

DOCUMENT OF THE INTER-AMERICAN DEVELOPMENT BANK

## **COSTA RICA**

# **SUPPLEMENTAL STUDIES FOR THE EL DIQUÍS (BORUCA/VERAGUAS) HYDROELECTRIC PROJECT**

**(CR-T1017)**

## **PLAN OF OPERATIONS**

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## CONTENTS

|      |  |    |
|------|--|----|
| I.   | FRAME OF REFERENCE .....   | 2  |
| A.   | Background .....   | 2  |
| B.   | The region's sector strategy .....   | 4  |
| C.   | The Bank's strategy and use of the FIRII Fund.....                                     | 5  |
| D.   | Program strategy .....   | 5  |
| II.  | THE PROGRAM.....   | 7  |
| A.   | Objectives .....   | 7  |
| B.   | Description .....  | 7  |
| 1.   | Environmental and social studies .....   | 7  |
| 2.   | Design and implementation of an interagency coordination and<br>cooperation body ..... | 8  |
| C.   | Cost and financing .....   | 8  |
| III. | PROGRAM EXECUTION .....  | 9  |
| A.   | Beneficiaries and executing agency .....   | 9  |
| B.   | Execution mechanism and project management .....                                       | 9  |
| C.   | Procurement.....   | 10 |
| D.   | Monitoring and evaluation.....   | 10 |
| IV.  | VIABILITY AND RISKS.....   | 10 |
| A.   | Institutional, socioeconomic, and financial viability.....                             | 10 |
| B.   | Social and environmental viability.....  | 10 |
| C.   | Benefits and risks .....   | 11 |

## **ANNEXES**

|           |                   |
|-----------|-------------------|
| Annex I   | Logical Framework |
| Annex II  | Itemized Budget   |
| Annex III | Procurement Plan  |

## **APPENDIX**

Proposed resolution

## **BASIC SOCIOECONOMIC DATA**

For basic socioeconomic data, including public debt information, please refer to the following address: <http://www.iadb.org/RES/index.cfm?fuseaction=externallinks.countrydata>

## **INFORMATION AVAILABLE IN THE RE2/FI2 FILES**

### **PREPARATION:**

- Executive Summary: Boruca Hydroelectric Project Feasibility Study, Review 0. Volume 1/1. November 2005. INGETEC S.A.
- Executive Summary: Boruca Hydroelectric Project Preliminary Environmental Impact Assessment, Review 0. Volume 1/1. November 2005. INGETEC S.A.
- Costa Rica: Electrical Power Generation Expansion Plan 2006-2025. ICE, January 2006.
- Indicative Regional Generation Expansion Plan 2005-2019, prepared by the Central American Electrification Council.
- Terms of reference financed by other donors for:
  - Development of basic designs and technical specifications
  - Development of the financing model
  - Geotechnical field tests

### **EXECUTION:**

Annex IV. Terms of reference. IDB technical assistance for:

- IV-1. Comprehensive environmental impact assessment
- IV-2. Socioenvironmental studies
- IV-3. Preliminary environmental impact assessment of the transmission civil works associated with the El Diquís hydroelectric project
- IV-4. Panel of environmental experts
- IV-5. Design and implementation of an interagency coordination body, IDB
- IV-6. Design and implementation of an interagency coordination body, Counterpart

Annex V. Timeline for studies

Annex VI. General Procurement Notice (GPN)

## **ABBREVIATIONS**

|        |   |
|--------|---|
| CABEI  | Central American Bank for Economic Integration  |
| CEAC   | Central American Electrification Council  |
| CEIA   | Comprehensive environmental impact assessment   |
| FIRII  | Fund for the Financing of Technical Cooperation for Initiatives for Regional Infrastructure Integration (IDB) |
| ICE    | Instituto Costarricense de Electricidad [Costa Rican Electric Power Authority]                                |
| kV     | Kilovolts   |
| MW     | Megawatt  |
| MWh    | Megawatt-hours  |
| PPP    | Puebla-Panama Plan  |
| RFP    | Request for proposals   |
| SETENA | National Technical Secretariat for the Environment  |
| SIEPAC | Central American Electric Interconnection System  |
| USTDA  | United States Trade and Development Agency  |

**SUPPLEMENTAL STUDIES FOR THE  
EL DIQUÍS (BORUCA/VERAGUAS) HYDROELECTRIC PROJECT  
(CR-T1017)**

**EXECUTIVE SUMMARY**

|  |  |                      |  |
|--|--|----------------------|--|
| <b>Beneficiary:</b>                    | The Costa Rican Electric Power Authority (ICE) is the direct beneficiary of the operation. The final beneficiaries will be electricity customers in Central America.   |                      |  |
| <b>Executing agency:</b>               | Costa Rican Electric Power Authority (ICE)   |                      |  |
| <b>Financing:</b>                      | IDB: (FIRII) <sup>1</sup>  | US\$1,500,000        |  |
|  | ICE:   | <u>US\$ 664,000</u>  |  |
|  | Total:   | <b>US\$2,164,000</b> |  |
| <b>Objectives:</b>                     | The goal of the proposed operation is to help increase the energy supply in Costa Rica and the Central American region by generating more electric power for the regional electricity market via the transmission line included under the Central American Electric Interconnection System (SIEPAC) project, so as to make the region's energy sector more sustainable, efficient, and competitive. The Bank's technical assistance will finance environmental, social, and interagency integration/coordination studies to supplement the existing studies done for the El Diquís (formerly Boruca/Veraguas) hydroelectric project. |                      |  |
| <b>Timeframe:</b>                      | Execution period:  | 32 months            |  |
|  | Disbursement period:   | 36 months            |  |
| <b>Special contractual conditions:</b> | None.  |                      |  |
| <b>Exceptions to Bank policy:</b>      | None.  |                      |  |

