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Private Sector Hydropower Development Project

FIRST ANNUAL REPORT

June 12, 1998 through July 14, 1999

Prepared for:

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

Contract No. 367-C-00-98-00071-00

Project No. 367-04A1 [367-0173]

**Title: Increased Private Sector Participation and Investment in
Environmentally and Socially Sound Hydropower**

August 31, 1999

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**Ministry of Water Resources
Kathmandu, Nepal
Private Sector Hydropower Development Project
First Annual Report**

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**Section 1
Contractor's Report**

1. Background

The strategic objective of Special Objective 4 (SpO4) is Increased Private Sector Participation and Investment in Environmentally and Socially Sound Hydropower. The intermediate results are (IR4.1) Improved Enabling Environment for Private Sector Investment in Hydropower; and (IR4.2) Increased Environmental and Social Soundness in Hydropower Development.

An adequate and dependable supply of electricity is essential for economic development, and Nepal's large hydroelectric potential is among its principal natural resources. Actual development lags well behind the potential, however, and Nepal suffers from inadequate electricity to supply its increasing demand. Potential environmental and social impacts, furthermore, have been among the concerns giving rise to controversy in relation to proposed developments. Although development of Nepal's hydroelectric potential is widely recognized as one of the keys to economic development and improved standards of living, concerns about potential environmental and social impacts of hydroelectric development, and river project development generally, are high-profile issues here – as elsewhere. Recognizing these factors, His Majesty's Government of Nepal, the U. S. Embassy in Nepal, and the USAID Mission to Nepal have been and are cooperating in a series of efforts to strengthen the country's electricity sector. The most recent of these efforts are the Private Electricity Project (1995-1998) and the present Private Sector Hydropower Development Project (1998-2001).

His Majesty's Government has enacted significant legislation aimed to strengthen and broaden the participation in the electricity sector, particularly the bold 1992 legislative package dealing with private sector participation in the electricity and other sectors. HMG also enacted a series of legislative acts and institutional changes to bring environmental and social review processes up to international standards. These laws, regulations, and their

implementation, however, together with other factors, result in a complex, not entirely clear, and potentially lengthy approval and development process with room for further improvement.

The Electricity Development Center (EDC) was established in the Ministry of Water Resources to conduct the hydro licensing process under the 1992 and subsequent legislation, including monitoring of licensed projects. The authority actually to issue licenses, however, rests with the Secretary of the Ministry of Water Resources. The EDC mandate also includes assisting developers and would-be developers deal with the government through a "one window" operation, promoting investment and development by private investors, and other functions.

The strategic objective and the performance indicators of the subject contract stress private sector participation in the electricity sector. The contract scope of work and the resulting work plan repeat that emphasis, but call for institutional strengthening, primarily of EDC, as the means toward these ends. The major tasks in the work plan therefore deal with developing EDC capabilities and improving EDC procedures, specifically to:

- manage (and promote) the private power process,
- identify and address constraints on private development and investment,
- manage the environmental and social impact assessment process, and
- conduct and review environmental and social impact assessments.

2. Expected Results (Outputs or Indicators)

The performance indicators and units of measure are summarized as follows:

Indicator 4.1 Private sector companies progressing toward hydropower investment.
Unit of Measure: Stages of progress from application for survey license, or response to Request For Qualifications, to financial closure, construction license, construction, and operation.

Indicator 4.2 Private financial commitments for environmentally and socially sound hydropower project development.
Unit of Measure: Cumulative total in dollars of financial commitments by private financing institutions for projects with satisfactory EIAs and SIAs.

Indicator 4.1.1 Improvements for the hydropower investment process.
Unit of Measure: Points from an enabling index, which provides an illustrative list of improvements in the investment and EIA/SIA processes and assigns points to those improvements.

Indicator 4.2.1 EIAs and SIAs for hydropower proposals implemented by international standards (World Bank)
Unit of Measure: Cumulative number of EIAs and SIAs reviewed by EDC in accordance with World Bank guidelines.

Indicator 4.2.2 Public hearings for hydropower projects conducted with local stakeholders and NGOs.
Unit of Measure: Cumulative number of hearings, as specified, by private sector hydropower companies and by EDC.

It is worthy of note that these indicators are reasonable measures of progress toward the accomplishment of the strategic objective. They also depend substantially on decisions, to proceed with hydroelectric developments, by parties outside this project and EDC.

3. Major Activities Leading to the Indicator Targets

Mobilization and office arrangements

International Resources Group mobilized in Washington, D.C. in July 1998. The chief of party, Mr. L. D. Nichol, arrived in Kathmandu on July 19 to begin project activities in Nepal, accompanied by Ms. Mary Clark Webster, director of IRG's energy group, and Ms. Dianne M. Streat, project administrator. Mr. C. B. Lamichhane, IRG's administrator for the project office, joined the project in Kathmandu on June 18, 1998.

Temporary office space was made available by the Electricity Development Center (EDC) of the Ministry of Water Resources (MOWR), His Majesty's Government of Nepal (HMGN) in the EDC building. IRG personnel met with EDC staff led by Dr. K. B. Aryal, then officiating director general and now director general of EDC. They were briefed by Mr. Dan Ruiiu, chief of party of the outgoing Private Electricity Project, and a joint meeting was held with EDC leaders. On August 31, the IRG chief of party and administrator assisted Mr. B. N. Pradhan, of USAID/Nepal, to conduct the inventory of the Private Electricity Project office and equipment being turned over by Mr. Ruiiu, on behalf of Acres International Ltd., to USAID and then to IRG. From that date, IRG and the Private Sector Hydropower Development Project moved into the former PEP office in the Electricity Development Center.

Procurement and facilities

Quotations were obtained and evaluated for vehicles, office furniture and equipment, computers, printers, projectors, and related equipment. Waivers of U.S. origin requirements for vehicles were obtained. Two Toyota Corolla sedans and one Toyota Land Cruiser Prado 4-wheel drive vehicle were received shortly after the close of the reporting period. One of the sedans was transferred by USAID directly to HMG for use of EDC.

