Document of
The World Bank

Report No: ICR00001216

IMPLEMENTATION COMPLETION AND RESULTS REPORT
(IBRD-46260 and IBRD-73870)

ON A

LOAN

IN THE AMOUNT OF US$37.5 MILLION EQUIVALENT

AND AN

ADDITIONAL FINANCING LOAN

IN THE AMOUNT OF US$37.5 MILLION EQUIVALENT

TO THE

STATE OF CEARÁ

FOR THE

RURAL POVERTY REDUCTION PROJECT

December 15, 2009

Sustainable Development Department
Brazil Country Management Unit
Latin America and Caribbean Region

CURRENCY EQUIVALENTS

(Exchange Rate Effective June 30, 2009)

Currency Unit = Real (R$)
R$1.00 = US$0.5108
US$1.00 = R$1.9508

FISCAL YEAR

January 1 – December 31

ABBREVIATIONS AND ACRONYMS

ADAGRI	Agricultural Defense Agency
AF	Additional Financing (7387-BR)
CAGECE	Ceará Water and Sanitation Company
CAS	Country Assistance Strategy
CPS	Country Partnership Strategy
CEASA	Ceará Supply Center
CENTEC	Center for Technology Studies
CMDS	Municipal Sustainable Development Council
COELCE	Ceará Electricity Company
COPE	Special Projects Coordination Unit (Original Project)
COPPES	Special Programs and Projects Coordination Unit (Additional Financing)
EMATERCE	Ceará Technical Assistance and Rural Extension Company
FECOP	State Poverty Reduction Fund
FUMAC	Municipal Fund for Community Support
FUMAC-P	Pilot Municipal Fund for Community Support
FUNASA	National Health Foundation
HDI-M	Municipal Human Development Index
IDACE	Ceará Land Institute
INCRA	National Institute for Colonization and Agrarian Reform
MIS	Management Information System
OP	Original Project (4626-BR)
PAC	Community Support Fund
PNCF	National Land Reform Program
PPS	Physical Performance Study
SDA	Secretariat of Agrarian Development
SDI	State Social Development Index
SDLR	Secretariat for Local and Regional Development
SEAGRI	State Secretariat for Agriculture and Livestock
SEINFRA	Secretariat of Infrastructure
SEBRAE	Service for Support to Micro and Small Business
SEDUC	State Secretariat of Education
SISAR	Integrated Rural Sanitation System
SOHIDRA	Superintendent for Water Infrastructure
SRDP	Sustainable Rural Development Plan
STDS	Secretariat for Labor and Social Development
STU	State Technical Unit

Vice President:	**Pamela Cox**
Country Director:	**Makhtar Diop**
Sector Manager:	**Ethel Sennhauser**
Project Team Leader:	**Maria de Fatima Amazonas**
ICR Team Leader:	**Maria de Fatima Amazonas**

BRAZIL
Ceará: Rural Poverty Reduction Project

CONTENTS

A. Basic Information

Country:	Brazil	Project Name:	Rural Poverty Reduction Project - Ceará
Project ID:	P050875	L/C/TF Number(s):	IBRD-46260 IBRD-73870
ICR Date:	09/21/2009	ICR Type:	Core ICR
Lending Instrument:	SIL	Borrower:	STATE OF CEARÁ
Original Total Commitment:	USD 37.5M	Disbursed Amount:	USD 75.0M
Revised Amount:	USD 75.0M		
Environmental Category: B			
Implementing Agencies: Secretaria de Desenvolvimento Agrário - SDA			
Cofinanciers and Other External Partners:			

B. Key Dates

Process	Date	Process	Original Date	Revised / Actual Date(s)
Concept Review:	10/10/2000	Effectiveness:	01/29/2002 (OP)	01/08/2006 (AF)
Appraisal:	03/05/2001 (OP) 12/20/2005 (AF)	Restructuring(s):		07/10/2008
Approval:	06/26/2001 (OP) 06/06/2006 (AF)	Mid-term Review:	10/21/2004 (OP)	10/22/2007 (AF)
		Closing:	06/30/2005 (OP)	06/30/2009 (AF)

C. Ratings Summary

C.1 Performance Rating by ICR

Outcomes:	Satisfactory
Risk to Development Outcome:	Moderate
Bank Performance:	Moderately Satisfactory
Borrower Performance:	Satisfactory

C.2 Detailed Ratings of Bank and Borrower Performance (by ICR)

