70107

Brazil's Energy Services Technical Assistance Loan (ESTAL): Lessons Learned

How can we improve the effectiveness of Technical Assistance Loans ?

July 2009

Foreword

Technical Assistance (TA) loans have always been a matter of debate among development agencies and recipient countries. While TA loans can be useful in attending the common need to strengthen public institutions and availing high level expertise to address complex issues associated to policy making, their perception is affected by a number of external factors. For example, there exists an uncertainty in the future requirements that will be necessary, hence the design of technical assistance loans is often complex. Second, TA loans are, by nature, small in size and therefore carry high transaction costs from the donor perspective. Third, governments are often hesitant to engage in technical assistance projects because they prefer apply their borrowing privileges to more tangible projects, say infrastructure investments, rather than for 'softer' TA activities. Finally, many countries have access to cheaper options for funding TA, including Trust Fund grants. However, on the other hand, although small compared to IBRD investment loans, IBRD TA loans are far larger than Trust Fund based TAs, therefore usually broader in scope and ensuring more flexibility to adapt to the client needs. TA loans are also seen as offering an opportunity for the client to broadly leverage on the unique unbiased expertise and worldwide experience accumulated by the Bank, potentially providing very high returns and savings for the country. Finally sector-wide TA create the conditions for the Bank staff to build a strong relationship to accompany the government in the on-going design and implementation of its priorities and therefore stay tuned and ensure the most appropriate Bank support, especially for designing new investment loans.

The Energy Services Technical Assistance Loan (ESTAL) in Brazil, which is coming to an end, provides an opportunity to examine a recent experience in designing and implementing a successful TA project, and extract lessons that may be useful for other sector TA projects and, in particular, in the energy sector. This paper discusses the ESTAL experience, its challenges and opportunities and the ways problems were addressed, both at the project design and implementation stages. It concludes that great part of its successes, including its considerable economic benefits, can be attributed to the project's broad-scope design and its flexible implementation, and that it created an excellent opportunity for strengthening the policy dialogue between borrower and lender, thus facilitating the reengagement of the Bank in large investment lending in the sector.

This paper synthesizes the contributions from the several "generations" of projects managers and government representatives on the Brazilian side and TTLs and team members on the Bank side, in particular Alexandre Ramos (Chief of Staff of the Executive Secretary, Ministry of Mines and Energy of Brazil), Jose Carlos Costa (former ESTAL PIU Director, former chief of staff of the Executive Secretary) , Estevão Nunes da Cunha (current Technical Coordinator, ESTAL PIU, Ministry of Mines and Energy, Brazil), Jeova de Andrade (current ESTAL PIU Director, Ministry of Mines and Energy, Brazil), Luiz Maurer (Senior Energy Specialist, WB), Nelson de Franco (former ESTAL TTL, WB), Enrique Crousillat (former ESTAL TTL, WB) and Luis Prada (Procurement Specialist, WB). The event to discuss these contributions and this synthesis were funded by the LCR Knowledge and Learning Program and counted with the assistance of Fernanda Pacheco, Jennifer Chang and Pamela Sud.

Christophe de Gouvello
ESTAL Task Team Leader
Latin America & Caribbean Region
The World Bank

TABLE OF CONTENTS

1. Introduction

Technical assistance (TA) loans are used to build institutional capacity in the borrower country. They may focus on organizational arrangements, staffing methods, or technical, physical, and financial resources in key agencies. This paper summarizes the lessons learned from the Energy Services Technical Assistance Loan (ESTAL) to Brazil, based on the discussions held in Washington during a workshop in March 2009. The goal is that key lessons learned could be transferrable to other TA projects.

2. Project Design

In 2001, Brazil suffered an energy supply crisis caused by low levels of investment and an unusually dry period that reduced GDP growth by one percentage, illustrating the adverse macroeconomic impact that can result from the failure to implement energy sector reforms in a timely fashion. The Bank's response to the energy crisis consisted of two stages: (i) a short-term intervention through the Energy Sector Reform Loan (ESRL) –a quick disbursement operation– and the first Private-Public Infrastructure Advisory Facility (PPIAF) funded program; and (ii) a longer term support loan through the ESTAL project. The three measures were aimed at supporting the sustainable implementation of the Government's energy sector policy and were designed so as to complement each other in their content and main objectives.