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<sup>1</sup> The United States Trade and Development Agency (USTDA) and the Central American Bank for Economic Integration (CABEI) have offered parallel financing to the ICE that will enable some of the activities initially requested from the Bank to be funded and bring the amount of Bank technical assistance under the \$1.5 million cap set in the rules of the Fund for the Financing of Technical Cooperation for Initiatives for Regional Infrastructure Integration (FIRII) (see paragraph 1.12).

- Procurement:** Goods and consulting services will be procured in accordance with Bank procurement policies as described in documents GN-2350-7 and GN-2349-7.
- Environmental and social review:** The Committee on Environment and Social Impact reviewed the operation on 6 March 2006, 22 June 2006, and 10 November 2006. The resulting recommendations have been incorporated into this plan of operations and into the terms of reference for each of the consulting assignments.
- Benefits:** This technical-cooperation operation, together with the studies financed using parallel technical-assistance funding from the USTDA and the CABEL, will provide the ICE with the information necessary to initiate the process of financing and building the El Diquís (Boruca/Veraguas) hydroelectric project; this will boost both Costa Rica's and Central America's generation capacity, thereby ensuring energy supply through the delivery of diversified, secure, reliable, and environmentally-friendly energy at competitive prices and making the region more competitive.

## **I. FRAME OF REFERENCE**

### **A. Background**

- 1.1 The Bank has been a pioneer and leader in economic and social integration processes in Latin America. In the context of the Puebla-Panama Plan (PPP), the Bank is supporting the Mesoamerican Energy Integration Program (PIEM), which includes the necessary agreements among the six countries to move ahead with the Central American Electric Interconnection System (SIEPAC), as well as a new institutional and regulatory environment for the energy sector. This electricity integration will be complemented by the México-Guatemala connection, the future incorporation of Belize's electric power system, and a possible interconnection between Colombia and the Andean Market that is being supported by technical-cooperation operation RS-T1241.
- 1.2 In recent months, the Bank has spearheaded a series of coordination efforts with the region's governments as well as institutions specializing in the sector. These efforts culminated in the approval of the **Actions Matrix for the Central American Energy Integration and Development Plan**, which seeks to offset the effects of high oil prices, while helping to make the energy sector sustainable, efficient, and competitive. The plan includes impact measures and actions in the short term aimed at cutting losses and promoting reduced energy consumption; measures in the medium term designed to increase energy supply via renewable sources based on mini-hydroelectric plants; and actions in the long term to promote changes in

energy supply such as wind and solar power projects, geothermal energy projects, bioenergy projects, *large-scale hydroelectric projects*, natural gas projects, etc.

- 1.3 The Bank supported a variety of electric power development works in Costa Rica under stage III of the Electric Power Development Program (loan 796/OC-CR), including two studies for the Costa Rican Electric Power Authority's (ICE) Boruca hydroelectric project (known today as El Diquís). In February 2004, the ICE awarded contract CSL-01-03 ("Procurement of consulting services for the feasibility study for the Boruca hydroelectric project") for an evaluation of the various project options and feasibility studies. The Bank's financial support was originally geared toward the basic design. Based on a thorough review of the project's status, however, the financing objective was modified to determine the optimal structure for project execution. Bank support for the studies was therefore a significant step in finding a project solution that fully takes into account the project's social and environmental context as well as its technical and economic aspects.
- 1.4 The focus of the studies, particularly in phase one, was to identify and evaluate the best option for harnessing the energy potential of the Grande de Térraba river basin via a sustainable project solution. When phase one of the study began, the project's options centered around a place known as "Cajón" in the Grande de Térraba river. A project in this area, however, would have a major impact on indigenous communities, which would have to be resettled when the reservoir was built. Indigenous groups such as the Curre, the Las Vegas de Chánguena, and the Lagarto would be affected, with approximately 839 indigenous people, of a total population of 1,943, who would have to be relocated. Nearly 7,141 hectares of indigenous territory would also be affected. Lastly, more than 140 archeological sites in the area around the reservoir would have to be salvaged before construction could begin.
- 1.5 In looking for a better development option, a potential dam site on the General Superior river was identified for a hydroelectric plant. Known initially as the Boruca-Veraguas option, this project has lesser implications in terms of the environment and infrastructure. The specifics of the two options are presented in the following table.



| Technical brief                        | Boruca-Cajón      | Boruca-Veraguas (El Diquís) |
|--|-------------------|-----------------------------|
| Power                                  | 709 MW            | 631 MW                      |
| Total area of the reservoir            | 10,700 hectares   | 5,494 hectares              |
| Approximate cost                       | US\$1.425 billion | US\$931.3 million           |
| Flooding of indigenous territory       | 3,559 hectares    | 726 hectares                |
| Total population relocated             | 1,943             | 1,068                       |
| Indigenous population relocated        | 839               | 0                           |
| Nonindigenous population relocated     | 1,104             | 1,068                       |
| Number of archeological sites affected | 146               | 108                         |
| Forest area flooded                    | 2,500 hectares    | 600 hectares                |