Five locally-assembled mini-tower computers with selected software for EDC were delivered to the project office and are awaiting placement and setup as directed by EDC. The following equipment was delivered to the project office in the EDC building: three Dell desktop computers, two Dell laptop computers, one HP laser printer, one HP color DeskJet printer, one HP scanner, one 3M overhead projector, one Kodak 35 mm slide projector, one 3M computer projector, surge protectors and other accessory equipment, and one replacement report binding machine. One HP laser printer and one mini-tower computer are available for reassignment to EDC.

Supplemental items of furniture were purchased to replace items previously on loan from EDC and to provide for additional short-term visitor positions.

Items of furniture (bookcases, computer desk, reference table, and chairs) were purchased for the new EDC records center which is to be established following an early project recommendation. One of the five new EDC computers will be placed there.

EDC made available two additional office rooms adjoining the project offices, which were rearranged to provide an additional visitors' room, a visitors and meeting room, and a storage room. EDC arranged for an additional telephone line to the project office, which is dedicated to the modem serving the local area computer network.

Subcontracts

- a. The subcontract with Duke Engineering and Services was negotiated, in conformity with the IRG proposal, and was signed on December 18, 1998.
- b. The subcontract with METCON Consultants, of Kathmandu, was negotiated at a higher subcontract amount than set forth in the IRG proposal to USAID. This was an agreed resolution to a miscommunication that had occurred between METCON and IRG at the time the proposal was prepared. The subcontract as negotiated was submitted to USAID on January 27, 1999 for review prior to signature and was approved for signature at the end of March.
- c. At the end of December, a local consultancy agreement was negotiated with Richard English, Ph.D. to conduct a study of the success stories resulting from the Andhi Khola Hydroelectric, Irrigation, and Rural Electrification Project.
- d. In April, a local consultancy agreement was negotiated with Dr. Ram B. Khadka, a professor and former senior advisor with IUCN, to participate in the EIA activities in place of Metcon personnel no longer available for project work. Dr. Khadka's activities are included in references to EIA activities by Metcon personnel.

Project personnel

Resident staff: As noted above, Mr. L. Dow Nichol, chief of party, arrived in Nepal on July 19, 1999 to join Mr. C. B. Lamichhane, project administrator, who had joined the project in Kathmandu on June 18. Mr. Mark Hodges, designated resident environmental advisor, notified IRG in July that he would not take up the assignment, and USAID was advised of this development. Mr. Alfred P. Picardi was suggested and approved for a short-term role to assist in project start-up. Mr. Picardi came to Nepal for three weeks in August (August 5 to 30) and produced the inception report referred to below. After a search for and evaluation of well-qualified alternative candidates for this position, IRG submitted the name and credentials of Stefan J. F. Gorzula, Ph.D., who was accepted by USAID and who arrived in Nepal on November 22, 1998.

The principal activities of the chief of party included:

- establishment of the project office;
- becoming acquainted with the staff, situation, and activities of EDC and the work product of the predecessor Private Electricity Project;
- preparation of the work plan for year one and its presentation to EDC and USAID;
- scheduling, related approvals, and clearances for short-term personnel;
- participation in discussions and drafting of the Request for Qualifications (RFQ) for Development of Hydroelectric Projects by Build, Own, Operate, and Transfer (BOOT) method;
- participation in discussion of key initial documents for the Power Development Fund (PDF);
- arrangements for the Andhi Khola study; and, generally,
- participation in the activities mentioned in Part 4 below.

The principal activities of the resident environmental advisor after arrival in late November were:

- becoming familiar with the work product of the Private Electricity Project,
- getting acquainted with the leaders and environmental staff of EDC,
- seeking out additional legislative and other pertinent materials,

- examining the several sets of regulations and guidelines faced by developers of hydroelectric projects in Nepal, and considering how the process of compliance might be carried out and, eventually, streamlined, and
- developing environmental and social work plans for himself, EDC, short-term experts, and Metcon personnel in greater detail.
- leading an intensive effort by Metcon personnel, from mid-April through the end of year one, to analyze and evaluate the existing EIA situation and practices and address the environmental tasks 4 and 5 as discussed below.

Short-term technical assistance:

The twenty-two visitors providing short-term technical assistance for the project who arrived during year one are listed on the accompanying table, along with four additional visitors who arrived during the latter part of July 1999.

All short-term and resident staff are being made aware of the body of work produced by Acres International under the preceding Private Electricity Project, which provides the base from which our work will proceed.

Ms. Mary Clark Webster (July 19-August 3) and Ms. Dianne M. Streat (July 19-August 5) came to Nepal in July to assist with project start-up.

Mr. Alfred P. Picardi came in August (August 5-August 30) to look into environmental and social aspects of the licensing process and help develop the work plan in those respects.

Mr. Daud Beg, home office technical lead, visited Nepal from November 1 to November 15. Mr. John L. Swift, consultant, visited from October 24 to November 13. Mr. Thomas P. Gross, legal analyst, visited Nepal from October 28 to November 17 and from December 3 to 17. The tasks of Mr. Beg, Mr. Swift, and Mr. Gross as initially planned were to

- a. begin the overall assessment of roles and capabilities of EDC in itself and in relation to those of other agencies in the electricity sector;
- b. review the legislation and regulations that form the basis for the licensing process and the mandate for EDC;
- c. review the Request for Qualifications/Request for Proposals process for Hydroelectric Development by Build, Own, Operate, and Transfer (BOOT) method; and
- d. review documents related to development of the World Bank-sponsored Power Development Fund (PDF).

These items, particularly the BOOT RFQ/RFP process and the PDF, were not as far advanced as contemplated at the time of the USAID request for proposals and the resulting IRG proposal. The decision was made, in consultation with EDC and USAID, to concentrate on the RFQ for BOOT Hydro and the first two PDF documents. The Request for Qualifications for BOOT Hydro prepared by Acres International during the Private Electricity Project had gone through draft 7a, completed in September 1998. The length of this series seemed largely to be due to matters of discussion within HMG, such as the selection of projects to be offered for bid, and between the government and the World Bank group. The IRG team recommended that the RFQ could be made simpler and less burdensome while still adequate for its purposes, especially as the projects to be offered for qualifications and bidding had been limited to a group in the 25 to 50 MW range of capacity. A series of drafts were prepared and discussed in detail with EDC leaders, and a draft dated December 18, 1998 was

sent to EDC for transmittal to MOWR and the World Bank for review. The first two PDF documents are the "expression of interest" and the "terms of reference" to be used in selecting an institution to administer the Power Development Fund. Proposed revisions to these documents were prepared in December and transmitted to EDC for review and forwarding.