In the midst of Brazil's energy supply crisis, one of the main challenges for the World Bank was how to restore an effective policy dialogue with the Government after a relatively long absence in the energy sector and be able to design, and agree upon, an adequate TA project that would respond effectively to the country's urgent needs. This required a quick update of the sector's issues and problems.[1] The challenge was aggravated by the political transition at the end of Mr. Cardoso's administration. Given these conditions, the design of ESTAL followed three main principles:

- ***Broad scope***: The project team agreed that a broad scope, as opposed to a narrower set of themes, would be more effective in addressing the variety and complexity of the energy sector challenges at that moment. Consequently, the project design included five main components addressing market development, regulation and planning issues, as well as social, environmental and institutional strengthening challenges. The natural conflict between a broad scope and limited funds was addressed through an open design aimed at adapting to the actual needs run into at the implementation period.
- ***Complementarities among different Bank interventions***: ESTAL was prepared after an emergency package had been designed and partially implemented. This emergency

[1] In 2002 Brazil was at a crossroads in its energy policy. The incomplete reform in key areas of the sector -such a market development, regulation, environment and institutional weaknesses- set the stage for the 2001 crisis, in which institutions were unable to respond to unforeseen shortages.

package included the ESRL (a budget support sector loan) and a PPIAF[2], which helped in achieving a better understanding of the problems and confirming the Government's commitment to the required reforms. The project was, therefore, designed as a natural continuation of these measures and building on the experience gained during that first period.

- ***Extensive participatory process***: The project was prepared with strong input from the Government's team. Issues were identified by the staff involved in the project preparation on both sides (Government and the WB) and the final selection of priorities and costing of components was done in an iterative fashion. This bottom-up approach guaranteed the intrinsic value of proposals and proved to be very effective in dealing with the challenges that emerged during the political transition and the beginning of the new administration.

The project's chosen objective was to help ensure the sustainable implementation of the Government's continuing energy sector reform program through studies and capacity building, and by providing a mechanism for continuing dialogue with policy makers about longer-term sector reform. The project included a budget of US$ 20.12 million comprising a WB loan of US$ 12.12 million complemented by a Government counterpart of US$ 10 million. Its design had the following five broad components (their associated costs in the Table 1):

1. ***Development of the electricity market and regulation:*** covers technical and coordination issues important for the efficiency of the energy market and improvement of the regulatory operations.
2. ***Energy access and affordability for the poor***: centers on development of comprehensive and consistent strategies for rural, lifeline power tariff criteria, and mechanisms for facilitating the use of natural gas and LPG by low-income population.
3. ***Environmental management***: supports the mainstreaming of environmental concerns and complements institutional strengthening efforts. It covers, inter alia, environmental licensing, strategic assessment of alternative expansion paths, institutional realignment and strengthening of professional cadres.
4. ***Long-term expansion planning***: reinvigorates an essential activity that was one of the main casualties of the first round of reforms. In particular, this component covers an updating of system expansion methodologies, including integration of environmental and social concerns and updating river basin inventories.
5. ***Institutional strengthening and coordination***: focuses on Ministry of Mines and Energy (MME) and the National Energy Policy Council (CNPE), and is central to building the capacity for implementing the other components.

[2] PPIAF grant aimed at bridging the gap between addressing urgent needs and the effective start of ESTAL. PPIAF funds were used to provide short-term support in specific key issues; namely, tariff setting, assessment of the role of the regulating agency ANEEL, energy auctions and pass-through energy costs.

Table 1 – Project Costs Estimated at Appraisal

Component	Indicative costs (US$M)	% of Total	Bank financing (US$M)	% of Bank Financing
1. Market development and Regulation	3.61	17.9%	2.89	23.8%
2. Electricity Access and Affordability for the Poor	1.43	7.1%	1.14	9.4%
3. Environmental Management	2.34	11.6%	1.87	15.4%
4. Long-term Expansion Planning	6.48	32.2%	1.85	15.3%
5. Institutional Strengthening and Coordination	3.81	18.9%	3.05	25.2%
6. Project Management	1.13	5.6%	0	0.0%
7. Reserve	1.2	6.0%	1.2	9.9%
Total Project Costs	20	99.4%	12	99.0%
Front-end Fee	0.12	0.6%	0.12	1.0%
Total Financing Required	20.12	100.0%	12.12	100.0%

The ESTAL project included also the following selected design features:

- *Reserve component* – Acknowledging the uncertainty on future requirements, the project provided for a reserve component equivalent to 10% of the loan (US$1.2 million) to address unforeseen TA needs. This provision was meant to introduce flexibility at the implementation phase, which is particularly desirable in TA projects, and thus avoiding cumbersome restructuring measures or transfers among components.
- *Flexibility in the selection of components* – In response to the client needs, the project design followed a heterodox approach in the selection of components including some activities that apparently would not fit the purity of the project concept. While this approach could be questionable, the decision to accept apparent 'transgressions' was based on their importance and their potential (though indirect) impact on the project.[3]

[3] In the institutional component, the project included a reorganization of the Secretariat of Mines and Metallurgy (SMM). Not only the importance of the SMM and its back-log of unresolved problems were enormous, but it was

- *One agency management* – For the sake of implementation simplicity and at the request of the Government, the idea of centralization prevailed above a more decentralized setting with a main loan agreement and subsidiary agreements with other agencies. The possible risk of alienating important players was addressed inviting agencies to cooperate in the preparatory process.
- *Mechanism for project supervision beyond traditional practice* – Since the project was motivated by the need to address a sector crisis that had had a major impact on the economy, it was decided to have a mechanism that would permit, on a pre-scheduled basis, the exchange of views at a high-level between Government officials and Bank management on the implementation of the sector reform program. Also, the project's PIU was placed under the MME Executive Secretary, providing a close link to the Minister.

3. Project Implementation Challenges

Main Challenges

Typically, TA projects face a set of implementation challenges associated to the large number of activities that need to be managed. This requires the early creation of an implementation unit with adequate capacity to manage a heavy work load and to deal efficiently with a large number of technical, procurement and financial management issues. ESTAL was not an exception. The project took much longer than expected to gain momentum. In fact, more than two years after board approval only the initial deposit (1% of the loan) had been disbursed. Also, the period between loan approval and effectiveness (16 months) was excessively long. While these delays caused doubts about the Government's commitment to the project, MME always remained interested in the project's activities and its potential benefits. The slow use of the loan proceeds was also common to other sectors TA projects being implemented in parallel and apparently responded to a matter of fiscal policy exogenous to the project and the energy sector. This raised another typical problem of TA loans: the hesitance of governments to borrow (or disburse) for 'softer' programs as opposed to more tangible infrastructure operations, since, often, TA activities can be financed through cheaper financing options.

The slow progress of ESTAL led to a downgrade of its performance rating during a period of around one year (starting November 2006), being considered moderately unsatisfactory in terms of both development objectives and overall implementation progress. It was perceived that the very slow use of resources could ultimately compromise the project's objectives and that the PIU had important staffing weaknesses.

---

essential to ensure that the MMW structure has all secretariats in good functional standing; a poor SMM would reduce the Minister's attention to the secretariats central to the ESTAL project.

The slow start of the project was also attributed to a set of administrative and technical constraints. Among them, MME emphasized the following: (i) formal bureaucracy that prevented a smooth process from project signing to the actual start of project activities; (ii) administrative confusion (among government auditors) regarding the acceptance of World Bank's procurement guidelines and financial management procedures; (iii) difficulties in preparing technical proposals for particularly complex issues; and (iv) the challenge of creating and maintaining a strong operational project team at the PIU.

Overcoming implementation problems

By the time the Mid-Term Review was held (March 2007), the project had already gained considerable momentum as the MME clearly acknowledged its value and a set of quality activities was underway. Three activities particularly stood out from the rest as they offered a great potential for country-wide improvements and cost savings:

- **Rio Madeira studie**s: Expert studies on specific technical issues and the bidding processes for hydropower plants provided a major contribution towards a better understanding of the project's risks with view to ensure a more competitive process. Overall, the ESTAL supported studies helped MME in gaining a better control of the bidding process and, subsequently, large cost savings stemming from a more competitive process (see Box 1).
- **Improving the operational security of the SIN through a phaser-based measurement system**: A technology that provides a high degree of precision in measuring perturbations and flux, hence allowing better management and dispatch of energy. Phaser-based technology enables the optimization of the transmission system with a considerable impact due to the size of the Brazilian network. Estimated benefits of the installation of phasers in are in the order of US$1 billion.[4]
- **Environmental licensing studie**s: Two reports were commissioned on: (i) the legal and institutional aspects of environmental licensing for hydroelectric projects; and (ii) a case study analysis to identify the obstacles in the Brazilian system. The studies, which were done with the participation of MME and IBAMA (Brazilian Environmental Institute) and CONAMA (National Environmental Council), helped in identifying areas for efficiency improvements in the current environmental licensing process and made a valuable and timely contribution greatly towards the debate on these issues that was acknowledged by all parties.