Bank	Ratings	Borrower	Ratings
Quality at Entry:	Moderately Satisfactory	Government:	Satisfactory
Quality of Supervision:	Satisfactory	Implementing Agency/Agencies:	Satisfactory
Overall Bank Performance:	Moderately Satisfactory	**Overall Borrower Performance:**	Satisfactory

C.3 Quality at Entry and Implementation Performance Indicators

Implementation Performance	Indicators	QAG Assessments (if any)	Rating
Potential Problem Project at any time (Yes/No):	No	Quality at Entry (QEA):	Satisfactory (AF)
Problem Project at any time (Yes/No):	No	Quality of Supervision (QSA):	None
DO rating before Closing/Inactive status:	Satisfactory		

D. Sector and Theme Codes

	Original	Actual
Sector Code (as % of total Bank financing)		
General agriculture, fishing and forestry sector	20	15
Other social services	35	-
Power	10	20
Roads and highways	25	-
Sub-national government administration	10	5
Water supply		60

Theme Code (as % of total Bank financing)		
Other social development	14	10
Participation and civic engagement	14	14
Rural non-farm income generation	29	10
Rural policies and institutions	14	3
Rural services and infrastructure	29	63

E. Bank Staff

Positions	At ICR	At Approval
Vice President:	Pamela Cox	David de Ferranti
Country Director:	Makhtar Diop	Gobind T. Nankani
Sector Manager:	Ethel Sennhauser	Mark Cackler
Project Team Leader:	Maria de Fatima Amazonas	Luis O. Coirolo
ICR Team Leader:	Maria de Fatima Amazonas	
ICR Primary Author:	Anna Roumani	

F. Results Framework Analysis

Project Development Objectives (from Project Appraisal Document**)**

The project aims to assist the State of Ceará to reduce currently high levels of rural poverty by: (a) improving well-being and incomes of the rural poor through better access to basic social and economic infrastructure and services and support for productive activities, using proven

community-driven development (CDD) techniques; (b) increasing the social capital of rural communities to organize collectively to meet own needs; (c) enhancing local governance by greater citizen participation and transparency in decision-making, through creation and strengthening of community associations and Municipal Councils; and (d) fostering closer integration of development policies, programs and projects at the local level, by assisting Municipal Councils to extend their role in seeking funding, priority-setting and decision-making over resource allocation.

Revised Project Development Objectives (*as approved by original approving authority***)**

(a) Project Development Objectives were not revised; and (b) The project was comprised of two stages - an original project and an Additional Financing. Data and information presented in the PDO and IO sections below show achievements under the former and incremental achievements under the latter, with an overall total, in each case.

(a) PDO Indicator(s)

Indicator	Baseline Value	Original Target Values (from approval documents)	Formally Revised Target Values	Actual Value Achieved at Completion or Target Years
Indicator 1 :	No. of families benefited from subproject (SP) investments			
Value quantitative or Qualitative)	Zero.	120,000 rural families (OP), adjusted to 109,000	Incremental 68,000 rural families (AF)	Total families benefited: 185,461, 105% aggregate target OP/AF.
Date achieved		06/30/2006	06/30/2009	
Comments (incl. % achievement)	OP (Original Project): 90,146 families, 83% of target. AF (Additional Financing): 95,726 families, 141% of target (of which 21,355 families financed solely with State counterpart resources). Aggregate total vs. target: 185,461 families (105%).			
Indicator 2 :	Incremental employment generated from subproject investments			
Value quantitative or Qualitative)	Zero	OP: No target	AF: No target	Est. direct new jobs: SPs: >20,350
Date achieved		06/30/2006	06/30/2009	
Comments (incl. % achievement)	Tractors (371) averaged 29.3 new jobs per tractor (10,870); 160 other productive SPs averaged 48 jobs (7,680); and 530 rural electrification SPs averaged 3.4 jobs each (1,800). Other employment created but not quantified.			
Indicator 3 :	Increase in wellbeing and incomes of project beneficiaries			
Value quantitative or Qualitative)	Zero	OP: No target.	AF: No target.	Positive impact on incomes.
Date achieved	01/29/2002	06/30/2006	06/30/2009	
Comments (incl. % achievement)	Studies: (a) Wellbeing: piped water, 18% to 50%; electricity, 62% to 90%; HH with septic tanks, 42% to 51%; infant mortality down 38%; diarrhea down 70%. (b) Incomes: HH income from productive up 25%, from infrastructure up 28%. Direct income growth from electrification averaged R$ 1,790, and from productive subprojects (SP) R$1,205/family.			

