been reorganized starting with Project Development Experience and followed by Particular Experience, Organization and Personnel Capabilities, Financial Capability, and Litigation History
 - General Experience requirements have been simplified while the requirements for experience in areas such as consulting engineering, construction and major mechanical/electrical equipment procurement and installation have been expanded and clarified
 - Requirements for joint ventures have been detailed
 - Appendix E, Summary of Terms and Conditions of Project Agreement and Power Purchase Agreement, has been added as information to Applicants
 - The point system for the evaluation of Applicants has been simplified. The criteria for financial capability has been revised in accordance with the latest cost estimates for the Group B Projects with values set based estimated costs of projects within each group as well as maintaining an equity/debt ratio of 80/20. The point system has also been modified to allow deductions to meet certain minimum requirements
- Preparation of Draft-1, Request for Proposals for Development of Hydroelectric Projects on BOOT basis was completed during the previous reporting period and issued to EDC in early April for review and comments

5.3 Problems Encountered

The preparation of Draft-6, Request for Qualifications for Development of Hydroelectric Projects on BOOT Basis required a much greater level of effort resulting from

- Need to clarification of the positions of EDC and the World Bank on several key issues and hence, the direction to be followed in the preparation of this draft
- The extent of reformatting and clarifications requested by the World Bank to meet current procurement guidelines including the addition of several Appendices and Annexes
- Extensive revisions to the Appendix C, Technical Information, based on the Feasibility Studies and Environmental Assessments of the Group B Projects Tamur-Mewa, Dudh Koshi-1 and Upper Karnali Hydroelectric Projects
- Restructuring and simplification of the point system criteria to meet the requirements of both EDC and the World Bank

Several issues have delayed the completion of a final draft, namely

- No further information received from current reviews of NEA's Long Term Development Plan for Nepal, including forecasted dates for the development of the seven projects

- Technical information based on Feasibility Studies and Environmental Impact Assessments for the Group A Projects will not be available until sometime in August. Similarly, Annex C 1 cannot be completed until this information is available
- Appendix E requires further work based experience in preparation of project and power purchase agreements for private developments

As a result of the continuing requirements in drafting an RFQ as well as the delay in receiving forecasted dates based on NEA's Long Term Development Plan for Nepal for the implementation of these projects, activities related to the issuing of RFQ's and subsequent reviews and recommendations of prequalified developers have been extended. Revisions to the generic RFP for the Development of Hydroelectric Projects have been deferred pending receipt of comments from EDC as well as agreement on the form and content of the RFQ.

6 Water Resources Engineer Activities

6.1 Summary of Activities and Deliverables

A summary of the activities carried out by the Water Resources Engineer is presented in the following table

Activity/Deliverables	Status	
1 <i>Enhancement of PROBEN model to allow for extended project analysis</i>	Completed	June 30, 1998
2 <i>Addition of a Risk Analysis Module</i>	Completed	June 30, 1998
3 <i>Addition of a simplified Forecasting Module</i>	Completed	June 30, 1998
4 <i>Preparation of a Revised User Manual that reflects the changes made in the computer program</i>	Completed	June 30, 1998

6.2 Work Completed/Accomplishments

During his May-June mission to Kathmandu, the Water Resources Engineer continued the work on modifications to the financial simulation model initiated in the February-March mission. The earlier mission had focused on changes to the basic formulae in the financial calculations and modifications to the escalation, discounting and loan amortization calculations. The current mission dealt with changes to the calculations of downstream benefits, both irrigation and flood damages, and sensitivity and risk analysis. These changes were made in cooperation with the Export Valuation Specialist.

Within a spreadsheet model, there are basically two "methods" of calculations: formulae and macros. A formula will typically recalculate whenever its input data or the input data for its underlying

124

formulae have changed. Macros, on the other hand, must be run before their calculations are complete. In the model all macros have been associated with command buttons - push the button and the macro runs. While most of the macros in the spreadsheet are for printing, a task which cannot be undertaken with formulae, a number of macros had been written to calculate intermediate results. These macros were concentrated in the irrigation benefit and the sensitivity calculations. The focus of the mission was to eliminate these macros and replace them with formulae which are less dependent on range name definitions, do not physically move data within the spreadsheet and which calculate both faster and automatically. These modifications eliminated over 500 lines of macro coding within the spreadsheet and resulted in the reduction of the necessary run time.