Ms. Carol Mulholland came to Kathmandu in December to work on another IRG project. She was able to spend a short time on the PSHDP, interviewing EDC and project personnel. She prepared a draft memo on the assessment of training needs, which provided a basis for the further work on this task by Dr. Hayden and Mr. Kenneth Ames in January.

At the end of December, arrangements were made to engage the services of Richard English, Ph.D., a Nepali-speaking anthropologist and environmental consultant based in Kathmandu, to prepare a review study of the Butwal Power Company's Andhi Khola Project. Andhi Khola is a small-scale hydroelectric, irrigation, rural electrification, and community development project. The Andhi Khola project was known to have employed unique design concepts, low-cost implementation, operating, and community outreach and enterprise development approaches. The report by Dr. English was based on field interviews with project personnel and, especially, with affected residents. The study was initiated to meet a combination of purposes of the Private Sector Hydropower Development Project and the USAID mission, both involving the need for better understanding of real examples of innovative and successful ways to extend project benefits to a rural population. The study, completed in February 1999, examined these unique approaches, the resulting success stories, and other lessons for possible guidance in the environmental and social aspects of other hydroelectric developments.

Dr. Sterling Hayden and Mr. Kenneth Ames came to Nepal in January 1999 to develop the training needs assessment and first year training plan.

Ms. Jacqueline DeRosa and Ms. Mary Webster came in January to initiate work on electricity tariffs and regulatory assessment.

Dr. Charles Ebinger and Mr. Daud Beg came in February to work on the diagnostic assessment of EDC. Mr. Beg also participated in meetings with the World Bank mission dealing with the BOOT Hydro Request for Qualifications.

Mr. Thomas Gross came in February to work on the diagnostic assessment of EDC and took part in the full series of meetings with the World Bank mission focusing on the December draft of the RFQ. Subsequently Mr. Gross and Mr. Nichol prepared a revised draft RFQ, which as presented to EDC is dated March 16, 1999. There are issues regarding the RFQ remaining to be discussed with the bank, but their February mission asked that it not be resubmitted until the list of projects to be offered for bidding by the private sector had been finally determined.

Dr. Tod Ragsdale came in April 1999 to work on assessment of the EIA/SIA process and procedures and the initiation of work with Metcon Consultants under the subcontract, which became effective in early April. From mid-April the Metcon environmental consultants and Dr. Ram B. Khadka, with Dr. Gorzula, have worked as a team on the environmental Tasks 4 and 5.

Mr. Thomas Gross returned in June to work on legal aspects of the BOOT Hydro Request for Proposals and evaluation of requirements for hydro licensing.

Mr. Daud Beg came in June to work on a proposed revised HMG hydroelectric policy and, more generally, an assessment of the climate for private sector investment.

Mr. Osvaldo Juvier of Duke Engineering & Services came in June to work on the first draft of the BOOT Hydro RFP.

Dr. Hasso Bhatia came in June and again in mid-July to initiate work on training in tariff calculations. As a necessary first step he began to evaluate the present electricity tariff situation through discussions with the chairman and members of the tariff commission and the planning/tariff staff at NEA.

Mr. Shakeb Afsah came in July to work with the environmental team on evaluation of present practices and proposed guidelines for public consultation in the licensing process.

Mr. David Anderson of DE&S came in July to work on water standards for hydro projects.

Mr. John Northrop of DE&S came in July to work on design, safety, and procedural guidelines for hydro projects.

Field activities

In early January 1999 Mr. Nichol, Dr. Gorzula, Mr. Anup Upadhyay of EDC, and Mr. Hom Lal Shrestha of USAID accompanied Dr. Richard English on his first visit to the Andhi Khola project and vicinity.

In May 1999 Mr. Nichol, Dr. Gorzula, Mr. Sudesh Malla of EDC, and Mr. Bharat Sharma and Prof. Govind Ghimere of Metcon Consultants visited the Kulekhani Reservoir and the Kulekhani I and II powerstations of NEA.

4. Year One Activities and Progress by Task

TASK 1: Develop EDC Capabilities to Manage the Private Power Process

Subtask 1.1: Support EDC's development to support World Bank efforts to implement and improve the Power Development Fund (PDF) over time. Ensure that all PDF documentation and inputs for which EDC is responsible are provided in a timely manner.

- The Letter of Interest and Terms of Reference for PDF Administrator were reviewed, and informal comments were provided to EDC in December 1998.
- The Borrower's Implementation Plan and Request for Proposals for PDF Administrator were briefly reviewed.
- The December 1997 draft of the Administration Agreement for PDF Administrator was provided for review in June 1999. This draft, plus earlier written comments from MOWR, was to be reviewed by Mr. Thomas Gross and then discussed with the World Bank in Washington. The meeting with the bank was held in July and it was agreed that the bank would provide additional input around the end of August.
- The World Bank's New Operational Manual (January 1999) has been accessed and analyzed.
- Twenty-four sets of guidelines and annexes, which are relevant to EIA and SIA of hydropower projects, have been reviewed for compatibility with the national legislation of Nepal.
- Areas of potential conflict (notices to other riparian nations, land tenure, compensation, and resettlement) have been detected between bank and national policies.
- Various documents regarding the PDP and PDF have been obtained from the World Bank and reviewed.