Indicator 4 :	Increase in social welfare of rural communities.			
Value quantitative or Qualitative)	Zero	OP: No target	AF: No target	Social welfare benefits substantial.
Date achieved	01/29/2002	06/30/2006	06/30/2009	
Comments (incl. % achievement)	(i) Improved family incomes from est. 20,350 new jobs; (ii) 22,680 families with electricity (lighting, food/medicine storage, appliances, night school); (iii)143,000 families with clean drinking water for better health/hygiene, and/or greater food supply from productive use of water. (Annex 2, Box 1).			
Indicator 5 :	Increase in Social Capital Index (SCI) of project Municipal Councils (MC)			
Value quantitative or Qualitative)	Zero	OP: No target	AF: No target	Strong evidence for MC social capital growth.
Date achieved	01/29/2002	06/30/2006	06/30/2009	
Comments (incl. % achievement)	Studies: MCs effective in representing community interests (50%); MCs as source of information about the project, and reducing privileged access (44%); 81% of municipal authorities saw MCs as positive influence on municipal administration. See also Indicator 6. Note: SCI not calculated by project studies (for MCs or CAs).			
Indicator 6 :	No. of Municipal Councils (MC) participating in priority-setting and decision-making on resource allocation of project and non-project-funded development activities			
Value quantitative or Qualitative)	Zero	OP: No target	AF: No target	Project resource allocation: 177 MCs. Non-project allocation: 40 MCs
Date achieved	01/29/2002	06/30/2006	06/30/2009	
Comments (incl. % achievement)	(a)177 MCs (100%) setting priorities and deciding allocation of <u>project</u> resources by EOP; (b) of these, 40 (more advanced) deciding allocation <u>non-project</u> resources; (c) 177 MCs now members of State Territorial Councils, providing input to Annual Territorial Development Plans for allocation of resources.			
Indicator 7 :	Increase in total project and non-project financing allocated through the Municipal Council (FUMAC/FUMAC-P) mechanism			
Value (Quantitative or Qualitative)	Previous Project (RPAP): MCs represented 64% of total SP financing (US$60.8 m.). MC's allocation of non-project financing still incipient.	OP: No target	AF: No target	By end-OP, 86% project financing for SP (US$38.6 m.) allocated by MCs; by end-AF, 100% (US$45.9 m.), and an additional US$13.6 m. State resources allocated through MCs.
Date achieved	01/29/2002	06/30/2006	06/30/2009	
Comments (incl. % achievement)	(i) Original project: resources were allocated via 3 related mechanisms of which MCs represented US$38.6 m. (86% of project financing for SP); (ii) AF shifted 100% of allocations to MC mechanism by EOP (US$45.9 m., 100% of project financing for SP); and (iii) another US$13.6 m. State counterpart funds processed			

	through MCs under AF.			
Indicator 8 :	No. of communities graduated from the program			
Value quantitative or Qualitative)	Zero	OP: No target	AF: No target	531 communities graduated from productive
Date achieved	01/29/2002	06/30/2006	06/30/2009	
Comments (incl. % achievement)	(i) Project permitted an association grant funding for one productive subproject; (ii) 531 community assns. with productive subprojects graduated (from further productive subprojects not program as whole); (iii) informal graduation also via MCs' poverty targeting ; (iv) MCs steered communities with critical mass of basic infrastructure to other programs .			

(b) Intermediate Outcome Indicator(s)

