



<b>1. Project Data :</b>		<b>Date Posted :</b> 07/17/2000	
<b>PROJ ID:</b> P006473	<b>OEDID:</b> L3160	<b>Appraisal</b>	<b>Actual</b>
<b>Project Name :</b> Second Land Management Santa Catarina Project	<b>Project Costs (US\$M)</b>	71.6	69.6
<b>Country:</b> Brazil	<b>Loan/Credit (US\$M)</b>	33.0	33.0
<b>Sector, Major Sect .:</b> Natural Resources Management, Environment	<b>Cofinancing (US\$M)</b>	0	0
<b>L/C Number:</b> L3160			
	<b>Board Approval (FY)</b>		90
<b>Partners involved :</b>	<b>Closing Date</b>	09/30/1997	06/30/1999
<b>Prepared by :</b>	<b>Reviewed by :</b>	<b>Group Manager :</b>	<b>Group:</b>
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## 2. Project Objectives and Components

### a. Objectives

"...to increase agricultural production, productivity and farm incomes by promoting the adoption of sustainable, modern forms of land management and soil and water conservation, thus safeguarding farmer incomes and the state's [Santa Catarina's] resources. This would be achieved by promoting actions to: (a) increase the extent and duration of vegetative cover of the soil, thus better protecting it from sealing under intense rainfall; (b) improve internal soil structure and drainage, thus increasing water infiltration; and (c) safely dispose of any remaining runoff, either within or outside farm boundaries". Staff Appraisal Report, p. 9

### b. Components

(a) adaptive research, focusing on improved soil cover and structure; (b) land use mapping, planning and monitoring; (c) rural extension, using both public and private extension services, to assist in planning and execution of microcatchment soil conservation plans; (d) an incentive program, for land management, soil conservation and pollution control activities which bring wider social benefits, through the provision of financial assistance to microcatchment farmer associations; (e) erosion control works along rural roads to reduce erosion in the microcatchments; (f) commercial and conservation forestry development and natural resource protection; (g) project administration, monitoring and evaluation; and (h) training". SAR, pp. 9-10

### c. Comments on Project Cost, Financing and Dates

In response to varying implementation progress and differences from unit costs estimated at appraisal, the final allocation of funding between components differed from the original estimate : adaptive research (+33%); extension (+22%); land use mapping (+52%); rural roads (-18%), forestry and environmental protection (-40%); and the parks component (-64%).

## 3. Achievement of Relevant Objectives :

The overall economic rate of return was re-estimated at 20 percent. Productivity of the main crops---maize, wheat and soybeans---exceeded "without project" productivity by 20 to 35 percent. Soil loss was reduced by 10-50 percent. However, the project did not raise farm incomes, owing to (a) the adverse macroeconomic environment; and (b) Brazil's joining of the southern cone free trade area, Mercosul, which exposed Santa Catarina's farmers to greater competition, lowering output prices. However, farmers who adopted the land management practices promoted by the project suffered substantially smaller declines in income than those who did not. Also, the project's productivity gains helped to lower food prices for the local urban population.

## 4. Significant Outcomes /Impacts:

Improved land management practices were adopted in 534 assisted microcatchments, (103 percent of the appraisal target). Despite the adoption of these practices, on-farm labor requirements were substantially lower "with project" (699 mandays per year), compared to "without project" (822 mandays per year). Average soil losses in the project area were 6.0 tonnes per hectare per year "without project", and 4.7 t/ha/yr "with project". The total number of farmers attended by the rural extension component was 106,000, exceeding the appraisal estimate (80,900). The more participatory approaches to research and extension modeled by the project have been internalized by the state

government. Maintenance of rural roads cost US\$ 151/km "with project", a substantial improvement on the "without project" cost (US\$945/km).

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

Net farm revenues "with project" were less than "without project" (respectively, US\$ 12,294 and US\$13,622). The number of microcatchments benefited by erosion control along rural roads was 406, compared to the appraisal target of 520. Although the number of extension agents amply exceeded the appraisal target (422, not 256), the number of *private* agents added was only 69 (against an appraisal target of 109). Environmental monitoring and park protection components did not prosper and were scaled back. For example, conservation reforestation with slower growing, native species suffered technical problems and was less well accepted by farmers; only 8,900 hectares were planted (73% of the appraisal target).

6. Ratings:	ICR	OED Review	Reason for Disagreement /Comments
<b>Outcome:</b>	Highly Satisfactory	Highly Satisfactory	
<b>Institutional Dev.:</b>	Substantial	Substantial	ICR rates as "High", which is not permitted by the ES lexicon (although "High" is a PIF rating). "High" would not be appropriate because, although agriculture research and extension were strengthened, there was less success in developing the project institutions responsible for environmental aspects.
<b>Sustainability:</b>	Likely	Likely	ICR rates as "Highly Likely" which is not permitted by the ES lexicon. Although farm incomes did not improve as a consequence of improved land management--owing to factors beyond project control--when fully adopted these improved practices reduced the fall in incomes, and reduced farm labor input, making it likely that farmers will continue to use them.
<b>Bank Performance:</b>	Satisfactory	Satisfactory	
<b>Borrower Perf.:</b>	Satisfactory	Satisfactory	
<b>Quality of ICR:</b>		Satisfactory	

#### 7. Lessons of Broad Applicability:

(a) If they are to succeed, investments in soil conservation must be based on technical changes that bring farmers recognizable and early gains in productivity; (b) Extensive training is needed if extension agents (private as well as public) are to become effective promoters of participatory approaches to soil and water conservation; (c) The methodology and logic of the microcatchment initiatives in southern Brazil (Santa Catarina and Parana) has shown how new forms of cooperation and trust can be developed among beneficiaries, suggesting that this approach might fruitfully be replicated elsewhere.

#### 8. Audit Recommended? ☒ Yes ☐ No

**Why?** Getting farmers to adopt anti-erosion measures has proved to be difficult in many projects. Why did it work in this case? Will adoption be sustained--particularly if farm incomes do not pick up?

#### 9. Comments on Quality of ICR:

Good quantification of "with project" and "without project" scenarios; this included a re-estimation of the economic rate of return that was based on 10 models using results from extensive socioeconomic surveys in 1992, 1995 and 1999.