ICR Review
Operations Evaluation Department

Report Number : ICRR11035

1. Project Data:		Date Posted :	08/20/2001	
PROJ ID :	P006549		Appraisal	Actual
Project Name :	Gas Sector Development Project	Project Costs (US$M)	1650.0	1594.2
Country:	Brazil	Loan/Credit (US$M)	130.0	130.0
Sector(s):	Board: EMT - Oil and gas (100%)	Cofinancing (US$M)	1210.0	1288.0
L/C Number:	L4265; LB117			
		Board Approval (FY)		97
Partners involved :	Brazilian Gas Transport Company, IADB, CAF, EIB, Brazilian Cofinanciers and export credit agencies: BNDES and ECAs (through PETROBRAS), and PETROBRAS	Closing Date	12/31/2000	12/31/2000

Prepared by :	Reviewed by :	Group Manager :	Group:	
Fernando Manibog	Richard L. Berney	Alain A. Barbu	OEDST	

2. Project Objectives and Components

a. Objectives

The Project's objectives were to:
1.develop a gas market in South/South-east Brazil;
2. Help create an export alternative market for Bolivian gas .

Besides infrastructure financed under the project, development of a gas market in Brazil required the development of a regulatory system for the gas sector conducive to efficient private sector participation and substitution of other, more polluting, fuels with gas. The main features of such a regulatory system were agreed during project preparation and incorporated in a Government Policy Letter to the Bank .

b. Components

The project included:
1. The construction of a 557-kilometer section of the pipeline in Bolivia from Rio Grande in Bolivia, to Corumba in Brazil, as well as soft costs, including IDC and working capital (US$436 million, implemented by GTB, the Bolivian Gas Transport Company on the Bolivian side, not financed under the Bank loan);
2. The construction of 2,593 kilometers of pipeline in Brazil, extending from Corumba to Porto Alegre, including compression stations and expropriation of land, comprising the trunkline from Corumba to Campinas /Guararema and the southern leg to Porto Alegre (US$1,421 Million);
3. All soft costs for the Brazilian section, including development and management costs, IDC and working capital (US$229 million).

c. Comments on Project Cost, Financing and Dates

The project was completed within the original time schedule and within budget .
Total actual costs of the Brazilian section (US$1,594.2 million) were 96.6% of the appraisal estimate of US$1,650 million. All financiers provided their share of the financing package as planned, except that BNDES and ECAs (through PETROBRAS) increased their financing from US$348 million to US$427 million, while shareholders reduced their equity contributions from the originally estimated US$310 million to US$175 million. However, the shareholders will allocate the US$135 million to support additional compressors not contemplated under the project, for throughput to reach the full pipeline capacity ahead of time. The loan closed on December 30, 2000, the original closing date.

3. Achievement of Relevant Objectives:

All objectives of the project remain relevant in the context of the current CAS for Brazil and Bolivia

a. Develop a gas market in South /South-East Brazil .
The physical objectives were achieved. The pipeline was implemented in time and within budget, and in full

compliance with all relevant Bank safeguard policies. Treatment of environmental aspects has been exemplary. An extensive Environmental Assessment was prepared covering both the Bolivian and Brazilian sections, which resulted in pipeline routing to avoid resettlement and sensitive areas, and in an ambitious environmental and social management plan covering mitigation and compensation programs, prepared with extensive participation of impacted communities. This plan was satisfactorily implemented, under heavy supervision of environmental field inspectors, an environmental management firm contracted by TGB, outside independent auditors, an ombudsman, and the Bank. TGB and GTB have received the 2001 International Association for Impact Assessment for excellence in environmental management and in the use of impact assessment in the design and construction of the pipeline. TGB has also obtained ISO 14001, ISO 9002 and BS8800 certifications, ensuring TBG continued commitment to the environment, safety and security of its operations beyond the construction period. Environmental sustainability is therefore highly likely.

The pipeline is in operation and deliveries since 2000 have been in line with original estimates, after some shortfalls in 1999 due to slower than expected market development. Revised projections based on current contracts show that the maximum throughput capacity of the pipeline (30.1 MMmcd) is expected to be reached in 2007, much sooner than originally planned due to urgent implementation of the Brazilian Government's thermoelectric program. Reestimated economic and financial rates of return are satisfactory and in line with appraisal estimates. TGB has substantially complied with financial covenants. Project sustainability is therefore highly likely.