The second and principal objective of this field visit was the modification of the model for use with the commercial risk analysis routines. The internal sensitivity analysis in the model displays the impact of a fixed number of changes to the basic input values in isolation. For example, the capital cost of the project is increased by 20 percent with all other variables held at their basic input values. The risk routines allow the user to both vary a number of input variables concurrently and to apply probability distributions for each variable. This creates the possibility of creating more realistic scenarios and obtaining more accurate results.

The model has been adjusted to detect if the risc calculation package has been opened and to then modify the treatment of the input variables to take advantage of this risc calculation package. In addition, the model was substantially revised to simplify the internal sensitivity analysis and to internalise the calculation of the downstream irrigation benefits. The adjustments to the internal sensitivity analysis were also necessary to incorporate the risc calculation routines. The modifications to the model have been completed and tested on a sample project. The results of this test are included as appendices to the model documentation.

Two deliverables resulted from this task. The first is the model itself, which has been renamed the Nepal Project Benefits Model (PROBEN) to more accurately reflect its function, and the second is the model documentation.

6.3 Problems Encountered

There were no major problems encountered. The lack of time did not allow to perform, as we would have preferred, a complete manual calculation for a selected test case and then duplicate the results using the computer. To replace this, the model could be tested further on a number of actual or prototype projects. The results obtained could be compared to the results of the analysis conducted by the independent developers.

The revised and enhanced PROBEN model will provide the Electricity Development Centre with a powerful analytical tool. This tool will help in the economic and financial evaluation of proposed private generation developments. The principal results focus on the expected financial cash flow (and rate of return on the investment) to the developer and the anticipated net economic benefits to the country. Time constraints and contractual provisions limited the extent of the additions that were made to the program. Should additional funds become available, it would be highly desirable to continue adding new modules to the program.

7 Environmental Specialist Activities

7.1 Summary of Activities and Deliverables

A summary of the activities carried out by the Environmental Specialist is presented in the following table

Activity/Deliverables	Status	
1 <i>Prepare an Enhanced Version of the Interagency and Public Consultation Guidelines for Hydropower Licensing in Nepal</i>	Completed	June 30, 1998
2 <i>Prepare Report on Potential for Developing a Regulatory Process for Exempting Smaller Hydro Projects from the Full Environmental Impact Assessment (EIA) Review Process</i>	Completed The report was presented in the format of a "discussion paper"	June 30, 1998
3 <i>Compile a summary of the current Nepalese Regulations and Procedures for Licensing Hydro Projects</i>	Completed	June 30, 1998
4 <i>Review and edit the "Draft Manual on Guidelines for Stakeholder Analysis" prepared by Dr Jagadish Pokharel in March 1998</i>	Completed The edited version was sent to Dr Pokharel for his information	June 30, 1998

7.2 Work Completed/Accomplishments

Mr Foote was responsible for continuing the work he initiated during the January through March 1998 period. Specifically, he

- Prepared a "fleshed out" version of the interagency and public consultation guidelines for hydropower licensing in Nepal. These guidelines could be used as an attachment to the RFQ/RFP being developed for future private sector projects, or could be used as a "checklist" by EDC to ensure that developers have conducted an adequate consultation process.
- Prepared a report in the format of a "discussion paper" on the potential for developing a regulatory process for exempting smaller hydro projects from the full Environmental Impact Assessment (EIA) review process, allowing a more abbreviated review for smaller projects that meet certain criteria.
- Prepared a summary of the current Nepalese regulations and procedures for licensing hydro projects. This was prepared so it could be included as an attachment to the RFQ/RFP for future private sector projects (information for developers).