- 1.6 The Boruca/Veraguas option offers an excellent development opportunity that, in addition to meeting Costa Rica’s demand for electricity in a cheap, clean, and sustainable manner, will help improve the quality of life for residents in the Brunca region and in the country as a whole. For these reasons, the ICE decided to carry on with studies based on this option. As part of the efforts to involve the region’s community, all school-age residents were invited to take part in a contest to name the project; the name selected was the “El Diquís hydroelectric project.” This name corresponds to an indigenous term meaning “great waters” or “water snake,” and carries the same connotation in other indigenous languages. It alludes to the Grande de Térraba river and the geographical area of the river valley, and so also refers to the southern region of the country, where the project is being developed.
- 1.7 The El Diquís (formerly Boruca/Veraguas) hydroelectric project represents the greatest possible example of tapping water resources to produce energy in Costa Rica. It is situated in the south, in Costa Rica’s largest watershed—the Grande de Térraba river basin—in one of the country’s least developed areas. It therefore represents a good opportunity for energy development in Costa Rica as well as a catalyst for socioeconomic growth in the southern part of the country. It also complements regional electric integration by boosting regional electricity trade and competitiveness through potential savings and lower prices in the regional electric sector as a whole.<sup>2</sup>

## **B. The region’s sector strategy**

- 1.8 The region’s sector strategy is to pursue integration of its electricity and hydrocarbon sectors, so that they can develop efficiently and sustainably, driving economic growth and competitiveness. It therefore promotes policies and projects

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<sup>2</sup> The Indicative Regional Generation Expansion Plan 2005-2019 prepared by the Central American Electrification Council’s (CEAC) Regional Indicative Planning Working Group identifies capital and operations-related savings to the regional electric market of US\$157 million to US\$170 million, with a drop in long-term marginal costs of between US\$1.8/MWh and US\$3.5/MWh as a result of the development of large-scale hydroelectric projects.

that create energy security in Central America. Accordingly, this project seeks to provide energy to the region in order to ensure an energy supply at competitive prices for both Costa Rica and the Central American regional market.

**C. The Bank's strategy and use of the FIRII Fund**

- 1.9 The program is consistent with Bank policies for the sector, in that it supports actions under the PPP's Mesoamerican Energy Integration Program, which, as described in the regional programming paper for Central America (document GN-2126-2), has become a key mechanism for implementing projects with a high impact on the region. The proposed project meets the eligibility criteria of the Fund for the Financing of Technical Cooperation for Initiatives for Regional Infrastructure Integration (FIRII), in that it is transnational and is part of the PPP's Mesoamerican Energy Integration Program, which is expected to have a significant impact on intraregional electricity trade flows over the SIEPAC in terms of each country's imports and Costa Rica's potential energy exports, including the El Diquís hydroelectric project.
- 1.10 The project has been incorporated into regional plans for the expansion of electric power generation. Besides being consistent with the regional strategy, the proposed project is also consistent with the Bank's country strategy with Costa Rica, approved by the Bank's Board of Executive Directors in 2003, in that it helps to ensure energy supply and boosts regional integration by making Costa Rica more competitive.

**D. Program strategy**

- 1.11 This technical-cooperation operation will fund environmental, social, and interagency integration studies that, along with the engineering, technical, financial, and economic studies funded under parallel technical-assistance programs with the United States Trade and Development Agency (USTDA) and Central American Bank for Economic Integration (CABEI), will provide the ICE with the information needed to initiate the process of financing and building the El Diquís hydroelectric project. The El Diquís project will boost both Costa Rica's and Central America's generation capacity, ensuring energy supply through the delivery of diversified, secure, reliable, and environmentally friendly energy at competitive prices, and making the region more competitive.
- 1.12 The ICE initially asked the Bank to provide financing for studies in the amount of US\$4 million, with a US\$2 million contribution from the FIRII Fund, which would exceed the cap set under the FIRII rules. After a series of conversations, the USTDA and the CABEI offered parallel financing to the ICE that will enable some of the activities initially requested from the Bank to be funded and bring the amount of Bank technical assistance under the \$1.5 million cap set in the FIRII rules. The following table breaks down the financing for the different studies by source:

| <b>Supplemental studies for the El Diquís hydroelectric project<br/>Sources of financing</b> |  |                  |
|--|--|------------------|
| <b>Source</b>  | <b>Activities</b>  | <b>Total</b>     |
| IDB (FIRII)  | Comprehensive environmental impact assessment for the project; preliminary environmental impact assessment of the related transmission civil works; design and implementation of an interagency coordination body; panel of environmental experts. | 1,500,000        |
| USTDA  | Financing model; public-private partnership options; geotechnical studies.   | 500,000          |
| ICE contribution/<br>CABEI funds   | Engineering studies, designs, and technical specifications; environmental impact assessment of transmission line; administrative and logistical support.   | 2,041,000        |
| <b>Total</b>   |  | <b>4,041,000</b> |

