ICR Review

Operations Evaluation Department

Report Number : ICRR11582

1. Project Data:		Date Posted : 08/26/2003		
PROJ ID : P008173			Appraisal	Actual
Project Name :	Natural Resources Management And Irrigation Development Project	Project Costs (US$M)	74.0	79.8
Country :	Uruguay	Loan/Credit (US$M)	41.0	40.9
Sector(s):	Board: RDV - Irrigation and drainage (62%), Central government administration (19%), Agricultural extension and research (13%), Forestry (3%), Agricultural marketing and trade (3%)	Cofinancing (US$M)		
L/C Number :	L3697			
		Board Approval (FY)		94
Partners involved :		Closing Date	12/31/1999	12/31/2002

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2. Project Objectives and Components

a. Objectives

"The main objective of the proposed project would be to develop and implement a soil and water management strategy focussed on irrigation development in order to increase, diversify, and sustain agricultural output and exports. This long-term objective would be achieved by:
(i) increasing the level of sector investment in rehabilitation and development of new irrigation /drainage schemes and related service infrastructure following sound technical and environmental practices;
(ii) strengthening the technical foundation and regulatory framework to improve surface and ground water use efficiency;
(iii) establishing a well-balanced operation and maintenance and capital cost recovery policy;
(iv) supporting agricultural diversification and ...improved natural resource management...assisting the government in developing an overall sector strategy...; and
(v) providing technical assistance for forestry development and non -traditional agricultural export activities".
(SAR, p. 15).

b. Components

(i) **Natural Resource Management** (US$25.4 million, representing 32 percent of actual project cost):

- Pilot micro-catchment areas in the Santa Lucia River Basin;
- Soil and water management demonstration farms;
- Geographical Information System;
- Applied research and technology transfer;
- Studies;
- Sector policy planning, monitoring and evaluation; and
- Tecnical assistance for forestry development.

((ii) **Irrigation Development** (US$47.9 million , 60 percent of actual project cost):

- Rehabilitate public irrigation and drainage schemes;
- Build medium-size collective irrigation schemes;
- Build small farmer irrigation infrastructure;
- On-farm water harvesting pilot; and
- Technical assistance for irrigation and drainage feasibility studies .

(iii) **Project Implementation Unit** (US$6.1 million, 8 percent of actual project cost).

c. Comments on Project Cost, Financing and Dates

The project took 8.5 years to implement, compared to the roughly 6 years forecast at appraisal. Spending on the Project Implementation Unit was more than double the appraisal forecast. The largest cost item was Private Irrigation Development (US$46.4 million), which substituted for the Medium-size Collective Irrigation component. Spending on the public schemes was only US$0.6 million compared to the US$4.0 million anticipated.

3. Achievement of Relevant Objectives:

The overall objective---which focused on irrigation development--was consistent with Bank and Borower strategy, the project being identified in the course of the Bank's Irrigation Sector Review (paragraph 7.1.1).

(i) **Increased investment in irrigation and drainage** ***(Partially Achieved).*** At appraisal it was estimated that 30,000 ha would be opened to irrigation; overall, some 15,000 farmers were expected to benefit directly from the project, mainly as a consequence of improved access to water (President's Memorandum, paragraph 69). But Annex 1 of the ICR states that given the demand-driven nature of the investment there was no target for the number of beneficiaries or the area to be covered. Annex 1 is not well set out but appears to indicate that the project benefited 1,828 producers/7,555 ha in private irrigation, and 200 producers/25,400 ha in public irrigation schemes. Thus, the area served was consistent with expectations in the President's Memorandum but not the number of beneficiaries.

(ii) **Improved technical foundation for water use** (***Partially achieved)***. The ICR refers to improved institutional coordination and notes that, through the micro-catchment component, it was possible to develop technologies for improved management of natural resources in areas of intensive agriculture. But there are inconsistencies in the ICR: paragraph 4.2.6 states that 395 producers participated in the micro-catchment program but Annex 1 gives a figure of 149 producers for three micro-catchments (there is no data for the fourth); the target was 349 producers. It is not clear how many hectares involved intensified agriculture. Also, paragraph 4.2.9 indicates that the technical assistance program had not persuaded farmers to give prime consideration to conserving natural resources.

(iii) **Cost recovery** ***(Partially Achieved).*** Beneficiaries are paying not only O&M costs but also helping to recover the capital cost (minus a defined-level of financial incentive over a ten-year period, including two years of grace). Of 2,414 beneficaciaries, 1,462 (61 percent) are either fully paid up or have advanced some money toward cost recovery. Without information on the size of the financial incentive offered, the significance of cost recovery is hard to evaluate: if the incentive were substantial the project may have attracted a number of farmers capable of obtaining private sources of funding. Also, debt service has been badly hit in the past two years by crises in the agricultural and financial sectors. The ICR estimates that, ultimately, "80 percent of beneficiaries can be expected to make their full contribution to capital cost recovery" (Paragraph 5.4.5).

(iv) **Agricultural diversification etc** . ***(Achieved).*** In the ICR, the original objective (see Section 2a above) is recast purely as "supporting agricultural diversification". The project supported expansion of the irrigated area under fruit and vegetable production (16,000 ha), representing an increase of over 100 percent of the initial area under these crops, thus contributing to a substantial increase in the production of high-value crops and non-traditional exports (paragraph 4.1.1(b)). The ICR refers to three farm models (horticulture, dairy, and grapes) but does not show any data, merely stating that results were positive for horticulture and dairy but not for grapes (paragraph 4.2.8).