126

- Reviewed and edited the "Draft Manual on Guidelines for Stakeholder Analysis" prepared by Dr Jagdish Pokharel in March 1998. Revisions were made primarily for format and consistency with other project reports, or to clarify portions of the report as required. Upon completion of the revisions, the revised manual was sent to Dr Pokharel for his final review and approval.

The above work was accomplished by using information gathered from his previous assignment to Nepal, information contained in his previous report dated March 1998, and by additional research of existing Nepalese laws, regulations, and guidelines. The following deliverables were produced:

- "Draft Interagency and Public Consultation Guidelines for Application for Production License"
- "Review of Potential for Exempting Smaller Hydroelectric Projects from the Full EIA Process"
- "Summary of Existing Guidelines and Regulations for Hydropower Licensing in Nepal"
- "Revised Draft Manual on Guidelines for Stakeholder Analysis"

The first three deliverables were sent/circulated to EDC and USAID for review and comment, while the fourth deliverable has been forwarded to Dr Pokharel for his final approval prior to sending the revised manual to EDC and USAID.

7.3 Problems Encountered

No major problems were encountered that affected the completion of the work. Due to the contract provisions which limit in time the work of Acres to August 31, 1998, the final versions of these drafts will have to be issued by the next EDC consultant. This will likely be carried out after EDC reviews the drafts and presents written comments.

7.4 Recommendations for Future Work

There are several additional tasks that should be completed in the environmental/regulatory area. Some are continuations of previous work, and some are new items that may have been previously identified, but have not been worked on. These tasks would include:

- Finalization of interagency and public consultation guidelines developed during the current extension, after receiving comments from EDC and USAID on the draft guidelines.
- Further investigation of the potential EIA exemption process for smaller hydroelectric projects, by working with a locally-hired legal/regulatory expert to assess the potential for changing the current Environment Conservation Rules.
- Developing draft license amendment procedures, for project owners who may wish to modify their project design or features, such as to add additional generating units. Ultimately, these procedures should be included in the Electricity Regulations as formal rules.
- Conducting an analysis of international stakeholder issues related to the development of hydropower in Nepal, by identifying these stakeholders and the potential issues associated with each stakeholder group. This should be conducted by a locally-hired stakeholder analyst.

- Developing draft relicensing regulations, for projects whose licenses are expiring This may not be an immediate need, since most licenses in Nepal are decades away from expiration, but such regulations should be in place prior to expiration of any licenses

7 5 Conclusion

The deliverables under this assignment have been prepared with limited interaction with Nepali counterparts in EDC, due in part to the limited length of this assignment The input of EDC, however, is very important, especially in the development of guidelines that will be circulated to international private investors in the power sector This will ensure that the information contained in the guidelines is accurate and pertinent from the Nepali perspective

8 Stakeholder Analyst Activities

8 1 Summary of Activities and Deliverables

A summary of the activities that the Stakeholder Analyst was expected to complete is presented in the following table

Activity/Deliverables	Status	
1 <i>Review and enhance the Draft Manual for Stakeholder Analysis</i>	This activity was not carried out by the Stakeholder Analyst, however the manual was revised by another consultant and was delivered as scheduled	June 30, 1998

8 2 Work Completed/Accomplishments

The Stakeholder Analyst, Dr Jagadish Pokharel, did not carry out himself any work during this period However, the work specified in the Amendment #6 to Acres' PEP contract was (partially?) carried out by the Environmental Specialist, Mr Peter Foote Mr Foote reviewed and edited the "Draft Manual for Stakeholder Analysis" (see 7 5 #4 above)

8 3 Problems Encountered

The problem encountered was the appointment of our local specialist, Dr Jagadish Pokharel, as a member of Nepal's Planning Commission This created the potential for a conflict of interest situation To avoid any accusations of such conflict of interest, which might have embarrassed EDC Dr Pokharel had to sever his contractual connections with Acres

128

9 Legal Specialist (Local) Activities

9.1 Summary of Activities and Deliverables

A summary of the activities carried out by the Legal Specialist is presented in the following table