Subtask 1.2: *Work with EDC to enhance its capabilities to prepare and issue RFQs and RFPs, and to review all subsequent bids. Areas to be covered include legal, regulatory, financial, banking, engineering, environmental, and social aspects.*

Note: The two principal independent power projects in Nepal to date are Khimte Khola (60 MW) and Bhote Kosi (36 MW), both of which are expected to begin commercial operation in 2000. Each was the result of an unsolicited application for survey license under the 1992 legislation and eventually the subject of a negotiated power purchase agreement between the corresponding project company and NEA. Present government policy aims to restrict private sector participation in hydro development to serve the domestic market to projects that have been selected by the government for BOOT hydro development. Projects thus selected are to be offered to prospective IPP developers by international competitive bidding. There is little or no precedent for exactly this combination of procedures, and thus there are policy matters and details to be addressed, but given certain assurances from the government it is reasonable to expect adequate interest and sufficiently active bidding by qualified developers. Assistance to EDC in the implementation of this next set of IPP BOOT hydro projects is the subject of this subtask. The working assumption is that the Power Development Fund will be implemented and the RFQ/RFP projects thus will be subject to World Bank procedures and guidelines or agreement on any points of difference.

- The PEP draft of the Request for Qualifications for Development of Hydroelectric Projects by BOOT method was substantially revised in close consultation with EDC. The objective of the revision was a simpler, less burdensome document to attract more interest from potential developers at the qualification stage. A revised draft dated December 18, 1998 was submitted to EDC, and through the ministry to the World Bank.
- The December 18 draft RFQ was discussed with a World Bank mission in February. A revised draft dated March 16, 1999 was prepared and submitted to EDC, with the plan to submit it to the bank when the selection of projects to be offered for bid was final. That stage apparently has not yet been reached, but the corresponding revision of the draft RFQ can proceed directly when it is.
- A first draft Request for Proposals for BOOT hydro development was prepared in June 1999 and submitted to EDC for review. A further discussion and drafting session took place in July 1999. (The design standards work under subtask 2.4 is intended to provide input to the final RFP.)
- A summary of the relevant environmental and social issues has been given to the short-term consultants.

Subtask 1.3: *Improve EDC's capability to act as a liaison between all GON (Government of Nepal) officials that are involved with approval of private power project agreements.*

- Efforts have been made to bring together officials of the several electricity sector agencies in discussion seminars, smaller meetings, and informal settings.
- A data base has been prepared on HMG/N ministries, commissions, departments, research institutions and universities, which might be involved in the EIA/SIA review and approval process. It contains the following information: type of agency or organization; year established; street address; postal address; telephone; fax; e-mail; goal/mission; types of activity; areas of involvement; geographical area of operation; and, contact person.

Subtask 1.4: *Enhance EDC's capability to measure contractor and special activity progress towards results which will improve the environment for private sector investment in hydropower.*

- The process private power developers are expected to follow is being reviewed in detail, accompanied by identification of steps needed to improve climate for private investment.

The process is found to be complex, not entirely clear, and with overlap between legislation and regulations of various dates.

- The IRG team is involved, with EDC, in reviewing an EIA for the West Seti Hydroelectric Project which is being prepared for submittal by SMEC, the license holder. This experience will give direct input regarding the licensing process from the developer's perspective.

Subtask 1.5: Enhance EDC's capability to develop and use multi-purpose water-use models to help the GON assess, evaluate and more fully understand downstream benefits.

- In preparation for a planned visit by a DE&S modeling specialist, discussions have been held with EDC personnel to clarify EDC capability and requirements for water use and basin models. The PEP ProBen model was demonstrated briefly by EDC, and its characteristics and uses discussed. A seminar discussion on use of models in water resource planning is planned.
- The potential adaptation of a watershed area management model, developed for a hydropower project in Viet Nam, is ready for presentation in a seminar.

Subtask 1.6: *Provide training to EDC and other GON personnel in areas such as legal, financial, regulatory, banking, engineering, environmental and social aspects of private hydropower development.*

The work plan emphasizes both on-the-job training and the sharing of pertinent experiences and viewpoints from time to time by resident and short-term staff as means to expand the base of experience and improve the capabilities of EDC staff. In addition to numerous meetings to discuss documents and work in progress the following seminar presentations and discussions have been held:

- (1) November 15, 1998; Mr. Daud Beg presented a seminar on "Overview of IPP Policies" to an audience of EDC staff.
- (2) February 1999: Ms. Jacqueline DeRosa; Workshop on Electricity Tariffs
- (3) February 1999: Ms. Mary Clark Webster; Workshop on Regulatory Processes
- (4) February 11, 1999: Dr. Charles Ebinger; IPP Implementation
- (5) March 16, 1999: Dr. Stefan Gorzula; Environmental and Social Characteristics of Hydroelectric Dams
- (6) March 29, 1999: Dr. Stefan Gorzula; Catchment Area Protection – Part I
- (7) April 1999: Dr. Stefan Gorzula; Catchment Area Protection – Part II (Video of Caroni River Catchment area and Guri Dam, Venezuela).
- (8) April 29, 1999: Dr. Tod A. Ragsdale; Planning Processes of Resettlement in China
- (9) June 9, 1999: Dr. Hasso C. Bhatia; Cost and Tariff Methodologies
- (10) June 10, 1999: Mr. Thomas P. Gross; Restructuring, Regulation, and Privatization of Electric Utilities
- (11) June 10, 1999: Mr. Osvaldo A. Juvier; Approach to BOOT Hydro Development

Subtask 1.7: *Improve EDC's capabilities to promote Nepal's experience with private hydropower development and to make presentations in international settings to attract additional private hydropower investments into Nepal.*

Sponsored promotional activities included the following:

1. At the request of EDC and with the approval of USAID, IRG made arrangements for and supported the attendance of four HMG officials at the 1998 World Energy Congress in Houston from September 13 to 18. These were Dr. K. B. Aryal, Mr. Lekh Man Singh, and Mr. Arjun P. Shrestha from EDC and Mr. R. L. Kayastha from MOWR. A post-conference program was arranged for these four. They visited the offices of IRG's

subcontractor, Duke Energy & Services, in Charlotte, NC, and Duke Energy's Bad Creek Pumped Storage Project in western North Carolina. An additional stop in Denver, Colorado, with a visit to parts of the USBR Colorado-Big Thompson project, was arranged for Dr. Aryal and Mr. Singh.