Indicator	Baseline Value	Original Target Values (from approval documents)	Formally Revised Target Values	Actual Value Achieved at Completion or Target Years
Indicator 1 :	No. and type of subprojects (SP) implemented.			
Value (quantitative or Qualitative)	Zero	OP: 2,000 subprojects, reduced to 1,550 in 2004	AF: Incremental 1,300 subprojects	Aggregate OP and AF: 2,932 subprojects
Date achieved	01/29/2002	12/31/2005	06/30/2009	
Comments (incl. % achievement)	Actual SP mix at EOP (in aggregate) different to appraisal estimates: 2,391 infrastructure (81.5% of total), 531 productive (18%); and 10 social (0.5%). Aggregate total, both stages: 2,932 SP, 103% of OP/AF target.			
Indicator 2 :	No. of subprojects operating and maintained 1 and 2 years after completion			
Value (quantitative or Qualitative)	Zero	OP: No target	AF: No target	OP and AF: Strong indications of good O&M
Date achieved	01/29/2002	12/31/2005	06/30/2009	
Comments (incl. % achievement)	Studies: Range 70%-90% completion/operation of water supply SPs; 92% assns. have good O&M; arrears on O&M fee payment <5%; 100% of 35 electricity SPs and 90% of 35 water supply SP, completed and operational; hydrometers universally installed; high rates of O&M of productive SPs, especially tractors .			
Indicator 3 :	Cost-effectiveness and quality of basic infrastructure and social subprojects.			
Value (quantitative or Qualitative)	Zero	OP: No target	AF: No target	High cost-effectiveness, quality and satisfaction levels, OP and AF.
Date achieved	01/29/2002	12/31/2005	06/30/2009	
Comments (incl. % achievement)	Econ/financial analysis: benefit cost ratios of 1.48 for water supply and 1.23 for electricity; IRRs of 13% and 18% respectively. Quality verified as excellent/very good/good in a high percentage of cases by Physical Performance Studies (04 and 09) of basic infrastructure. Quality satisfaction rates averaging 85% both phases. (Social investments few).			

Indicator 4 :	Economic efficiency and financial viability of productive subprojects			
Value (quantitative or Qualitative)	Zero	OP: No target	AF: No target	Range: IRRs <1% to >50%; YR <1 to 4.5 years.
Date achieved	01/29/2002	12/31/2005	06/30/2009	
Comments (incl. % achievement)	Case studies (SDA 09): (i) IRR: Cashew nut (>50%); masonry (45%); small-scale irrigation (10%); hammocks (<1%). (ii) YR (years to recover investment): Cashew nut (<1); masonry (2); small-scale irrigation (4.5); and hammock (10). Fiscal impact positive.			
Indicator 5 :	Number of community associations (CA) vs. total communities in project area			
Value (quantitative or Qualitative)	Est. total 3,000 communities in project area, and 2,192 CA est. under RPAP.	OP: 1,000 CA benefited	AF: 1,300 CA benefited	Total 2,470 CA had benefited by EOP vs. 3,000 communities in project area.
Date achieved	01/29/2002	12/31/2005	06/30/2009	
Comments (incl. % achievement)	(i) One community can have several associations; (ii) 2,470 project-created associations benefited, but significant overlap with existing associations; (iii) Assns. benefited represented about 65% of all poor rural communities in Ceará and about 50% of total poor rural families.			
Indicator 6 :	Growth in the number of CAs			
Value (quantitative or Qualitative)	2,192 CAs formed under previous RPAP (1995-2001)	No target	No target	1,354 new assns, 61% increase over baseline.
Date achieved	01/29/2002	12/31/2005	06/30/2009	
Comments (incl. % achievement)	Some 2,192 CAs were established under RPAP and 3,546 assns applied for participation in the OP/AF, a growth of 1,354 CAs (61%).			
Indicator 7 :	Percentage of women in Municipal Councils (MC) and CAs			
Value (quantitative or Qualitative)	Zero	OP: No target	AF: No target	EOP: 20% Councils have female leadership; 25% of all CAs led by women.
Date achieved	01/29/2002	12/31/2005	06/30/2009	
Comments (incl. % achievement)	(i) 20-25% of MCs have women in leadership positions; (ii) Under OP and AF about 20% of all beneficiary families belonged to female-headed assns; (iii) At EOP, about 10% of all productive subprojects/assns. proposed by/led by/for, women (no target set).			
Indicator 8 :	MC resource utilization (MC disbursement vs. MC allocation)			
Value (quantitative or Qualitative)	Zero	OP: MCs est. at US$33.4 m., 86% of Loan funds allocated for SP.	AF: MCs est. at US$33.88 m., 100% of Loan allocated for SP.	OP: MCs disbursement 100% of revised allocation. AF: disbursement 100% of revised allocation.
Date achieved	01/29/2002	12/31/2005	06/30/2009	