Activity/Deliverables	Status	
1 <i>Preparation of a Report on the Legal and Institutional Framework</i>	Final Draft was completed and presented at the FNCCI workshop	June 26, 1998

9.2 Work Completed/Accomplishments

The local legal specialist, Mr Ratna Sansar Shrestha, was selected from a list of four candidates presented by EDC's Director General, Mr Vijaya Shanker Shrestha. The selection and the Terms of Reference drafted by the PEP Chief of Party were approved by USAID/Nepal and the Federation of Nepal Chambers of Commerce and Industry (FNCCI) which retained the rights to review and approve the reports issued by Mr Ratna Shrestha. The task of Mr Shrestha was to review the existing legal and institutional frameworks in Nepal, identify the issues which were perceived by the private sector as impediments to the development of hydro projects, and propose changes to the pertinent laws and regulations.

Over the duration of his assignment, in accordance with the specifications of the contract signed with Acres, Mr Shrestha produced several draft reports which were reviewed and accepted by FNCCI and USAID and resulted in a final report. Acres' Chief of Party and the First Secretary (Political and Social Affairs) of the US Embassy in Kathmandu also attended the meetings in which the reports of Mr Shrestha were reviewed. The final draft report was presented and discussed in a workshop for the private sector and HMGN held in Kathmandu. The workshop was attended by several prominent personalities, including the Deputy Prime Minister. The final report was left to be issued by the Legal Specialist after his review and partial incorporation of the comments and suggestions offered by the participants to the workshop.

9.3 Problems Encountered

There were no major problems. There were however some minor difficulties related mainly to the presentation format used by the legal specialist for his report. The reviewers agreed that there was room for improvement.

10 Conclusions and Recommendations

The following general conclusions and recommendations can be drawn

- Acres has successfully fulfilled all of its contractual obligations specified by USAID in the amendment #6 to the PEP contract. There was one operation specified under the "key results" category that was not completed: the printing of the updated "Regulations" booklet. However, this was not brought about by a fault of Acres, but by a decision of EDC management.
- The commissioning of a LAN for the PEP created the necessary conditions for a gradual introduction of EDC technical and administrative personnel to more advanced processing and management techniques. Steps should be taken to ensure that the EDC personnel is trained as soon as possible to be able to use the personal computers (PCS) and the LAN in their daily work in an efficient way.
- To ensure the continuity in the technical support provided by consultants to EDC, it is recommended that USAID provide the conditions required for an overlap period when both the PEP consultant (Acres) and the new SPO4 consultant (IRG) simultaneously provide support to EDC. This would create a favourable environment for IRG so that its consultants could become familiar with EDC needs in a much shorter time.

Private Electricity Project
Acres International Corporation

Quarterly Activity Report

July - August, 1998

Prepared for

**United States Agency for International Development
Mission to Nepal**

Prepared by

**Private Electricity Project
Contract No 367-C-00-95-05117-00
Acres International Corporation
Amherst, New York**

1 Introduction

This activity report examines the results obtained by the Private Electricity Project (PEP) personnel, over the period from July 1, 1998 to August 31, 1998. The report is presented in the same format that was used for the January - March and April - June 1998 Quarterly Activity Reports. The following abbreviations are used in this report to designate the institutions involved:

EDC	Electricity Development Center
HMGN	His Majesty's Government of Nepal
IRG	International Resources Group
MOF	Ministry of Finance
MOWR	Ministry Of Water Resources
USAID	United States Agency for International Development

This is the last of the periodical (quarterly) reports presented by the Chief of Party (COP). The conclusions presented at the end of this report refer only to the July-August 1998 activities. An overall review of the activities and conclusions for the whole project will be presented in the Final Report.

2 Work Plan Activities (As Specified in Amendment #8)

The PEP activities specified in Amendment #8 to the USAID Contract 367-C-00-95-05117-00, included the following components:

- Chief of Party (COP) / Export Valuation Specialist Activities
- Power Development Fund Specialist Activities
- Technical Writer/RFP Coordinator Activities
- Water Resources Specialist Activities

Each of these activities is discussed in more detail below, identifying the activities and the associated deliverables, describing the work carried out, and the more important problems encountered, if any.

