ICR Review

Operations Evaluation Department

Report Number: ICRR10279

1. Project Data:	
OEDID:	L3475
Project ID:	P007676
Project Name:	Science and Technology Infrastructure Project
Country:	Mexico
Sector:	Higher Education
L/C Number:	L3475
Partners involved:	Not Applicable
Prepared by:	A. Ransom
Reviewed by:	L. Dove
Group Manager:	G. Ingram
Date Posted:	04/30/1999

2. Project Objectives, Financing, Costs and Components :

Goals

- Generate relevant research and train scientists
- Encourage modernization, enhance competitiveness and increase attractiveness of Mexican industry for foreign investment

Objectives

- Rationalize public sector funding for S&T
- Increase public spending for science research and infrastructure (SRI)
- Develop institutions to improve the efficiency of public SRI support to industry

Components

(a) Restructure the National S&T Council (CONACYT) the government institution responsible for overall S&T policy
(b) Develop and operationalize a system for allocating grants on a competitive basis for basic scientific research (SR) and equipment projects
(c) Upgrade technology infrastructure and develop institutions in the areas of :

- Metrology: National Center for Metrology (CENAM)
- Standards and aquality assurance: Director General of Standards (DGN)
- Intellectual property right protection (IPR): Mexican Institute for Industrial Property (IMPI)

Finance

Appraisal Estimate: Bank: US$190.50M; Govt: 404.27M; Grant Recipient Institutions: 287.40M; Private Sector: 3.61M
Actual/Latest: US$187.00M; Govt: 494.91M; Grant Recipient Institutions: 305.38M; Private Sector: 3.61M

Costs

Appraisal Estimate: US$885.78M
Actual/Latest: US$987.29M

3. Achievement of Relevant Objectives :

(a) The financial objective of increased public funding for S&T had mixed outcomes :

- Public expenditure as a percent of GDP rose from a 1988/89 low of 0.25 to 0.41 percent in 1994, dropped to 0.35 percent in 1995/96 during the financial crisis, and returned to 0.41 percent in 1997. The ICR concluded that the project may have forestalled more dramatic reduction of public support during the crisis .
- CONACYT funding for new SRI programs was below SAR quantitative targets and considerably so for SR chairs of excellence and repatriation and retention of scholars .

(b) The restructuring and institutional improvement objectives were largely achieved :

- The project contributed to the institutionalization of merit-based competition for SR funding and grants
- Fragmentation of SR grants was reduced: the number, duration, and size of CONACYT-awarded research grants exceeded SAR quantitative targets except for 3-year grants.
- An increase in the number of publications of Mexican authors listed in the Institute of Scientific Information (ISI) and their percentage of the total may be an indication of improved quality .

Metrology. Some output objectives have been achieved :

- Output indicators given in the ICR show a positive impact on industrial competitiveness and on attracting foreign investment. Industrial demand for calibration services outstripped projections. CENAM's client lists include a large number of foreign-owned enterprises which the ICR interpreted as an indication of perceived quality.

Intellectual Property. Institutional efficiency objectives were largely achieved:

- The time necessary to award patents was reduced from 6 years to 2.5-3.0 years by 1996, a performance level similar to worldwide best practice.
- Enforcement has increased from 886 resolutions/opinions issued in 1994 to 1,711 in 1997.
- Staff training and investment in information systems have radically simplified operations and increased the number of inspections related to IPR violations (from 947 in 1994 to 1,504 in 1997).

4. Significant Achievements:

There were some indications of positive project outcomes/impacts:

- CONACYT has established a S&T indicator program for the first time, and the data are widely available through hard copy and Internet publication.
- A transparent and competitive mechanism for allocation of SR grants has been institutionalized.
- CENAM was selected to preside over the Inter-American Metrology System for 1995-1998. The position involved coordination of five basic measures on a regional basis.
- Despite budget pressures during the financial crisis, IMPI was able to achieve its institutional objectives through greater reliance on information technology and on bilateral support for information sharing and TA.
- The World Intellectual Property Organization (WIPO) asked IMPI to provide TA for other developing countries.

5. Significant Shortcomings:

(a) Important private sector development objectives have not been achieved:

- According to the ICR, CENAM covers only a fraction of the nation's metrology needs. It has not been able to promote demand in industry for metrology services and to support the creation of a private sector network of secondary metrology laboratories.
- Despite the growth in demand for IMPI services, the overall system of IPR protection is still underutilized by the private sector and not adequately enforced.
- Government budgetary allocations were never made available and World Bank funds were not disbursed for the component designed to build the basic infrastructure for industrial standards. According to the ICR, standardization, an important tool for the competitiveness of Mexican industry, remains acutely underdeveloped in Mexico.
- The private sector financed only US$3.61M out of a total of US$987.29M in project costs. The ICR does not explain whether the relatively small financial contribution of the private sector is an indication of its level of interest in the objectives of the project.

(b) Project design undermined institutional development and efficiency objectives:

- According to the ICR disbursement estimates did not take into consideration multi-year research grants, a project feature conceived to reduce the fragmentation and increase the duration of research grants.
- Disbursements were made against procurement of goods and not against grants for research projects. Overly centralized control and review of fund releases were at odds with the project goals of transparency, speed, and competitiveness in awarding grants.
- The ICR concluded that the complexity and extreme degree of centralization of procurement resulted in excessive delays and burdensome procedures for beneficiaries, implementing agencies, and the Bank. In June 1995, total disbursements had reached only US$37.5M versus appraisal estimates of US$120.0M.
- The World Bank changed the project team during negotiations which undermined counterpart confidence.

6. Ratings:	ICR	OED Review	Reason for Disagreement /Comments
Outcome:	Satisfactory	Satisfactory	
Institutional Dev.:	Substantial	Substantial	
Sustainability:	Likely	Likely	
Bank Performance:	Satisfactory	Satisfactory	
Borrower Perf.:	Satisfactory	Satisfactory	
Quality of ICR:		Satisfactory	

7. Lessons of Broad Applicability :

ICR

- The development of HR for S&T is perhaps the most important result of the project , but should have been strengthened by incentives for training of Masters and Doctoral students in research grants .
- In funding SR grant programs, it is important to recognize the unique characteristics of procurement of scientific instrumentation and supplies, including legal and regulatory constraints .
- The establishment of world class metrology and IPR institutions is not sufficient in itself to stimulate private sector demand and use for industrial development. The ICR concluded that in the area of metrology, policies to stimulate private sector demand for services and to promote a network of private secondary metrology laboratories are needed. For IPR weaknesses in the judicial system and in enforcement should be addressed in tandem with institutional strengthening.

OED

- Lack of strong Government commitment and weak preparation and design of project components often lead to inadequate Government budgetary allocation.
- At appraisal project outcome indicators should include explicit short -term output indicators and the medium-term/outcomes expected, as well as long term impact.

8. Audit Recommended? ○ Yes ● No

9. Comments on Quality of ICR :

- ICR evidence was not always convincing. For example, increases in funding for CENAM may not have been a factor positively supporting achievement of project targets, but a need arising from construction cost -overruns or increases in operating costs due to implementation delays and longer implementation periods .
- ICR analysis was not always consistent or complete. It was not clear whether low private sector utilization of CENAM's services was due to insufficient budgets to cover the needs of industry or to insufficient demand for reasons of quality and suitability of services, availability of information on services, or other factors .
- The ICR's plan for future project operation did not include performance indicators nor a plan for M&E .