2. In September 1998, at the request of EDC and with the approval of USAID, IRG provided lodging and per diem support for the attendance of Mr. B. B. Karki, deputy directory general of EDC, at the PowerGen Asia 1998 conference in New Delhi. Mr. Karki presented a paper on HydroPower Trends and Opportunities in Nepal at this conference.
3. In May 1999 Mr. Lekh Man Singh of EDC represented Nepal at the Trade & Development Agency's World Power Conference in New York. The project made supplemental arrangements for Mr. Singh to visit Washington, DC, for meetings with personnel of the World Bank Group, USAID, and IRG.
4. In May 1999 Mr. B. B. Karki, as an invited speaker, presented a paper on hydro development opportunities in Nepal at the PowerGen conference in Singapore. This project provided supplemental funding.

TASK 2: Improve EDC Procedures to Manage the Private Power Solicitation and Award Process

Subtask 2.1: Identify constraints affecting issuance of project agreements, permits and licenses under the "one window" system, and make recommendations to remove these impediments.

- A draft document on The Electricity Development Center: A Diagnostic Assessment was discussed with EDC in February and a revised discussion draft was submitted to EDC for review in May 1999.
- Weaknesses and complications with regard to the EIA process have been identified.
- Potential solutions are under consideration.

Subtask 2.2: Re-evaluate the requirements for issuing licenses and recommend modifications to EDC on modifying them.

- The legal bases for licensing and regulation by EDC have been examined.
- EDC is found to have little or no authority for qualitative evaluation of proposed projects or their suitability in relation to the potential of the resources for development. Recommendations in this respect are under consideration.
- Detailed examination of procedures within EDC is planned.
- A more complete listing of requirements for environmental and social impact analysis and mitigation has been prepared. Analysis and understanding of these processes is under way.
- Areas where the EIA requirements could be simplified have been identified.

Subtask 2.3: Assess the potential and make recommendations for a system whereby EDC could charge appropriate fees and earn revenues to be used to help EDC evaluate hydropower proposals.

- Inadequacy of funding and management flexibility for EDC carry out its mandated tasks is clear.
- Alternative models have been identified, and preliminary discussions of them have been held with EDC.
- Dedication of fee revenue to the use of a specific agency, such as EDC, appears to be either difficult or perhaps impossible under existing legislation. The wisdom and practicality of proposing legislative changes in these respects are matters for discussion.

- Existing Venezuelan agencies, which could be used as potential models, have been discussed with the legal advisor.

Subtask 2.4: *Develop design, safety and procedural guidelines for hydroelectric projects, consistent with international standards and the Nepal context for review and implementation by EDC.*

- This topic, which is closely related to the technical requirements of the BOOT RFP, will be taken up by short-term visitors from DE&S beginning in July.
- Multiple standards are in use for hydro project design and construction in Nepal, for both private and public sector projects, often depending on the sponsorship of individual projects. This complicates and makes more difficult EDC's roles in licensing and monitoring during construction and operation.
- Certain relevant World Bank directives have been located and are ready for review.

TASK 3: Identify and Address Constraints

Subtask 3.1: *Improve EDC's capability to identify and resolve legal, regulatory, financial and institutional constraints associated with implementation of the current expansion plan for domestic electricity.*

- Related work thus far has been carried out under subtasks 2.1 and 3.3.

Subtask 3.2: *Provide training to EDC staff (and to NEA staff, if necessary) on calculating electricity tariffs so that EDC staff are able to participate fully in the Electricity Tariff Fixation Commission's re-evaluation of current electricity tariffs to identify whether they cover the full costs of production and transmission.*

- Two seminar presentations and discussions have been held with EDC, ETFC, and NEA staff, and follow-up meetings were held with the chairman and members of the tariff commission and NEA tariff specialists.
- A draft memorandum was prepared and discussed on staff development, restructuring and support needed to make ETFC a fully independent regulatory agency.
- The project tariff specialist was scheduled to return in the second half of July 1999 for further, more specific work with EDC and ETFC staff and on-going interactions with NEA staff.
- Materials relating to the ADB and WB loan covenants, which have the effect of circumventing or substituting for the normal tariff-setting process, have been reviewed by resident staff and discussed briefly with the tariff specialist.
- A university thesis (MSc) dealing with electricity tariffs in Nepal was located and obtained from the East West Center in Hawaii.

Subtask 3.3: *Continue to identify relevant policy, legal, judicial, and regulatory issues affecting private sector involvement in domestic and export power generation, and work with EDC to develop options for addressing the issues.*

- A discussion draft of a proposed revised Nepal standard power purchase agreement (May 1999) was prepared and is under review.
- A discussion draft of a revised Nepal hydropower policy (June 1999) was prepared. It is under review and also has been submitted to EDC for review.
- Certain opportunities and complications, with respect to the EIA and project approval process, resulting from the new (spring 1999) de-centralization legislation have been reviewed.

Subtask 3.4: *Assess GON's capability of providing foreign exchange coverage for purchase of power generated by the private sector for domestic consumption, and provide recommendations to EDC outlining options to provide such coverage.*

- A financial specialist visited Nepal in July 1999 to begin work on the foreign exchange question.

TASK 4: *Develop EDC Capability to Manage the Environmental and Social Impact Analysis Process*

Subtask 4.1: *Develop EDC's capacity to design scopes of work for Environmental Impact Assessments (EIAs), including Social Impact Assessment (SIA).*

Note: the PSHDP contract and the corresponding work plan emphasize social impact assessment with phrasing such as "Environmental Impact Assessment (EIA), including Social Impact Assessment (SIA)." In this report and project documents generally, following widely accepted practice, the terms "environmental impact assessment" and "EIA" were used alone are assumed to include "social impact assessment" and "SIA".

- There appear to be no existing or accepted guidelines for "scoping", or designing the scopes and corresponding terms of reference, of environmental and social impact assessments, particularly with specific application to hydroelectric projects. A variety of approaches and practices are in use by developers and agencies performing such assessments. Project situations differ, but greater uniformity of approach would be desirable so that appropriate attention and effort, neither too much nor too little, is devoted to identified potential impacts of each project on its environment and corresponding mitigation measures.
- A draft report has been produced which reviews current scoping practices in the EIA process, discusses the need for guidelines, and makes recommendations for use in subsequent drafting of *Guidelines for Scoping EIAs for Hydropower*.
- Key information needs for EIA are being defined in preparation for development of standard reporting forms and tables and a computerized reporting format to assist analysts to evaluate adequacy of coverage and identify gaps in information provided.