3 Chief of Party/Export Valuation Specialist Activities

3.1 Summary of Activities and Deliverables

A summary of the main activities carried out by the Chief of Party in the July - August 1998 period is presented in the following table:

Activity/Deliverables	Status	
1 Coordinate all aspects of TA support provided	The COP coordinated all aspects of the TA provided by Acres throughout the July - August 1998 period	Completion date August 31, 1998
2 Work with the Water Resources Specialist to organize a training course for PROBEN users	The training course was presented to EDC/MOWR personnel	Completion date August 7, 1998
3 Coordinate the extension of Local Area Network to include workstations in the DG, DDGs and EDC Computer Center offices	Completed EDC notified PEP that they will accept the actual move of the workstations to the specified offices on Sept 7, 1998	Completion date Sept 7, 1998
4 Carry out the conceptual development of the Project Energy Sale Calculation for the Project Benefit Computer Model (PROBEN)	Completed	Completion date August 31, 1998
5 Procure 5 PC workstations, 2 printers and accessories for connecting the additional workstations to the LAN	Done	Completion date August 28, 1998
6 Organize short term training and participation to promotional tours for EDC management staff	Four short term (1 to 2 months) courses were organized for EDC Also participation for a promotional USA tour	Completion date August 31, 1998
7 Manage the process of preparation and delivery of the final report of the Local Legal Specialist	The process was completed on time and was followed by a series of additional quality enhancement activities	Completion date July 14, 1998

3.2 Work Completed/Accomplishments

The main goals of COP's work during this period were to

- Create favorable conditions for the successful preparation and delivery of high quality reports to EDC/USAID
- Ensure the continuity of support and assistance to EDC and USAID during the transition period (i.e. from the existing Private Electricity Project to the new SPO4 project)
- Help the members of the new consulting team, sent by IRG, become familiar with the project, its achievements and specific problems

133

- Close down the project in accordance with the applicable USAID rules and requirements and in a fashion which would be fully satisfactory for all the parties (USAID, Acres, EDC and IRG) involved in a direct or indirect manner in this process

All these goals were reached. This was made possible, to a good extent, by the excellent cooperation and support the COP received from the other members of the Acres PEP team and from USAID (Messrs T D Johnston, B N Pradhan, A B Carvalho, N Lama and Ms M Drew) and EDC (Messrs K B Aryal, B B Karki and R D Sahu)

In preparation for the imminent extension of the Local Area Network (LAN), special efforts were made to enhance the level of preparedness of EDC personnel that will have access to personal computers (PCs) in the near future. The emphasis was put on the use of local trainers. Four separate courses were organized by the COP:

- LAN components and operations and the use of the Windows NT operating system - 4 participants
- PC hardware and software for executives - 5 participants*
- Beginner level course on PC hardware and software - 7 participants
- Intermediate level course on PC hardware and software - 12 participants

* to facilitate the attendance of EDC executives, Acres organized a PC mini-lab on the EDC premises. All the lessons for EDC executives were presented in that mini-lab.

All classes were presented in a "daily, two-hours per session" format. The LAN course was presented over a three week period, while the three courses on PC hardware and software were presented over a period of approximately two-months. Based on the reactions from course participants, the level of satisfaction was generally high.

Acres also made all necessary arrangements for Mr. Angira Acharya (EDC) to attend a two-week course in Washington D C on "Effective Arbitration, Mediation and Dispute Review" for solving disputes in infrastructure projects. Unfortunately, the organizers of the course, the Institute for Public-Private Partnerships, cancelled the course without any warning or justification just one day before Mr. Acharya's scheduled departure.

Acres arranged for Mr. Bidur B. Karki and Mr. Sunil B. Malla to travel to Las Vegas in the United States in August to attend Hydro Vision 98.