- 1.13 The USTDA is providing US\$500,000 in nonreimbursable technical-assistance funding to finance: (i) the development of a model for financing project execution that is consistent with guidelines for incorporating private-sector participation in the expansion of Costa Rica's electric power generation capacity, including preparation of the necessary project execution documents, bearing in mind the legal framework that governs the ICE's options and/or constraints in forming public-private partnerships; and (ii) geotechnical studies that include the execution of longitudinal seismic reflection profiles for the tunnel and the drilling of two 500 meter-deep holes, as well as hydraulic fracturing tests to be used in designing the powerhouse, pressure shaft, and high-pressure tunnel.
- 1.14 The CABEI is providing the ICE with contingent technical-cooperation funding that, in addition to just over US\$2 million for the necessary studies, includes resources that will enable the ICE to initiate some physical preinvestment stages in the project area. The activities to be financed by the CABEI include: (i) reviewing and bolstering the project's technical feasibility by developing basic designs for the project's main works (dam and related works, underground powerhouse, and headrace tunnels) and the basic technical specifications that will be part of the bidding documents for construction of the works; (ii) the definitive environmental impact assessment for the transmission infrastructure, based on the preliminary environmental impact assessment financed by the Bank under this operation; and (iii) completion of the designs and specifications for the project's transmission infrastructure.
- 1.15 The Bank's technical-cooperation operation will make it possible to: (i) update and supplement environmental and social studies by finalizing the comprehensive environmental impact assessment, conducting socioenvironmental studies and the preliminary environmental impact assessment of the transmission civil works associated with the El Diquís hydroelectric project, and contracting a panel of environmental experts; and (ii) design and implement an interagency coordination

and cooperation body to promote the interagency coordination of, and citizen participation in, the development planning and actions arising from the project, in order to make the project itself even more viable, as well as to effectively identify the development opportunities that the project may create in southern Costa Rica. The project should be seen as a catalyst for the development of this area.

## II. THE PROGRAM

### A. Objectives

- 2.1 The goal of the proposed operation is to help increase the energy supply in Costa Rica and the Central American region by generating more electric power for the regional electricity market via the transmission line included under the Central American Electric Interconnection System (SIEPAC) project, so as to make the region's energy sector more sustainable, efficient, and competitive. The Bank's technical assistance will finance environmental, social, and interagency integration/coordination studies to supplement the existing studies done for the El Diquís (formerly Boruca/Veraguas) hydroelectric project.

### B. Description

#### 1. Environmental and social studies

- 2.2 *a. Comprehensive environmental impact assessment (CEIA) (US\$1 million).* This subcomponent will finance a consulting assignment to conduct the CEIA, so as to address all concerns regarding the project's impact and develop an effective environmental management plan. The Costa Rican Electric Power Authority (ICE) will submit this CEIA to the National Technical Secretariat for the Environment (SETENA) in order to meet all of the legal requirements and the high international quality standards established for similar cases. The conclusions should also include in the budget the cost of mitigation and compensation measures under the environmental management plan.
- 2.3 *b. Socioenvironmental studies (US\$326,000).* This subcomponent, to be financed using the ICE's own funds (or with CABI funds), will enable the ICE to prepare key inputs for completing the CEIA and identifying better strategies for socioenvironmental management. The study will therefore constitute a sociocultural baseline. In addition, the studies will include an analysis and proposals for more effective consultation and participation processes (based on ICE processes in effect at the start of the consulting assignment) through mechanisms for institution-strengthening and training on citizen participation and negotiation. They will also include a historical analysis of health conditions in the area of influence, a study of the socioeconomic conditions and culture of the population downriver from the project, as well as additional processes for providing and disseminating information based on ethnographic knowledge of the groups living in the area. Socioproductive systems and the use of natural resources in the area of influence will also be analyzed under this subcomponent.

- 2.4 ***c. Preliminary environmental impact assessment of the transmission civil works associated with the project (US\$200,000).*** This subcomponent will finance a consulting assignment to develop a preliminary environmental impact assessment for the new transmission civil works associated with the El Diquís hydroelectric project, identifying and evaluating the potential environmental impact of the works in a socioenvironmental context and proposing environmental measures on a 1:50,000 scale. It will also include a socioenvironmental assessment of the circuits to be rebuilt, along with a socioenvironmental characterization of the baseline environment for this transmission project. This will be an interim environmental impact assessment for internal use, on the way to a final environmental impact assessment of the best 30-meter-wide easements for the 230 kV transmission lines and the rest of the project's transmission works.
- 2.5 ***d. Panel of environmental experts (US\$75,000).*** This subcomponent will finance the contracting of individual consultants to serve as an advisory panel of experts that will support the ICE during the CEIA in terms of managing the social and environmental impact evaluation process.

**2. Design and implementation of an interagency coordination and cooperation body**

- 2.6 This subcomponent (**US\$150,000**) will finance consulting services to design and supporting implementation of an interagency coordination and cooperation body at a local and regional level within the framework of the El Diquís hydroelectric project. This interagency coordination and cooperation body will be public and have broad participation from the area's main social actors. It will also promote multilink networks and execute plans, programs, and projects geared toward mobilizing resources (economic, financial, human, technology, etc.) in priority areas affected by the El Diquís hydroelectric project. It is important to know the extent and limitations of the public and private institutional network in terms of promoting sustainable development of the Brunca region in the context of the sustainable development program for the region being supported by the Bank. It is also important to understand what the catalysts are for effective local and regional management proposals guided by socially validated (or valid) and legally established (or instituted) interagency coordination bodies.