Comments (incl. % achievement)	OP used three resource allocation mechanisms of varying degrees of decentralization and representation, whereas AF used only the MCs, with other mechanisms phased out (see Annex 2).			
Indicator 9 :	Growth in number of FUMAC-P Councils			
Value (quantitative or Qualitative)	5 FUMAC-P Councils created under RPAP.	OP: Incremental 15	AF: No target	6 FUMAC-P Councils created under OP, growth 20%
Date achieved		12/31/2005	06/30/2009	
Comments (incl. % achievement)	No's of FUMAC-Ps grew 20% under the OP but all had devolved to FUMAC by EOP due to community/STU satisfaction with and efficiency of, this mechanism.			
Indicator 10 :	No. of CAs formally graduated			
Value (quantitative or Qualitative)	Zero	OP: No target	AF: No target	531 associations with productive subprojects formally graduated.
Date achieved		12/31/2005	06/30/2009	
Comments (incl. % achievement)	Formal graduation applied to productive subprojects only and CAs were permitted only one subproject. Informal graduation also applied: (i) Few CAs received more than one infrastructure/social investment due MC's targeting process; (ii) Communities with accumulated investments from several CDD projects lost eligibility.			
Indicator 11 :	No. of CAs participating in MCs, who do not have subprojects			
Value (quantitative or Qualitative)	Zero	OP: No target	AF: No target	EOP: 3,546 assns participating in MCs of which 614 (17%) still w/o SPs by EOP.
Date achieved		12/31/2005	06/30/2009	
Comments (incl. % achievement)	By EOP, total demand from CAs was 3,546 subprojects of which about 17% were not approved for various reasons (i.e., not eligible for project financing, environmental issues, and/or previously benefited).			

G. Ratings of Project Performance in ISRs

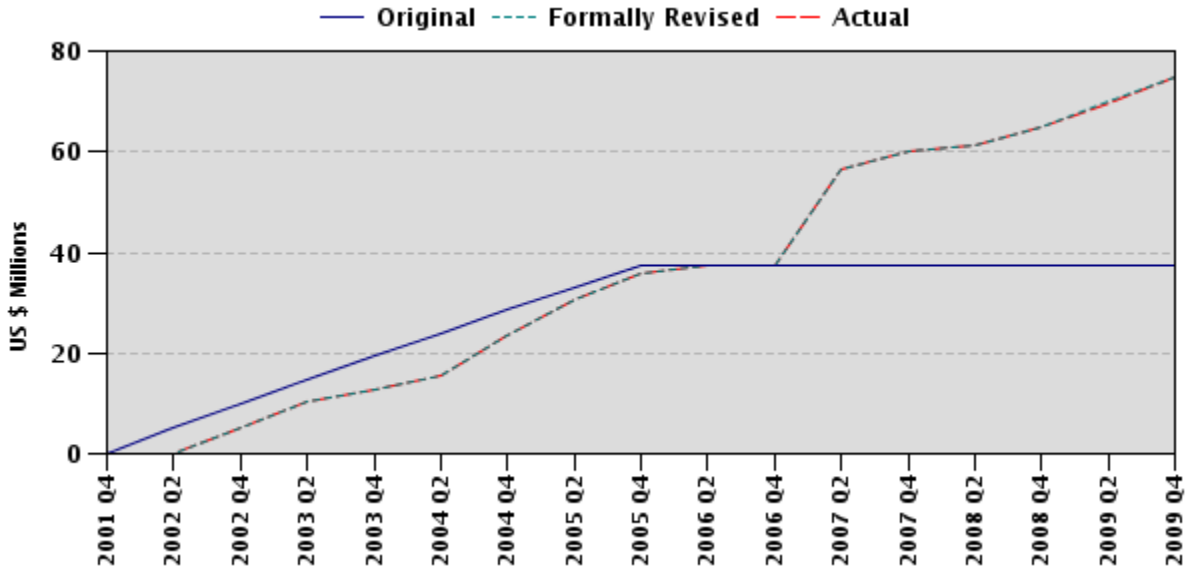
No.	Date ISR Archived	DO	IP	Actual Disbursements (USD millions)
1	10/31/2001	Satisfactory	Satisfactory	0.00
2	06/24/2002	Satisfactory	Satisfactory	5.02
3	10/24/2002	Satisfactory	Satisfactory	8.76
4	05/07/2003	Satisfactory	Satisfactory	10.17
5	05/21/2003	Satisfactory	Satisfactory	10.17
6	06/26/2003	Satisfactory	Satisfactory	12.57
7	12/12/2003	Satisfactory	Satisfactory	13.23
8	06/18/2004	Satisfactory	Satisfactory	21.38