Subtask 4.2: *Improve EDC's capability to review and assess the adequacy of EIAs (including SIAs), engineering proposals, and mitigation measures submitted by private sector developers and/or NEA (Nepal Electricity Authority).*

- A major impediment in preparing and reviewing EIAs for hydropower projects in Nepal is the difficulty in finding and accessing appropriate information, because reports and databases are not well-publicized and accessible. An outline of contents has been prepared for a computerized database of data sources and the kinds of information potentially available from them.
- Strengths and weaknesses of the present system of rating and ranking to classify severity of impacts and recommendations have been analyzed.
- A decision model is planned to help evaluate impacts and proposed mitigation strategies.

Subtask 4.3: *Develop guidelines for involving stakeholder groups, through a participatory process, at all appropriate times before and after issuance of a construction license.*

- The involvement of local and international non-governmental organizations (NGOs and INGOs) with hydropower EIAs in Nepal has been reviewed.

- A series of seminars for EDC on social impact assessments has been initiated using case studies from China, Indonesia, Venezuela, and Viet Nam.
- Material for a seminar about *Hydropower, NGOs and INGOs* has been compiled.
- Field visits have been made to Andhi Khola and Kulekhani I and II projects and the proposed West Seti project area.
- Draft guidelines for a public consultation strategy and participation of stakeholder groups have been prepared.
- Steps have been taken toward the establishment of a records center within EDC. (EDC has provided a room, bookcases and other furniture has been ordered and delivered, and one of the new computers for EDC has been assigned to this location.) When this records center is operational, it is expected to provide a base from which a public information center can be supported.

Subtask 4.4: *Develop periodic auditing/monitoring standards for adoption by EDC, which will permit EDC to perform routine monitoring of hydropower projects.*

- A seminar presented to EDC in July gave examples from other countries of self-monitoring by industries subject to environmental monitoring, using computerized report forms designed for direct incorporation into records of the monitoring agency. This approach will be modified for the purposes of EDC.

Subtask 4.5: *Enhance EDC's capability to measure contractor and special activity progress toward results which will increase environmental and social soundness of hydropower investments.*

- Existing legislation and regulations and country-specific issues have been analyzed. Potential areas have been identified for recommendations on legislative additions or changes.
- The EIA/SIA portion of the process developers are expected to follow, through issuance of the production license, has been analyzed and a series flow charts of the process has been prepared. (The process subsequent to the production license is a year two activity.)

TASK 5: *Improve HMGN Procedures for Conducting and Reviewing Environmental and Social Impact Assessments*

Subtask 5.1: *Review guidelines and standards for EIAs (including SIAs) for hydropower projects in the 1997 Environmental Protection Act and the 1997 Environmental Conservation Regulations, and determine whether changes are needed in light of EDC's additional experiences with private developers. Recommend changes to the Act and the Regulations.*

- A total of 61 Nepali Acts, Regulations, Policies, Guidelines, and International Conventions relevant to the EIA/SIA process have been reviewed.
- Government organizations potentially involved in the EIA/SIA process have been identified.
- World Bank and Asian Development Bank guidelines have been reviewed. Areas of potential conflict between these guidelines and Nepali legislation and policy with regard to resettlement issues and international riparian issues have been detected.
- The need for a restatement of resettlement policy has been identified.
- The desirability of a watershed protection and management policy has been identified.
- A report summarizing key findings has been prepared.

Subtask 5.2: *Re-evaluate formats and methodologies for evaluating EIAs (including SIAs), based on EDC's experience to date. Identify improvements to enhance EDC (and GON) procedures for review, evaluation, and approval of EIAs (including SIAs) prepared by private sector developers and NEA. Train EDC staff in use of these improved formats and methodologies so that they can carry out an "international expert level" review of EIAs (including SIAs).*

- The general process of review of EIAs from EDC through MOWR to MOPE has been analyzed and current practices described. As of July 1999, EDC had not received an EIA for review. (A major EIA, for the proposed West Seti project, was received by EDC in August.)
- A report with recommendations for proposed draft *Guidelines for Reviewing and Evaluating EIAs for Hydropower* has been produced.

Subtask 5.3: *Develop national water standards for hydropower projects, consistent with international standards and the Nepali context, and provide them to EDC for review and consideration.*

- It has been ascertained that specific "national water standards for hydropower projects" do not exist in Nepal.
- Draft water standards for hydro projects in Nepal were prepared based on international standards.
- Background information has been compiled regarding hydrological and limnological conditions in Nepal.
- The relevance of water quality for both the EIAs of hydropower projects and long-term management of reservoirs in Nepal has been examined.

Subtask 5.4: *Work with the non-profit NGO community in Nepal to increase their awareness of EIA (including SIA) procedures, involve them more fully in the development of EIA (including SIA) guidelines and standards, and increase their participation in public hearings on project-specific impacts and mitigation proposals for hydropower projects.*

- A preliminary list of NGOs and INGOs has been prepared. This includes type of organization; year established; street address; postal address; telephone; fax; e-mail; goal/mission; types of activity; areas of involvement; geographical area of operation; and contact person.
- A draft document on stakeholder participation has been prepared.
- Two on-site public hearings (West Seti reservoir and West Seti transmission corridor) were attended by EDC and IRG staff.
- Five members of the project team lectured at the July 1999 EIA training course presented by School for Environmental Management and Sustainable Development (SchEMS) in Kathmandu.

TASK 6: Training

A preliminary assessment of training needs was made in December 1998 and a Training Needs Assessment Report was prepared and discussed with EDC in February 1999. This report, following the work plan, emphasizes on-the-job training, to be achieved by EDC and consultant personnel working closely together toward the common goals and more formal training by resident and short-term consultant personnel. Resources available under the contract for sponsored training overseas are limited. Some additional short courses will be

available in various locations in the U.S. and overseas. The latter will be from a standard list of course offerings, to which the USAID mission to Nepal and the project will have some opportunity to suggest additions.