**C. Cost and financing**

- 2.7 The cost of the technical assistance to be funded by the Bank will be US\$2,164,000. Of that amount, the FIRII Fund will contribute US\$1.5 million, and the ICE will contribute US\$664,000 in supplemental studies and experts' time on the issues to be studied, as well as in-kind contributions in terms of logistics. The ICE may use funds from the CABI technical-cooperation operation to finance this contribution. The table below summarizes the operation's cost and financing:

| <b>IDB Technical Assistance (FIRII Fund)</b>   |                        |                                       |                  |
|--|------------------------|---------------------------------------|------------------|
| <b>Activity</b>  | <b>FIRII resources</b> | <b>ICE contribution / CABEI funds</b> | <b>Total</b>     |
| 1. Social and environmental studies  | <b>1,275,000</b>       | <b>326,000</b>                        | <b>1,601,000</b> |
| a. Comprehensive environmental impact assessment   | 1,000,000              | -                                     | 1,000,000        |
| b. Socioenvironmental studies  | -                      | 326,000                               | 326,000          |
| c. Preliminary environmental impact assessment of the transmission civil works associated with the project | 200,000                | -                                     | 200,000          |
| d. Panel of environmental experts  | 75,000                 | -                                     | 75,000           |
| 2. Interagency coordination and cooperation body   | <b>150,000</b>         | <b>238,000</b>                        | <b>388,000</b>   |
| Audit  | <b>10,000</b>          | -                                     | <b>10,000</b>    |
| ICE administrative support   | -                      | <b>100,000</b>                        | <b>100,000</b>   |
| Contingencies  | <b>65,000</b>          | -                                     | <b>65,000</b>    |
| <b>Total</b>   | <b>1,500,000</b>       | <b>664,000</b>                        | <b>2,164,000</b> |
|  | <b>69.3%</b>           | <b>30.7%</b>                          | <b>100.0%</b>    |

### **III. PROGRAM EXECUTION**

#### **A. Beneficiaries and executing agency**

- 3.1 The Costa Rican Electric Power Authority (ICE) is the direct beneficiary of the operation. The final beneficiaries will be electricity customers in Central America. The executing agency for this technical-cooperation operation will be the ICE, which has ample experience in executing energy-related projects.

#### **B. Execution mechanism and project management**

- 3.2 The ICE, as executing agency, will be responsible for selecting and contracting the necessary consulting services, managing resources, and directing and supervising the studies. The ICE will utilize the following organizational structure for execution of the technical-cooperation operation with each entity working in coordination with the others: the Project Management Unit will be responsible for overall management of the operation and act as a formal channel of communication with the Bank; the Consulting Services Unit will be responsible for procurement of consultant services and contract management; the director of the El Diquís hydroelectric project, in turn, will have the support of a technical administrator appointed for each consulting assignment. All movements of resources (disbursements and payments) will be reflected in the accounts of the respective ICE unit. The execution period for the Bank's technical assistance will be an estimated 32 calendar months, with a disbursement period of 36 months.

Considering the small number of procurements and expected invoice amounts, a revolving fund of up to 10% of the technical-cooperation funding is recommended for the disbursement of resources. During execution, there will be close coordination with the United States Trade and Development Agency (USTDA) and the Central American Bank for Economic Integration (CABEI) for monitoring of the respective technical-assistance operations.

**C. Procurement**

- 3.3 Consulting services will be procured in accordance with applicable Bank policies and procedures as set forth in documents GN-2350-7 and GN-2349-7. The procurement plan for the project is given in Annex III. Each contract will be subject to prior review, except as the Bank may otherwise determine in writing.

**D. Monitoring and evaluation**

- 3.4 The Bank's Country Office in San José will have basic responsibility for project monitoring during the execution period with support from the project team at Headquarters. Technical and administrative missions will be organized during the execution period to evaluate project progress together with the executing agency and consulting firms.

## **IV. VIABILITY AND RISKS**

**A. Institutional, socioeconomic, and financial viability**

- 4.1 The Costa Rican Electric Power Authority (ICE) has ample experience and possesses the institutional capacity to execute the proposed technical-cooperation operation. The components to be financed with technical assistance from the Bank and parallel assistance from the United States Trade and Development Agency (USTDA) and the Central American Bank for Economic Integration (CABEI) will ensure that the economic and social benefits identified in the initial studies do in fact materialize. As explained in the background section, the Bank-funded studies to date have shown that the El Diquís (Boruca/Veraguas) hydroelectric project is a technically, economically, financially, and environmentally viable project. The project is key to the future of energy generation in Costa Rica and Central America as a way to address the growing demand for energy and the impact of the introduction of the Central American Free Trade Agreement in the country and the region.