9	12/21/2004	Satisfactory	Satisfactory	30.74
10	12/30/2004	Satisfactory	Satisfactory	30.74
11	04/29/2005	Satisfactory	Satisfactory	31.78
12	04/10/2006	Satisfactory	Satisfactory	37.50
13	10/13/2006	Satisfactory	Satisfactory	45.09
14	04/20/2007	Satisfactory	Satisfactory	56.81
15	10/20/2007	Satisfactory	Satisfactory	60.25
16	04/28/2008	Satisfactory	Satisfactory	64.02
17	09/26/2008	Satisfactory	Satisfactory	65.35
18	12/21/2008	Satisfactory	Satisfactory	69.65
19	05/26/2009	Satisfactory	Satisfactory	72.18

H. Restructuring (if any)

Restructuring Date(s)	Board Approved PDO Change	ISR Ratings at Restructuring		Amount Disbursed at Restructuring in USD millions	Reason for Restructuring & Key Changes Made
		DO	IP		
07/10/2008	N	S	S	64.92	Third-tier restructuring via reallocation of Loan proceeds. US$8.0 m reallocated: US$3.0 m to Category 1, Area 2 Grants and US$5.0 m to Area 3 Grants.

I. Disbursement Profile



1. Project Context, Development Objectives and Design

1.1 Context at Appraisal

1.1.1 This Implementation Completion Report (ICR) describes the experiences, achievements and lessons of the Rural Poverty Reduction Project in the Brazilian State of Ceará implemented in two stages: the original project (Loan 4626–BR) from January 29, 2002 to June 30, 2006 and an Additional Financing (AF) loan (7387-BR) of equal value with the same project development objectives, design and implementation arrangements, approved June 6, 2006 and closed June 30, 2009. The AF was designed to scale up project activities/investments in small scale socio-economic infrastructure and services to enhance the impact of a well-performing, first-stage, community-driven development project. For purposes of this ICR, the project is treated as one operation but any notable changes in strategy, approach and/or results from the first to the second stage are mentioned where relevant.

1.1.2 The Northeast State of Ceará is about 33% rural (some 2.3 million people) and at appraisal in 2001, about 78% of all rural families were living in poverty. Official data showed massive rural deficits in basic socio-economic services – 88% of households without piped drinking water, 66% without sanitation, 46% without electricity - compared to urban areas of Ceará and to national averages. Some 90% of the state territory is semi-arid. Other, previous Bank-supported Rural Poverty Reduction Projects in the Northeast region, including Ceará, had helped to alleviate these conditions using a promising participatory, demand-driven approach to addressing persistent poverty, but the sheer scale of poverty in rural areas of Ceará remained a major challenge.[1]

1.1.3 **Government's Strategy and Actions Taken.** At the time of project preparation, the Federal Government had just launched its *Projeto Alvorada* framework for poverty reduction efforts in municipalities nationwide with lowest Municipal Human Development Index (HDI-M). The Bank-supported CDD projects in the Northeast region were seen as having piloted important delivery mechanisms which fit well with the *Alvorada* strategy of local empowerment and community self-help, and the projects themselves were regarded as key components for its implementation. The State Government of Ceará had, in addition to previous projects in the CDD series, also piloted and expanded other programs to improve socio-economic wellbeing of rural populations including the Bank-supported Land Reform and Poverty Alleviation Pilot Project (4147-BR) and its scale-up, the Land-based Poverty Alleviation Project (7037-BR), both of which utilized a similar community-driven methodology. [2]

1.1.4 **Bank Involvement:** The Bank has had a long association with the Northeast Region and the State of Ceará entailing regular dialogue on the overall lending program, state sector strategies and specific operations. Ceará has consistently supported the community-driven Rural Poverty Reduction Projects (known locally in Ceará as Projeto São José) since their inception in 1993, and the state was/is notable for its willingness to test innovations, e.g., market based land reform, fair trade initiatives, and integration. The Bank's CDD investments in Northeast Brazil are well-documented in other ICRs as well as evaluation studies suggesting the impact and cost-effectiveness of the approach. Bank support at the time for a new Rural Poverty Reduction

[1] Reformulated Northeast Rural Development Projects (1993-1997); and Northeast Rural Poverty Alleviation Projects (1995-2004).

[2] The Rural Poverty Alleviation Project in Ceará was the vehicle through which market-based, demand-driven agrarian reform in Brazil was first piloted and evaluated, then scaled up to the five-state Land Reform and Poverty Alleviation Pilot Project and its successor, the 14-state Land-based Poverty Reduction Project.