The successful experience in these three activities (in particular, the Rio Madeira project, due to its large scale and political visibility) marked a turning point in the implementation of the project.

As the potential value of the project was acknowledged, MME saw it as a key instrument for policy decisions. With the renewed and stronger support of the Government, an action plan to improve the PIU financial management and procurement capabilities was implemented, and its staff strengthened. The return to a satisfactory performance was made possible also by a flexible and quick response from

[4] Savings corresponding to an avoided investment of 1,000MW.

the Bank in addressing key, and sometimes unforeseen5, needs of the energy sector. The broad-scope and flexible design of the project proved to be a crucial factor in meeting these needs. Also, a close monitoring and support to the project activities through the active participation of the Bank's local office proved to be instrumental in improving and maintaining a good project performance.

From MME's point of view, ESTAL offered also the following operational advantages:

- A channel to access the highest level consultancy services; which proved to be vital in assessing the risks associated to the Rio Madeira project.
- Independency/objectivity of technical advice, free of any potential conflicts of interest; a necessity when dealing with policy issues that affect many stakeholders.
- Hiring simplicity, compared to the Brazilian administration procurement regulations that often slow and cumbersome.
- High level technical analysis guaranteed by a rigorous procurement and supervision process where both borrower and lender worked together.
- Budget continuity of loan proceeds; that was useful in mitigating the uncertainties of the Federal budget.

Box 1. The Rio Madeira project

Rio Madeira is a multi-purpose water resources project addressing power and navigation objectives and, due to its large scale, is quite relevant to the region. It includes two large hydropower plants located in the state of Rondonia, adding an installed capacity of 6,450 MW (Santo Antonio – 3,150 MW and Jirau – 3,300 MW), which were being prepared by a single consortium. The project has a low-impact scheme –in spite of its large scale- including. It includes two run-of-river barrages, a low flooded area/MW ration, and a relatively low resettlement impact (around 400 households for the first plant.)

The recent auction process yielded a cost reduction of around 30%, which will represent a saving to consumers of around US$ 500 million per year compared to the cap price set prior to the auction.

The success of the Rio Madeira auction in achieving an effective competitive process can be attributed to a great extent to the assessment of technical risks made available through the participation of a small group of highly qualified international experts. To this end, the Ministry of Mines and Energy (MME) engaged through the ESTAL project the support of three experts and a

[5] Such as the studies for Rio Madeira and the Angra Nuclear plant.

specialized consulting firm to assess the main risks associated to the project, namely: (i) a sound estimation of the project's capital costs; (ii) the design of an auction for a large scale project, (iii) assessment of the projects sedimentation problems, and (iv) an independent assessment of the design of project's turbines. This effort in breaking the asymmetry of information was complemented by a program of MME to disseminate, prior to the auction, the findings of the technical studies among all interested parties, and a regulatory framework that permitted competition at this stage while recognizing the commercial value of the preparatory work done by group that had been preparing the project.

Project achievements

ESTAL is on a firm path towards the full achievement of its development objectives both in terms of supporting a sustainable implementation of the Government's energy sector reform and providing a mechanism for a continuing policy dialogue. Specific achievements of the project have been:

- The project has helped building a strong and constructive relationship between the Government of Brazil and the World Bank; a relationship build on mutual trust and the timely delivery of valuable products, such as the contributions to the Rio Madeira project.
- Consequently, the ESTAL project has become the basis for MME's decisions on a set of policy issues, ranging sector-wide strategies to specific investments of national interest.
- The project has provided the analytical and operational basis for new World Bank financing in the energy sector.
- ESTAL contributions had very important and measurable economic returns. Cost savings achieved through the Rio Madeira project and the implementation of the phaser-based technology surpass all expectations reaching the billions of US$.
- The project's contributions to the Rio Madeira and the environmental licensing analysis have helping in setting the basis for a sustainable and efficient development of hydroelectric in the Amazon region.
- Other important contributions towards an improved policy making and sector planning include:
    - 2030 National Energy Plan and a Ten-Year Electric Power Plan.
    - Economic evaluation of the Angra III nuclear power plant.
    - A Hydroelectric Inventory Manual extended to small hydro.
    - Definition for a new institutional structure for the National Mineral Regulatory Agency.