**B. Social and environmental viability**

- 4.2 The October 2005 "Preliminary Environmental Study: Veraguas Option" by ICE/INGETEC included a feasibility analysis to identify and fully assess the environmental impact during construction, filling, and operation of the Boruca-Veraguas Hydroelectric Project reservoir, based on available secondary data, information provided by the ICE, and data generated by the study. The report identified the prevention, mitigation, and compensation measures necessary to make the project environmentally feasible. The environmental feasibility

assessment included an economic evaluation of the environmental costs and benefits generated by the project. This technical-cooperation operation will update and supplement the environmental and social studies and integrate them into a comprehensive environmental impact study (CEIA); develop an environmental management plan and involuntary resettlement plan for the project; develop a social interaction plan, including consultation processes; round out the data available for setting the socioenvironmental baseline; and conduct the preliminary environmental impact assessment of the transmission civil works associated with the project. It will also fund a panel of environmental experts to help the ICE develop the CEIA from design through implementation and analysis of its findings.

**C. Benefits and risks**

- 4.3 The El Diquís hydroelectric project has been identified as the means to satisfactorily meet Costa Rica's energy demand and strengthen the regional electric interconnection process through a major project using clean, renewable, and sustainable energy. It represents a significant development opportunity for the country and the region.
- 4.4 The operation's main risk is the likelihood of the studies finding that the project is not economically and financially viable. This risk is considered low, given that, as previous studies have concluded, Costa Rica and Central America offer very favorable conditions for construction of a hydroelectric plant of this size. It is also important to note the environmental risks that this type of project may cause and the cost of mitigating them. For this reason, the consulting projects will include the environmental variable in all their activities.



**SUPPLEMENTAL STUDIES FOR THE  
EL DIQUÍS (BORUCA/VERAGUAS) HYDROELECTRIC PROJECT  
(CR-T1017)**

**LOGICAL FRAMEWORK**

| <b>Goal</b>  | <b>Targets/impact indicators</b>   | <b>Means of verification</b>  | <b>Assumptions</b>  |
|--|--|---|---|
| To help increase the energy supply in Costa Rica and the Central American region by generating more electric power for the regional electricity market, so as to make the region's energy sector more sustainable, efficient, and competitive  | <p>The El Diquís hydroelectric project meets 5% of generation demand on the Central American regional electricity market.</p> <p>Once the plant goes on line in 2016, Costa Rica's electricity exports increase by nearly 1,500 GWh a year, accounting for more than 40% of net regional exports. The trend continues, falling off slightly after four years of operation.</p> | Operations reports of the Costa Rican Electric Power Authority (ICE) and regional electricity market. | <p>Financing is secured to build the El Diquís hydroelectric project.</p> <p>The ICE operates and maintains the project in accordance with best international practices.</p> <p>The SIEPAC and the regional electricity market operate effectively.</p>   |
| <b>Purpose</b>   |  |   |   |
| To provide the ICE with the information necessary to initiate the process of financing and building the project by financing environmental, social, and interagency integration/coordination studies to supplement the existing studies done for the El Diquís (formerly Boruca/Veraguas) hydroelectric project. | <p><b>Upon completion of the technical assistance project:</b></p> <p>The ICE has the information necessary to begin the process of financing and building the El Diquís hydroelectric project.</p>  | Technical assistance project completion report.   | <p>The studies and trials financed with parallel technical assistance from the United States Trade and Development Agency (USTDA) and the Central American Bank for Economic Integration (CABEI) are executed satisfactorily.</p> <p>The ICE performs satisfactorily in its role as project executing agency.</p> |

| Goal  | Targets/impact indicators  | Means of verification   | Assumptions |
|---|--|---|-------------|
| <b>IDB assistance components</b>  |  |   |             |
| <p>Environmental and social studies.</p> <p>To determine regional institutional potential vis-à-vis the project, and design and implement an interagency coordination and cooperation body.</p> | <p><b>By project month 9:</b></p> <ul style="list-style-type: none"> <li>Socioenvironmental research and advisory studies on environmental impact and interagency coordination.</li> </ul> <p><b>By project month 24:</b></p> <ul style="list-style-type: none"> <li>Preliminary environmental impact assessment of the transmission civil works associated with the project.</li> <li>Final report of the comprehensive environmental impact assessment.</li> </ul> <p><b>By project month 30:</b></p> <ul style="list-style-type: none"> <li>Comprehensive environmental impact assessment approved by the National Technical Secretariat for the Environment (SETENA).</li> </ul> <p><b>By project month 18:</b></p> <ul style="list-style-type: none"> <li>Assessments and designs completed for the interagency coordination and cooperation body.</li> </ul> <p><b>By project month 30:</b></p> <ul style="list-style-type: none"> <li>Interagency coordination and cooperation body is up and running.</li> </ul> | <p>Technical assistance progress reports.</p> <p>Technical assistance progress reports.</p> |             |