One of the tasks that had to be completed by the COP / Export Valuation Specialist was to work with the Water Resources Specialist and organize a training course for the users of the Project Benefit Evaluation (PROBEN) computer program. The course was successfully presented to about 20 attendees (the number varied over the duration of the course) from EDC, MOWR and other organizations. Another task was to carry out the conceptual development of the Project Energy Sale Calculation module for PROBEN. This additional module is necessary for integrating the Load Forecasting module with the other existing calculation modules which are already integrated in the main program. The conceptual design was completed and the results were presented, in flowchart format, in the PROBEN User Manual.

Following the submission of the Legal Specialist "Report on the Legal and Institutional Framework" that was done by end-June 1998, the COP participated in several "round table" sessions organized by the Federation of Nepalese Chambers of Commerce & Industry (FNCCI) with the participation of representatives of the private developers. The COP contributed to the discussions and analysis that resulted in the final FNCCI document. This document was submitted to the Prime Minister of Nepal for further consideration by HMGN.

3.3 Problems Encountered

The training program initially discussed with EDC and USAID had to be altered due to events which were beyond the control of Acres (see above). Also, one trip that was intended to provide an opportunity for EDC executives to participate in an exchange of experience with officials from the Government of Laos had to be cancelled due to the lack of cooperation from the Lao Peoples' Democratic Republic officials.

4 Power Development Fund (PDF) Specialist

4.1 Summary of Activities and Deliverables

Activity	Status	
1 Methodology for Short Listing of Bidders for PDF Administrator	Methodology cannot be finalized before MOWR allows EDC to proceed with the request for qualifications	Delayed until expressions of interest are received from applicants
2 Prepare Request for Proposals (RFP) The RFP to be sent to the short listed local financial Institutions	It cannot be prepared before MOWR agrees to proceed with the process	Delayed
3 Attend the Bidders' Conference as observer and advisor to EDC	The Conference was not held due to the lack of the MOWR decision	Postponed
4 Assist EDC in methodologies of shortlisting document for the PDF Administrator	There was no MOWR approval to request proposals for PDF Administrator	Delayed
5 Develop draft study to identify institutional issues which may constrain the development of small projects eligible for funding under the PDF	The draft study was completed	Completion date was August 31, 1998

135

Activity	Status	
<p>6 <i>Develop a financial model for the analysis of the possible performance of small projects under different sets of conditions</i></p>	<p>Th model was completed and tested with data extracted from recently designed projects</p>	<p>Completion date was August 31, 1998</p>

4.2 Work Completed/Accomplishments

The intention of the PDF Specialist assignment was twofold

- To assist the EDC in elaborating methodologies for the short listing of local financial institutions to be considered for the position of Power Development Fund (PDF) Administrator
- To initiate a study of the institutional issues affecting the financing of small power projects, particularly as they relate to the financing of projects under the PDF's "second window"

A series of meetings were held with the World Bank's Power Development Project appraisal team to discuss the PDF and, most importantly, to gauge the HMGN reaction to World Bank Country Director Hans M. Rothenbuhler's March 11th letter to the Ministry of Finance (MOF) and the Ministry of Water Resources (MOWR) regarding the World Bank's desire to capitalize the PDF on an incremental basis predicated on demand for resources. MOF and MOWR finally responded to Mr. Rothenbuhler's letter just prior to the arrival of the World Bank team in mid-August. The response basically indicated that there were no contentious issues related to the letter and that HMGN wished to continue discussions regarding the proposed Power Development Project and its subset, the Power Development Fund. However, subsequent discussions between the World Bank team and MOWR did not result in a decision on the part of HMGN to authorize the initiation of competition for the PDF Administration contract.

Separate meetings were held with representatives of local financial institutions interested in bidding for the PDF Administration contract and with members of the Federation of Nepalese Chambers of Commerce to update them on both the status of PDF discussions between HMGN and the World Bank and on the PDF's "final" structure and governance as reflected in the May 1998 Borrowers' Implementation Plan.