4. Lessons Learned

The following lessons can be drawn from the ESTAL experience:

- A Technical Assistance project is typically subject to a set of bureaucratic/political constraints associated with the governments' natural hesitance to use debt proceeds for 'soft' issues. A high level of ownership is therefore a key element that needs to secured at the project preparation stage, through direct participation of the borrower at the technical, managerial and political levels.

- TA projects have the potential of providing highly valuable benefits. They can provide the opportunity of addressing key strategic issues in a quick and effective manner and, when the opportunity/need arises, they can bring considerable economic benefits. ESTAL proved to be effective in these areas (e.g. Rio Madeira TA, environmental licensing studies).

- A well-designed and well-executed TA project offers the opportunity of carrying on a continuous policy dialogue and strengthening the relationship between borrower and lender. The project can help building trust and could pave the way for a sustained and larger collaboration. Under those circumstances, a TA can become a main instrument for policy making and a basis for key strategic/investment decisions.

- Good TA project design practices:
    - Are **broad in scope**. Be able to accommodate to a wide set of priority issues and be ready to act upon unforeseen needs.
    - Provide for **flexibility in its implementation** (e.g. a wide range of procurement options, provision for a reserve component).
    - Since TA projects often become a main channel for policy dialogue between the country and the Bank, it is worth considering manners to guarantee the **sustainability** of this dialogue either through projects designed for longer periods and/or a TA programmatic approach.
    - When there are other activities/operations in the sector, project design should be **fully consistent and complementary** to the other activities.
    - Implementation arrangements for sector-level TA projects should consider placing the executing unit in a position where all interested groups have access and, most importantly, near the senior management of the corresponding ministry.
    - A capable and well balanced **executing unit** should be put in **place prior to project effectiveness** paying special attention to the confirmation of budgetary resources and an adequate capacity in dealing with procurement and financial management issues.

- Flexibility in implementation is essential –e.g. use of waivers when these are justified by important of the issue dealt with and its consistency with legal agreements, Bank direct support –or provision of expertise– in preparing TOR of technically complex studies.

- A strong support of the Bank's local office, when available, to the executing agency is always desirable. Close monitoring and training should be part of a continued implementation program.

Annex 1

Agenda of the Workshop on Lessons learned from the Energy Services Technical Assistance Loan (ESTAL) in Brazil:

Washington, DC
Monday, March 30th, 2009
Room: I8-300

(8:30-9:00)

Session A - TA loans as instruments to develop a fruitful Policy Dialogue between the Bank and the Client:
Successes and Past/Future Expectations of the ESTAL project
Chair: Philippe Benoit – (WB Sector Manager)

(9:00 – 9:30) The role of TA in building an ongoing relationship and pursuing a common agenda - (Historical Dimension) Luiz Maurer/Nelson de Franco) - (WB TTL, supervision 2005-2007)

(9:30 – 9:50) ESTAL Project – Strengthening Vehicule for Client-Bank Relations - Jose Carlos Costa (former ESTAL PIU Director 2005-2007, former chief of staff of the Executive Secretary)

(9:50 - 10:10) Use of the Fazor Mediation in the operation of the National Interconnected System - Representative from ONS (National Grid Operator) – Hector Volskis - Engineer Specialist (TENTATIVE)

(10:10 – 10:30) Dr. Alexandre Ramos – Chief of Staff of the Executive Secretary – Ministry of Mines and Energy of Brazil

(10:30 – 11:00) Session A: Q&A and Debate

(**11:00 – 11:30) Coffee Break**

Session B - TA projects implementation and supervision: how to achieve results beyond constraints
Lessons from the ESTAL project

(11:30 – 11:50) Project Implementation and Supervision - Lessons learnt Enrique Crouisillat (WB TTL, supervision 2005-2007)

(11:50 – 12:10) Benefits and Limitations of the ESTAL Project for the Current Government (w/ Emphasis on Rio Madeira and Angra III), Estevão Nunes da Cunha (Technical Coordinator – ESTAL PIU – Ministry of Mines and Energy - Brazil)

(12:10 – 12:45) Q&A and Debate