**SUPPLEMENTAL STUDIES FOR THE  
EL DIQUÍS (BORUCA/VERAGUAS) HYDROELECTRIC PROJECT  
(CR-T1017)**

**ITEMIZED BUDGET**

| <b>IDB Technical Assistance</b>  |  |                                 |   |                  |
|--|--|---------------------------------|---|------------------|
| <b>Activity</b>  |  | <b>FIRII Fund<br/>resources</b> | <b>ICE<br/>contribution /<br/>CABEI funds</b> | <b>Total</b>     |
| 1. Social and environmental studies  |  | <b>1,275,000</b>                | <b>326,000</b>                                | <b>1,601,000</b> |
| a. Comprehensive environmental impact assessment   | 11 months of consulting services and travel expenses                                 | 1,000,000                       | -   | 1,000,000        |
| b. Socioenvironmental studies  | 6 months of consulting services and travel expenses                                  | -                               | 326,000                                       | 326,000          |
| c. Preliminary environmental impact assessment of the transmission civil works associated with the project | 5 months of consulting services and travel expenses                                  | 200,000                         | -   | 200,000          |
| d. Panel of environmental experts  |  | 75,000                          | -   | 75,000           |
| 2. Interagency coordination and cooperation body   | 10 months of consulting services and travel expenses                                 | <b>150,000</b>                  | <b>238,000</b>                                | <b>388,000</b>   |
| Audit  |  | <b>10,000</b>                   | -   | <b>10,000</b>    |
| ICE administrative support   | 30 months: Project coordinator, logistical support, overhead, and other requirements | -                               | <b>100,000</b>                                | <b>100,000</b>   |
| Contingencies  |  | <b>65,000</b>                   | -   | <b>65,000</b>    |
| <b>Total</b>   |  | <b>1,500,000</b>                | <b>664,000</b>                                | <b>2,164,000</b> |

**SUPPLEMENTAL STUDIES FOR THE  
EL DIQUÍS (BORUCA/VERAGUAS) HYDROELECTRIC PROJECT**

**(CR-T1017)**

**PROCUREMENT PLAN**

**Country:** Costa Rica

**Beneficiary:** The Costa Rican Electric Power Authority (ICE) is the direct beneficiary of the operation. The final beneficiaries will be electricity customers in Central America.

**Executing agency:** Costa Rican Electric Power Authority (ICE)

**Name:** Supplemental Studies for the El Diquís (Boruca/Veraguas) Hydroelectric Project

**Project number:** CR-T1017

**Agreement:** Not signed.

**Brief description of the project's objectives and components:** The goal of the proposed operation is to help increase the energy supply in Costa Rica and the Central American region by generating more electric power for the regional electricity market via the transmission line included under the Central American Electric Interconnection System (SIEPAC) project, so as to make the region's energy sector more sustainable, efficient, and competitive. The Bank's technical assistance will finance environmental, social, and interagency integration/coordination studies to supplement the existing studies done for the El Diquís (formerly Boruca/Veraguas) hydroelectric project.

**Estimated date of project approval by the Board of Executive Directors:**  
December 2006.

**Estimated date of signature of the technical-cooperation agreements:** Q1 2007.

**Estimated date of the final disbursement:** Q3 2009.

**A. Introduction**

Procurements for the proposed project will be carried out in accordance with the "Policies for the Procurement of Goods and Works Financed by the Inter-American Development Bank" of 2006 (document GN-2349-7) and the "Policies for the Selection and Contracting of Consultants Financed by the Inter-American Development Bank" of

2006 (document GN-2350-7), and with the provisions established in the technical-cooperation agreement and this procurement plan.

## **B. The procurement plan**

The procurement plan for the technical-cooperation project, “Supplemental studies for the el Diquís (Boruca/Veraguas) hydroelectric project,” covering 30 months of project execution has been agreed between the Bank and the Costa Rican Electric Power Authority (ICE). The plan, which is summarized in Appendix 1, indicates the method of selecting consultants for each contract. It also indicates cases requiring prequalification; the estimated cost of each contract or group of contracts, the requirement for prior or post review by the Bank, and estimated dates for the publication of specific procurement notices and completion of the contracts included in this project. The procurement plan will be updated annually or whenever necessary or as required by the Bank. The detailed procurement plan is available at:

Instituto Costarricense de Electricidad (ICE)  
Office: Unidad de Gestión de Proyectos  
Address: Edificio del ICE, Sabana Norte,  
San José, Costa Rica

The procurement plan is available on the executing agency’s website at [www.ice.gov.cr](http://www.ice.gov.cr). It can also be found on the Bank’s website: [Project Procurement Information](#)

## **C. Project procurement**

The procurements to be made for the proposed project are described in general below.

**Works procurement:** No works procurement is planned.

**Goods procurement:** No goods procurement is planned.

**Procurement of nonconsulting services:** None planned.

**Procurement of consulting services:** Consulting services for the project include: (i) update and supplement environmental and social studies by finalizing the comprehensive environmental impact assessment, conducting socioenvironmental studies and the preliminary environmental impact assessment of the transmission civil works associated with the El Diquís hydroelectric project, and contracting a panel of environmental experts; and (ii) design and implement a regional development coordination body.

The consulting firms to be hired for the project will be selected using the standard request for proposals (RFP) issued by the Bank, or an RFP satisfactory to the Bank in cases where the standard RFP is not applicable. Individual consultants will be selected bearing in mind the provisions established in chapter V of the policy in document GN-2350-7.

Short lists of consultants for consulting services estimated to cost less than US\$200,000 equivalent per contract may consist entirely of national firms.

**Operating expenses:** No financing of operating expenses is planned.

**Other:** None planned.

**Advance contracting and retroactive financing:** No retroactive financing is planned.

**D. Bank review of procurement decisions**

All contracts will be subject to prior review by the Bank.

**E. Domestic preference**

No goods procurement is planned.