To assist EDC find ways to utilize the Power Development Fund (once it becomes operational) to fund new power projects, particularly those 10 megawatts and below as apparently preferred by the Minister of Water Resources, a study was initiated to identify institutional issues affecting the financing of small power projects. In addition, a financial simulation model for small (10 megawatts or less) power projects was developed in order to allow for the modeling of a variety of scenarios which take project size, cost, debt/equity mix, and the selling price of power into consideration. The model allows one to view the effect of changes in these variables on the income statement and balance sheet of a hypothetical project sponsor.

136

A field trip was also organized to view the 5.1 megawatt Andī Khola hydro-power plant operated by the Butwal Power Company Limited and to hold discussions with Butwal officials and plant operators

4.3 Problems Encountered

As mentioned above, although HMGN has responded to the World Bank Country Director's March 11th letter regarding incremental capitalization of the PDF, no decision has been made to go forward with the open competition for the PDF Fund Administration contract. The PDF thus remains in limbo and there has been no interest at this time on the part of EDC for assistance in elaborating methodologies for the short listing of local financial institutions which want to be considered for the position of Power Development Fund (PDF) Administrator.

Many of the same conclusions regarding the PDF reached during the previous quarters are still applicable.

- There has been little movement toward finalization of the PDF Administration Agreement between HMGN and the World Bank.
- HMGN's interest in the PDF has not yet resulted in concrete steps towards PDF implementation.
- No one within either EDC or MOWR has stepped forward to "champion" the cause of the PDF and to ensure its implementation.

With regard to the commercial viability of smaller scale hydro-power projects, the tests carried out with the "Small Project Financial Simulation Model" (SmallFinSim) suggest that if the price of power currently being paid by the Nepal Electricity Authority to small producers such as Butwal Power is not raised significantly above current levels, small projects (10 megawatts or less) now under consideration are unlikely to possess sufficient commercial viability to attract private investors. Butwal's "success" as a small independent power producer is largely due to the grant funding of its capital costs. Grant funded capital costs simply do not equate with commercial viability.

5 Technical Writer/RFP Coordinator

5.1 Summary of Activities and Deliverables

Activity	Status	
1 <i>Preparation of Draft Request for Qualifications for Hydroelectric Projects on BOOT Basis</i>	Drafts #7/7a* completed, based on World Bank and EDC comments, and submitted to EDC and USAID	Completion Date August 28, 1998
2 <i>Assist EDC in the preparation of the advertisement for RFQ</i>	The prerequisite was a MOWR/EDC approved RFQ This was not available	

* Draft 7a was the 'final documentation' reference number for this RFQ which was issued in September as part of the final report documentation

5.2 Work Completed/Accomplishments

The Technical Writer Specialist completed the following objectives outlined in the original work plan and scope of work

- Meetings with EDC management to review the approach for revising the RFQ based on comments received from the World Bank in Washington and to receive list of projects to be included in current draft, Acres Specialist's EDC's counterpart to review and clarify changes made in draft in response to World Bank's comments, and World Bank representatives to review status of changes made in RFQ
- Further refinement of Draft Request for Qualifications based on comments received from the World Bank, dated May 2, 1998, and an understanding of EDC's position clarified in meetings accepting that
 - Qualification criteria based on a pass/fail system would be acceptable
 - Four projects with installed capacities of 24 to 35 MW would be included
 - Qualification criteria would be set for the group of proposed projects

Some of the significant revisions and additions made in Draft-7 include

- Section 1, Invitation for Prequalification, revised for both Draft-7 and a draft "advertisement"
- Project Location Map revised to show the locations of the four projects being considered for development