Implementation of the training plan thus far has focused on the discussion seminars listed under subtask 1.6 above and joint efforts to produce and review key documents (selected PDF documents, BOOT RFQ, etc.). In addition, several EDC personnel have been sent to *ad hoc* training opportunities in Nepal, India, and the U.S. and, under the heading of promotion of hydro development opportunities in Nepal, to international conferences in the U.S., India, and Singapore. EDC personnel attending such courses or making such trips and presentations have been encouraged to report back, to their colleagues and project staff, on their experiences, but this practice has so far not taken hold.

1. In March 1999 two personnel from EDC attended a short course in project and infrastructure finance presented in Washington, DC, by the IP3 group.
2. In April 1999 two EDC officials, Dr. K. B. Aryal and Mr. Sunil Malla, attended a one-week course in tariff calculations in a regulated environment, presented in New Delhi under USAID sponsorship.
3. In June 1999 the head of EDC's computer department, Mrs. Luna Pradhan, attended a one-month course in introduction to Geographic Information Systems presented in Kathmandu by the Central Geography Department of Tribhuvan University.
4. Attendance at the Nepal Engineers' Association meeting, held in Kathmandu in December 1998, was supported for ten EDC personnel.

Documents Produced

Inception Report, August 1998

Work Plan for Year One, September, 1998

Request for Qualifications for Hydroelectric Development by BOOT Method; Revised draft dated December 18, 1998. Second revised draft dated March 16, 1999.

Informal comments on Letter of Interest and Terms of Reference for PDF Administrator, December 1998.

The Andhi Khola Hydel and Rural Electrification Project: Success Stories in Environmentally and Socially Sound Hydropower Development, February 1999.

Training Needs Assessment and First Year Training Plan, February 1999.

First Semi-Annual Report, March 1999.

EIA Source Book No. 1: A draft review report on legislation and regulations pertinent to Environmental and Social Impact Assessments and draft guidelines for scoping EIAs for Hydropower Projects guidelines and standards for EIAs for Hydroelectric Projects, July 1999.

Principal Documents in Preparation

Electricity Development Center: A Diagnostic Assessment; discussion draft, May 1999

Nepal Standard Power Purchase Agreement, Indicative Sample Draft, May 1999

EDC Licensing Procedures; initial studies and memorandum, 1999

Revised Nepal Hydropower Policy, internal draft, June 1999

Request for Proposals for Hydroelectric Development by BOOT Method; Draft dated June 20, 1999, Second draft dated July 1999.

Power Development Fund, review of draft Administration Agreement and other basic documents.

5. Additional Comments and Recommendations

a. The inception report by Mr. Picardi focused on the licensing process, identified aspects of the process that increase licensing and development time and add to developers' schedules and costs, and made recommendations for improvement of the "one window" operation. He noted, as have others, the inherent conflict between the regulatory and promotional roles of EDC. He made recommendations for a more accessible store of pertinent information (a "records center") for reference by actual and potential developers as well as by EDC staff. This recommendation was well received, general plans for implementation were discussed, and progress on establishment of the facility. Mr. Picardi also recommended that the area of study for each project and its impacts be more broadly defined in terms of "sector EIAs". That is, he recommended that a power sector framework and river basin, or watershed, frameworks also be used in evaluating the impacts of proposed projects.

b. The December 18, 1998 draft of the Request for Qualifications for Development of Hydroelectric Projects by Build, Own, Operate, and Transfer (BOOT) Method was thoroughly discussed with EDC leaders. It was a deliberate effort to simplify the RFQ, reduce the effort required of the applicants, and lower the specific experience levels required, all without sacrificing the basic objectives of the pre-qualification process. The goal of these changes is to attract a good response to the RFQ, which arguably would have been inhibited by several provisions of the previous draft.

c. The tasks in the work plan are being accomplished. Relationships with EDC personnel are cordial, and they participate in review of work product and documents such as those for the PDF, RFQ, and others under way. Attendance and participation in seminar presentations, including those after this reporting period, has been good and discussions are lively and productive. Key personnel of EDC are capable and supportive of the goals of the project – that is, of greater private sector participation in the development of Nepal's hydroelectric resources.

Availability and willingness of EDC personnel to participate more actively in the work is limited, however, which directly limits what can be accomplished both in total product and, especially, in strengthening the organization. The planned program of training and institutional strengthening is centered on "on-the-job" training, assuming that EDC and consultant staff will work together more closely than has been the case so far. To make EDC an effective, professional, and self-sustaining organization will require more active and continuous EDC participation. Full development of EDC also will call for additional staff specialists who cannot be hired or retained under present circumstances, as well as much greater flexibility for EDC to act as a more independent management unit in keeping with its role as an independent regulatory agency. Ways to address these will be explored with EDC and USAID personnel during the forthcoming period.

Section 2

Contracting Officer's Technical Representative Report

S.N.	Name	Arrival Date	Departure Date	Length of Stay	Principal Task #	Assignments
17.	Mr. Daud Beg	June 06, 1999	June 26, 1999	21	1.4, 3.3	Climate for private investment; Review HMG hydro policy
18.	Mr. Osvaldo Juvier	June 06, 1999	June 22, 1999	16	1.2	BOOT hydro RFP
19.	Dr. Hasso Bhatia	June 08, 1999	June 10, 1999	2	3.2	Training in tariff calculations
20.	Mr. Shakeb Afsah	July 07, 1999	July 25, 1999	18	4 & 5	Public consultation
21.	Mr. David Anderson	July 13, 1999	July 30, 1999	17	5.3	Water standards
22.	Mr. John Northrop	July 13, 1999	July 30, 1999	17	2.4	Design standards
23.	Dr. Hasso Bhatia	July 17, 1999	July 30, 1999	13	3.2	Training in tariff calculations
24.	Mr. Ken Lussier	July 18, 1999	August 06, 1999	19	3.4	Financial analysis
25.	Mr. Ron Grady	July 21, 1999	July 30, 1999	9	2.4	Design standards
26.	Mr. Osvaldo Juvier	July 24, 1999	August 10, 1999	17	1.2	BOOT hydro RFP