**APPENDIX 1  
PROCUREMENT PLAN**

**Country:** Costa Rica

**Beneficiary:** The Costa Rican Electric Power Authority (ICE) is the direct beneficiary of the operation. The final beneficiaries will be electricity customers in Central America.

**Executing agency:** Costa Rican Electric Power Authority (ICE)

**Name:** Supplemental Studies for the El Diquís (Boruca/Veraguas) Hydroelectric Project

**Project number:** CR-T1017

**Agreement:** Not signed.

**Brief description of the project's objectives and components:** The goal of the proposed operation is to help increase the energy supply in Costa Rica and the Central American region by generating more electric power for the regional electricity market via the transmission line included under the Central American Electric Interconnection System (SIEPAC) project, so as to make the region's energy sector more sustainable, efficient, and competitive. The Bank's technical assistance will finance environmental, social, and interagency integration/coordination studies to supplement the existing studies done for the El Diquís (formerly Boruca/Veraguas) hydroelectric project.

**Estimated date of project approval by the Board of Executive Directors:**  
December 2006.

**Estimated date of signature of the technical-cooperation agreements:** Q1 2007.

**Estimated date of the final disbursement:** Q3 2009.

| Ref. No.               | Description of contract and estimated cost   | Procurement method | Review | Source of financing and percentage |               | Prequalification | Estimated dates                            |                        | Status  | Comments         |
|------------------------|--|--------------------|--------|------------------------------------|---------------|------------------|--|------------------------|---------|------------------|
|                        |  |                    |        | IDB %                              | Local/other % |                  | Publication of specific procurement notice | Completion of contract |         |                  |
| 1. Consulting services |  |                    |        |                                    |               |                  |  |                        |         |                  |
| IV-1                   | Comprehensive environmental impact assessment<br>Estimated amount: US\$1,000,000   | ICB-LCS            | Prior  | 100                                | 0             | Yes              | Q1 2007                                    | Q2 2009                | Pending |                  |
| IV-2                   | Socioenvironmental studies<br>Estimated amount: US\$326,000  |                    | Prior  | 0                                  | 100           | No               | Q1 2007                                    | Q3 2007                | Pending |                  |
| IV-3                   | Preliminary environmental impact assessment of the transmission civil works associated with the project<br>Estimated amount: US\$200,000 | NCB-LCS            | Prior  | 100                                | 0             | No               | Q1 2007                                    | Q3 2008                | Pending |                  |
| IV-4                   | Advisory panel of environmental and social experts<br>Estimated amount: US\$75,000   | IC                 | Prior  | 100                                | 0             | No               | Q1 2007                                    | Q2 2009                | Pending | Three contracts. |
| IV-5                   | Design and implementation of a regional development coordination body<br>Estimated amount: US\$150,000                                   | NCB-LCS            | Prior  | 100                                | 0             | No               | Q1 2007                                    | Q3 2008                | Pending |                  |
| IV-6                   | Design and implementation of a regional development coordination body<br>Estimated amount: US\$238,000                                   |                    | Prior  | 0                                  | 100           | No               | Q1 2007                                    | Q3 2008                | Pending |                  |
|                        | Audit<br>Estimated amount: US\$10,000  | QCBS               | Prior  | 100                                | 0             | No               | Q1 2007                                    | Q2 2009                | Pending |                  |

NCB: National competitive bidding. ICB: International competitive bidding. LCS: Least-cost selection. IC: Individual consultants.  
QCBS: Quality- and cost-based selection



**APPENDIX 2**  
**CAPACITY OF THE EXECUTING AGENCY AND**  
**SUPERVISION OF PROCUREMENT BY THE BANK**

**Assessment of the executing agency's capacity to administer procurement:** The Costa Rican Electric Power Authority (ICE), as executing agency, will be responsible for selection and contracting of the necessary consulting services. The ICE has ample experience working with the Bank and has just satisfactorily completed execution of stage III of the Electric Power Development Program (loan 796/OC-CR). The ICE is deemed to possess the institutional capacity to carry out the procurement actions, and will be kept abreast of new rules and existing documents via dissemination programs through the Bank's Country Office in Costa Rica.

**Frequency of procurement supervision:** All procurements will be subject to prior review by the Bank.

DOCUMENT OF THE INTER-AMERICAN DEVELOPMENT BANK

PROPOSED RESOLUTION DE-\_\_\_/06

Regional. Nonreimbursable Technical Cooperation ATN/OC-\_\_\_\_-CR. Supplemental  
Studies for the El Diquís (Boruca/Veraguas) Hydroelectric Project

The Board Executives Directors

RESOLVES:

1. To authorize the President of the Bank or such representative as he shall designate, in the name and on behalf of the Bank, to enter into such agreements as shall be necessary to develop supplemental studies for the El Diquís (Boruca/Veraguas) hydroelectric project, in accordance with the plan of operations contained in document AT-\_\_\_\_\_.
2. That up to the amount of US\$1,500,000, or its equivalent in other convertible currencies, shall be authorized for the purpose of this resolution, chargeable to the net income of the Ordinary Capital resources of the Bank allocated to the Fund for the Financing of Technical Cooperation Initiatives for Regional Infrastructure Integration.
3. That the above mentioned sum is to be provided on a nonreimbursable basis.

(Adopted on \_\_\_\_\_ 2006)

LEG/OPR/RGII/IDBDOCS#848024  
CR-T1017