Institutional Objectives were achieved. TGB has established itself as a competent institution with a strong market orientation, with the necessary systems and structures, running its business independently from its shareholders.

Private sector development objectives were achieved. The project has stimulated private sector investment in gas distribution. Nine largely or fully private distribution companies have been created within the area of influence of the pipeline and existing distribution companies in Rio and Sao Paulo, which have recently been privatized, also plan substantial investments. The project has also stimulated major private sector investments in three new gas transmission pipelines in southern and western Brazil based on gas supplies from Bolivia and Argentina, which will eventually connect to the project pipeline in Porto Alegre to form a regional loop.

The sector policy objectives of the project were substantially achieved. At the time of the first identification mission in 1995, prior to the Hydrocarbon Law in August 1997, the oil and gas exploration, production, imports, refining and transport stages were a public monopoly in the hands of a single public company (PETROBRAS) and the pricing structure was heavily distorted by cross-subsidies and controlled by the Government at all stages. Yet, an appropriate regulatory framework was viewed by the Bank as essential to project success throughout preparation. The Hydrocarbon Law, passed in 1997, aimed at deregulating and opening the sector to competition. At appraisal, the Government submitted a policy letter to the Bank committing the Government to implement a series of actions to implement the Law. Except for an undertaking to review progress under the Policy Letter with the Bank and of reducing PETROBRAS shareholding in TGB to a minority participation, there were no other policy covenants. Lack of policy covenants on the regulatory framework in only one of the involved country was justified given the transnational nature of the project and its complex structure of shareholdings and financing.

Agreed actions related to the deregulation of oil, gas and oil product prices were substantially implemented, and are expected to be fully implemented in December 2001 (originally August 2000), when the transition to a system of fully unregulated prices and imports is completed. Implemented measures include setting domestic oil prices to market levels, ex-refinery refined product prices at import parity, deregulation of distribution margins and elimination of freight cross-subsidies (except for LPG in remote regions); setting domestic natural gas prices to gas distribution companies to reflect gas prices based on international prices of a basket of petroleum products and a distance-based transport charge.

Agreed actions related to natural gas sector regulation were substantially implemented: Petrobras has unbundled its oil and gas operations, ANP, the regulatory agency, was established in 1998 as a competent, independent, well managed and staffed institution. It has issued a comprehensive set of oil and gas regulations consistent with the guidelines listed in the Policy Letter (including with respect to open access, distance-based gas transport tariff, and freely negotiated gas prices), and has already ruled in two important disputes in favor of some of these principles (open access to third party shippers). However, although identified in the Policy Letter as a requirement, the Government and its agencies failed to harmonize price and tariff regulations of the gas and power sectors, a shortcoming which resulted in delayed private investments in power thermo-generation, contributing to the current energy crisis.

Agreed actions related to regulation of the Brazil-Bolivia Pipeline were partially implemented. TBG was established as a gas transport company only and is prohibited from trading gas and engaging in its production or distribution. Although with a one year delay, the Ministry of Mines and Energy prepared and presented to the Bank a plan for the reduction of PETROBRAS shareholding in TBG to a minority participation as per Loan Agreement. With Bank agreement, divestiture will take place after the launching of the Bank Partial Credit Guarantee (PCG), currently pending Senate approval. However, there was a failure to apply the principle of distance-based transport tariffs for volumes committed for the emergency program of thermoelectric generation. Despite Bank insistence and contrary to principles established by the regulator, the Government issued a decree which established a single average price of gas delivered to generators in the entire South/South East region, mixing the differentiated zonal transport prices and domestic and imported gas prices.

b. Help create an export alternative market for Bolivian Gas. This objective was achieved.

Gas export volumes since 2000 through the pipeline have been in line with original estimates, after some shortfalls in 1999, are expected to reach full pipeline capacity throughput much sooner than planned. Furthermore, the project, associated with a favorable regulatory framework in Bolivia, stimulated extensive private sector investments in oil and gas exploration and production since 1997, leading to a 700% increase in Bolivia's proven and probable gas reserves. Exports through the pipeline (based on contractual commitments of PETROBRAS alone) are now estimated to be 184 bcm over 20 years, compared with 82 bcm available for export to Brazil at appraisal, and 153 bcm estimated at appraisal assuming that more gas becomes available in Bolivia and/or Argentina.