(v) **Forestry development etc** . ***(Partially achieved).*** In the ICR, the fifth objective (see Section 2a above) is construed as "establishing the framework to improve the management of natural resources". The components that appear to correspond to this objective are:

- Geographic Information System (US$1.2 million)---satisfactorily developed;
- Applied research and technology transfer (US$15.1 million)---solid research but limited prospects for adoption by producers owing to institutional weaknesses;
- Natural resource management studies (US$0.3 million)---satisfactorily implemented;
- Technical assistance for forestry development (US$2.4 million)---usefulness not clear from ICR; and
- Strengthening of sector policy planning (US$1.2 million)---continuing difficulties in coordinating the various government institutions responsible for natural resource management.

4. Significant Outcomes/Impacts:

- Significant crop diversification (Section 3iv above);
- Substantial recovery of the capital cost of irrigation investments (Section 3iii above);
- Satisfactory applied research, including new technologies for managing micro-catchments (Sections 3ii and 3v above).

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

Ownership of the initial project concept seems to have been limited . At various points, claims are made that the project is demand-driven. But within a single paragraph (4.2.24) the ICR raises doubts about the extent of this demand-driveness: "The designed purpose of the sub-component was to expand the irrigated area by responding to the demand of producers for collective irrigation schemes ...Only a few projects were implemented because the demand from producers was overwhelmingly for individual support at the farm level ". Low ownership is also evident in the limited interest shown by farmers in embracing the environmental conservation objective (paragraph 4.2.9).

There was no systematic analysis of the economic rate of return to the irrigation investment (60 percent of project costs) . Some evidence suggests that the ERR may be borderline satisfactory . The ICR notes (paragraph 4.1.1(a)) that 77 percent of the irrigated area was devoted to rice; elsewhere (paragraph 4.3.1) it notes that "irrigated rice sub-projects...presented marginal ERRs of about 12 percent due to the current and projected decline in world rice prices". The ERR analysis appears to refer only to the subprojects; if the overheads (particularly the doubling of project managament cost) were factored into the analysis, the aggregate ERR may be lower than the opportunity cost of capital.

Only one of the three sub-projects involving rehabilitation of public schemes went ahead; and this involved a high cost per farm family (US$408,000 was invested, benefiting 23 producers on 100 hectares, paragraph 4.2.23).

Between them the project implementing unit and the inter-ministerial coordinating commission have met with only limited success in harmonizing the approach of different government agencies charged with natural resource management, and in implementing regulations (paragraph 4.5.1).

6. Ratings:	ICR	OED Review	Reason for Disagreement /Comments
Outcome:	Satisfactory	Moderately Unsatisfactory	While the project exceeded its target in terms of the area irrigated, there is substantial doubt about the aggregate economic rate of return and the overall development effectiveness of the project (the extent to which the project ended up subsidizing better-off farmers who could have obtained private financing for irrigation).
Institutional Dev .:	Substantial	Modest	The ICR contains several hints that impact was limited, e.g. "The institutional framework was recognized from the beginning as being difficult from the point of view of coordination and cooperation, and whilst the outcome of the project has been less than fully satisfactory in this respect it is less than obvious that this outcome could have been 'improved' through better preparation" (paragraph 7.4.1). The weak system of technology transfer (paragraph 4.2.14), the limited farmer internalization of environmental objectives (paragraph 4.2.9), the weak implementation of regulations (paragraph 4.5.1)----none of these factors are consistent with improved efficiency in resource use.
Sustainability :	Likely	Unlikely	The ICR raises doubts that cost recovery will be maintained (e.g. paragraph 7.4.1 says that the issue is "not as important to the Borrower as it is to the Bank"). The failure to achieve a major institutional srengthening reduces the resilience to risk.
Bank Performance :	Satisfactory	Unsatisfactory	Poor quality at entry. The absence of ex-ante and ex-post economic analysis is

			hard to justify for an investment the bulk of which was always earmarked for irrigation. The Bank did not take sufficient steps to verify Borrower commitment to the project, as reflected in the unexpected switch from public to private irrigation and the failure of producers to internalize the natural resource management objectives.
Borrower Perf.:	Satisfactory	Unsatisfactory	Implementation was hampered by financial, administrative and institutional difficulties, including problems with counterpart funding (Paragraph 7.2.3).
Quality of ICR:		Unsatisfactory	

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

7. Lessons of Broad Applicability:

- Projects with disparate components (irrigation, natural resource management), involving several government interlocutors, will be difficult to bring to fruition.
- Projects involving sizeable physical investments and a quantifiable benefit stream need to be supported by the appropriate cost-benefit analysis.

8. Assessment Recommended? ● Yes ○ No

Why? To investigate the economic viability of the irrigation investments.

9. Comments on Quality of ICR:

There are a number of gaps and internal inconsistencies. The lack of ex-ante economic analysis was a major omission which the ICR could have partially redressed by including data on representative farm models, and by making a more rigorous appraisal of costs and benefits. There is no discussion of the performance of the implementing agencies; and no explanation why the cost of the Project Implementaton Unit more than doubled.