Table - 2

Private Sector Hydropower Development Project USAID Contract No. 367-C-00-98-00071-00 COST SUMMARY BY CLIN (Contract Line Item) Based on Invoice No. 158013						Period Covered	
						From	To
						July 1, 1999	July 31, 1999
Budget per Contract Section B.4	CLIN	Item Budget	Amount Claimed Previously	Amount This Invoice	Total Claimed to Date	Balance	Percent Budget Claimed
697,171	Lin 001	697,160.86	365,234.43	39,864.46	405,098.89	292,061.97	58.1%
597,941	Lin 002	597,940.28	123,951.47	8,891.86	132,843.34	465,096.94	22.2%
341,971	Lin 003	341,969.92	129,656.28	8,476.66	138,132.94	203,836.98	40.4%
579,777	Lin 004	579,776.40	95,388.03	10,837.49	106,225.52	473,550.88	18.3%
606,098	Lin 005	606,100.40	105,154.96	6,329.10	111,484.06	494,616.35	18.4%
634,480	Lin 006	634,481.01	76,705.11	1,802.85	78,507.96	555,973.05	12.4%
<u>125,441</u>	<u>Lin 007</u>	<u>125,440.50</u>	<u>88,834.47</u>	<u>477.71</u>	<u>89,312.18</u>	<u>36,128.32</u>	<u>71.2%</u>
3,582,879	Subtotal	3,582,869.37	984,924.75	76,680.13	1,061,604.88	2,521,264.49	29.6%
<u>232,887</u>	Lin 008 Fee	<u>232,886.40</u>	<u>59,493.48</u>	<u>4,969.58</u>	<u>64,463.06</u>	<u>168,423.34</u>	<u>27.7%</u>
3,815,766	Total	3,815,755.77	1,044,418.23	81,649.69	1,126,067.93	2,689,687.84	29.5%

This summary differs from summary sheet for Invoice 158013 in that equipment purchases have been transferred into CLIN 007.

ESTIMATED PERCENT COMPLETION AS OF JULY 14, 1999

CLIN	Title	Percent Contract Period	Estimated Percent Resources	Estimated Percent Complete
01	Develop EDC Capability to Manage the Private Power Process	33%	58%**	31%
02	Improve EDC Procedures to Manage the Private Power Solicitation and Award Process	33%	22%	16%
03	Identify and Address Constraints	33%	40%**	26%
04	Develop EDC Capability to Manage the Environmental and Social Impact Analysis Process	33%	18%	16%
05	Improve HMGN Procedures to Conduct and Review EIA/SIA	33%	18%	16%
06	Training	33%	12%	10%
	Total LOE Tasks	33%	28%	19%
07	Commodity purchases	33%	71%	60%

** Subject to inter-line adjustments

**Private Sector Hydropower Development Project
Status at end of Year One (July 1999)**

		Weight	Pct Complete	Wtd Pct CLIN	Wtd Pct Overall
T 1.1	Develop EDC capability to support Power Development Fund	11%	60%	7%	
T 1.2	EDC capability to prepare & issue RFQ's & RFP's & review responses	23%	60%	14%	
T 1.3	EDC as liason between all involved w/approval of Pvt Pwr Agreements	17%	30%	5%	
T 1.5	.. Multi-purpose water-use models & downstream benefits	11%	10%	1%	
T 1.6	Training in legal, financial, regulatory, eng., env. & social.	0%		0%	
T 1.7	Capability to promote pvt hydro development & attract add'l investments	37%	10%	4%	
Total Clin 1	Develop EDC Capability to Manage the Private Power Process	20%		31%	6%
T 2.1	Identify constraints on process under "one window" .	31%	15%	5%	
T 2.2	Re-evaluate licensing requirements & recommend modifications .	22%	10%	2%	
T 2.3	Assess potential for EDC fee/revenue system ..	22%	25%	5%	
T 2.4	Develop design, safety, and procedural guidelines for hydro projects ..	26%	15%	4%	
Total Clin 2	Improve EDC Procedures to Manage the Private Power Solicitation and Award Process	17%		16%	3%
T 3.1	EDC capability w/r legal, regulatory, financial, & institutional issues	42%	25%	11%	
T 3.2	Training in tariff calculations	32%	25%	8%	
T 3.3	Continue to identify policy issues w/r pvt sector hydro involvement	18%	25%	4%	
T 3.4	Assess GON capability to provide foreign exchange coverage	8%	40%	3%	
Total Clin 3	Identify and Address Constraints	10%		26%	3%

**Private Sector Hydropower Development Project
Status at end of Year One (July 1999)**

		Weight	Pct Complete	Wtd Pct CLIN	Wtd Pct Overall
T 4.1	Capacity to design scopes for EIA's and SIA's	20%	16%	3%	
T 4.2	Capability to review & assess EIA's, SIA's, & mitigation measures	20%	16%	3%	
T 4.3	Guidelines for involving stakeholder groups .	20%	16%	3%	
T 4.4	Auditing/monitoring standards ..	20%	16%	3%	
T 4.5 improve environmental & social soundness of hydro investments	20%	16%	3%	
Total Clin 4	Develop EDC Capability to Manage the Environmental and Social Impact Assessment Process	17%		16%	3%
T 5.1	Review hydro guidelines for EIA's and SIA's .	30%	16%	5%	
T 5.2	Methods & training on review & evaluation of EIA's and SIA's,	0%		0%	
T 5.3	National water standards for hydro	40%	16%	6%	
T 5.4	Work with NGO's on EIA and SIA process; increase participation	30%	16%	5%	
Total Clin 5	Improve HMGN Procedures for Conducting and Reviewing Environmental and Social Impact Assessments	18%		16%	3%
T 6	Training				
T 6.1	Training needs assessment				
T 6.2	Develop annual training plans				
T 6.3	Final training needs assessment				
T 6.4	Communications workshop				
Total Clin 6	Training	18%		10%	2%
Estimated overall weighted percent complete					19%