4. Significant Outcomes/Impacts:

Most relevant additional impacts/outcomes above those originally planned include the above-mentioned 700% increase in Bolivian gas proven and probable gas reserves and the private sector investments in additional transportation pipelines.

5. Significant Shortcomings (including non-compliance with safeguard policies):

a. Failure to apply distance-based principles in the definition of gas prices for the emergency thermoelectric program bring distortions in economic pricing of gas and electricity and may distort plant location, unless ANP succeeds in redressing this issue.

b. Failure to harmonize regulations applicable to the gas and electricity sectors in time has caused delayed involvement of the private sector in the construction of thermoelectric plants, contributing to the current energy crisis. There is a mismatch between gas pricing regulations (gas prices are set in US Dollars and reflect international oil prices) and prices of electricity, which are set in local currency and are adjusted only once a year by a different regulator. Given the substantial devaluation of the Brazilian currency in recent years, private investors have been reluctant to assume the risk.

This has in turn caused PETROBRAS to assume part of the exchange risk and to participate in the ownership and implementation of a number of the required plants, thus increasing its already dominant role in the Brazilian hydrocarbon sector, consequently increasing risks of abuse of monopoly power. These risks will be partly offset by the increasing presence of international players and of a strong regulator.

6. Ratings:	ICR	OED Review	Reason for Disagreement /Comments
Outcome:	Highly Satisfactory	Highly Satisfactory	
Institutional Dev.:	High	Substantial	Some of the agreed institutional reforms were only partially implemented (see above)
Sustainability:	Highly Likely	Highly Likely	
Bank Performance:	Highly Satisfactory	Highly Satisfactory	
Borrower Perf.:	Highly Satisfactory	Satisfactory	Due to some shortcomings in implementation of policy letter (Item 5), Government Performance is rated only Satisfactory.
Quality of ICR:		Satisfactory	

NOTE: ICR rating values flagged with ' * ' don't comply with OP/BP 13.55, but are listed for completeness.

7. Lessons of Broad Applicability:

· The project demonstrates the high value added of Bank involvement in complex transnational, public-private infrastructure projects involving a spectrum of political, regulatory, financial, environmental and social risks.

· It is important to ensure upfront that a minimum uncommitted capacity of gas transport pipelines be available for third party access, to be auctioned according to criteria set by the regulator.

· It is important to ensure upfront that the regulatory systems for gas transport and downstream sectors (in particular gas distribution and electricity) are consistent, and that energy regulators integrate their approaches to regulation, perhaps arguing in favor of single energy regulatory commissions .

· During construction, environmental inspectors should have strong authority to require contractors to make immediate necessary environmental improvements and suspend construction works in cases of serious environmental problems.

· During project implementation, excellent results can be achieved when there is both an independent environmental auditor and an ombudsperson, the latter being in charge of the protection of individual and community rights as well as of proactively interacting with NGOs and communities .

· The early involvement of civil society and all relevant stakeholders, particularly at the local level, can avoid later conflicts.

· In large projects of this type, involving long distances, separating construction contracts by degrees of difficulties offer a level playing field for pre-qualified contractors of different origins, experience and financial strength and ensures low prices and flexibility. This also reduces risks.

8. Assessment Recommended? ● Yes ○ No

Why? Project design is particularly innovative. There is a new lending instrument associated with this operation (partial credit guarantee) and project lessons are particularly relevant to future Bank operations in the gas transport sector.

9. Comments on Quality of ICR:

Satisfactory. The ICR is of high quality, comprehensive and well documented and presents a thorough and objective analysis of project preparation and implementation, outcomes and lessons learnt . Although the ICR does not include a detailed sensitivity analysis, subsequent information provided by the region shows that the IERR would not be adversely affected under credible alternative scenarios for gas uptake and changes in gas prices and competitiveness. The ICR could have commented on the lack of timely harmonization of the gas and power sector regulations, since this was part of the Policy Letter and is a continuing source of sector friction .