138

- Section 2, Information for Applicants, revised text and appendices including
 - Paragraphs referring to the status of feasibility studies and environmental impact assessments, and construction schedules for the proposed projects
 - Annex A 1, Copies of Policies, Acts and Regulations Relevant to Power Development in Nepal amended to include disclaimer that " These documents are unofficial translations, and in case of any discrepancies the Nepali version will apply"
 - Appendix C, Technical Information, revised to include summary of technical information for the Khimti 2 hydroelectric project from feasibility report The sub appendices for Tamur-Mewa, Dudh Koshi and Upper Karnali hydroelectric projects as well as Annex C 1, Copies of Table of Contents from Feasibility Studies and Environmental Impact Assessments for these projects, which had been prepared for Draft-6 was removed from the RFQ
 - Attachment 1, Price List of Available Studies and Reports, revised
- Section 3, Instructions to Applicants, revised and corrected to reflect the changed scope of the RFQ document The proposed "Pre-Application Meeting" in Paragraph 3 6 4 was deleted
- Section 4, Qualification of Applicants, redrafted based on a pass/fail criteria with further simplifications Changes were made in Exhibit A, Form of Application, based on the proposed projects and refinements for financial qualifications

5 3 Problems Encountered

In the preparation of Draft-7, Request for Qualifications for Development of Hydroelectric Projects on BOOT Basis a number of issues remained open, including

- Updating Section 2 and Appendix B, NEA System Information, based on current performance data and development program
- Completion of Appendix C, Technical Information, based on the Feasibility Studies and Environmental Assessments for projects Kabeli-A, Rahughat Khola, and Likhu Khola hydroelectric projects, based on completed feasibility studies The completion of these reports by the MHSP has been delayed into late September In addition, the sub appendix for Khimti 2 needs to be completed and/or revised in consultation with the author of the study reports for this project to ensure correctness of information
- No further information received from current reviews of NEA's Long Term Development Plan for Nepal, including forecasted dates for the development of the five proposed projects
- Appendix E requires further work based on consultation with staff experienced in preparation of the project and power purchase agreements for current private power developments in Nepal such as the Khimti and Bhote Koshi hydroelectric projects

As a result of these continuing requirements in drafting a RFQ as well as of the delay in receiving forecasted dates based on NEA's Long Term Development Plan for Nepal for the implementation of these projects, all activities related to the issuing of RFQ's and subsequent reviews and recommendations of prequalified developers have been delayed

In addition, revisions to the generic RFP for the Development of Hydroelectric Projects have been deferred pending receipt of comments from EDC as well as agreement on the form and content of the RFQ

6 Water Resources Specialist

6 1 Summary of Activities and Deliverables

Activity	Status	
1 Prepare a workshop on Project Benefit Computer Model (PROBEN)	The Water Resources Specialist prepared the workshop	Completion Date July 29 1998
2 Conduct a workshop in Kathmandu for EDC and MOWR staff	The workshop was presented to selected EDC and MOWR staff, as well as other guests	Completion Date August 7, 1998

6 2 Work Completed/Accomplishments

A workshop outlining the background and functions of the PROBEN worksheet was prepared and presented to staff from EDC, MOWR and USAID. Approximately 20 participants (the number varied slightly from one session to another) took part in the workshop which included both a presentation and discussion of the worksheet and a hands-on computer training session.

The workshop dealt in detail with the inputs required of the model, the output tables as well as the calculations and linkages within the model. A number of related issues were presented. These included a discussion of the differences between economic and financial analyses, the time value of money and the various measures of project worth.

The workshop concluded with a presentation and discussion of the two new modules that have been added to the model, namely the @RISK element for risk assessment and the load forecast module. Sample inputs and outputs of both were presented.

6 3 Problems Encountered

The presentation of the material used for concept illustration in the classroom was made somewhat difficult by the lack of a direct projector for the PC images. The consultant was forced to use black and white transparencies instead. This decreased presenter's possibilities of dynamic interaction with the audience.

7 Conclusions

The review of the results obtained by the end of August 1998 when the field activities were completed makes it apparent that the following conclusions could be drawn

- Acres International have fulfilled their contractual obligations, as specified in Amendment #8 of the contract with USAID
- A few deliverables specified in Section "D" of Appendix 8 of the contract in connection with the activities of the PDF Administrator and of the RFQ Coordinator were delayed beyond the contract termination date due to reasons beyond the control of Acres (MOWR postponed the decision to proceed)
- The transition from PEP to SPO4 was carried out successfully