Project in Ceará paired its knowledge of a tested and robust new mechanism with the State's own policies, experiences and commitment.

1.2 Original Project Development Objectives (PDO) and Key Indicators *(as approved)*

1.2.1 As stated in the PAD, and reiterated in the Project Paper for the Additional Financing, the project sought to reduce high levels of rural poverty by: (a) improving wellbeing and incomes of the rural poor through better access to basic social and economic infrastructure and services and by support for productive activities, using proven community-driven development (CDD) techniques; (b) increasing the social capital of rural communities to organize collectively to meet own needs; (c) enhancing local governance by greater citizen participation and transparency in decision-making through the creation and strengthening of community associations and Municipal Councils; and (d) fostering closer integration of development policies, programs and policies at the local level, by assisting Municipal Councils to extend their role in seeking funding, priority-setting and decision-making over resource allocation.

1.2.2 Key performance indicators as cited in the PAD were:

- # of families benefited from subproject investments
- Incremental employment generated from subproject investments
- Increase in wellbeing and incomes of project beneficiaries
- Increase in social welfare of rural communities
- Increase in social capital index (CPI) of project Municipal Councils
- # of Municipal Councils participating in priority-setting and decision-making on resource allocation of project and non-project financing allocated through the Municipal Council mechanism
- # of communities graduated from the program

1.3 Revised PDO

1.3.1 Neither the PDO nor key indicators were changed under the original project or for the Additional Financing.

1.4 Main Beneficiaries

1.4.1 The primary target population was the same for both projects. The original project targeted 120,000 poor rural families living mostly in remote, low density areas with scarce infrastructure and services, deriving their main income from farming and/or agricultural wage labor as small-holders, tenants, share-croppers and landless laborers. The Additional Financing targeted an incremental 68,000 families with the same profile. The project area covered 177 municipalities (excluding metropolitan Fortaleza) divided into three Areas with differentiated allocation of resources based on relative poverty as indicated by Municipal Human Development Index (HDI-M) in the case of the original project, and by the Social Development Index (SDI) for the Additional Financing.[3] Both projects sought the inclusion of indigenous and Afro-descendent peoples but the Additional Financing was more explicit.

1.5 Original Components (*as approved*)

1.5.1 Both stages of the project had the same type/configuration of components summarized below with details in Annex 2:

[3] The shift to the State's Social Development Index under the Additional Financing resulted from the fact that it was measured bi-annually as opposed to every 10 years in the case of the HDI-M. Using the SDI did not materially affect the identity and configuration of Area 1-3 municipalities or targeting performance per se.

Component 1: Community Subprojects (OP US$45.00 million, AF US$44.50 million, 90% and 89% of total estimated cost, respectively) financed matching grants to organized rural community associations for respectively, about 2,000 and 1,300 small-scale investment subprojects categorized as infrastructure, productive and social. New types of investments specified in the Additional Financing included health, education, environment and culture.

Component 2: Institutional Development (OP US$3.50 million, AF US$3.24 million, 7% and 6.5% of total estimated cost, respectively) financed technical assistance and training to build capacity in implementing entities including the community associations, municipal councils and the State Technical Unit (STU). Modest funding was also included under the original project to support state institutional modernization related to poverty reduction programs and policies.

Component 3: Evaluation, Supervision, Monitoring and Evaluation (OP US$1.50 million, AF US$2.16 million, 3% and 4.3% of total estimated project cost, respectively) financed the costs (excluding salaries) of project administration and coordination including supervision, monitoring and impact evaluation.

1.6 Revised Components

1.6.1 Components were not revised under either stage of the project.

1.7 Other significant changes

1.7.1 **Reallocation of Funds:** Under the original project, US$3.857 million was reallocated to Category 1(a) FUMAC Grants (US$1.940 million) and Category 1(c) PAC Grants. Under the Additional Financing: (i) US$8.0 million was reallocated to Category 1(b) Area 2 Grants (US$3.0 million), and Category 1(c) Area 3 Grants (US$5.0 million); and (ii) US$388,084 was reallocated to Category 1(c) Area 3 Grants.

1.7.2 **Extension of Closing Date:** The original project had one extension of the Closing Date from June 30, 2005 to June 30, 2006 (dated May 24, 2005) to permit full disbursement of the Loan and provide a "bridge" to the Board presentation of the planned Additional Financing. The Additional Financing closed at the end of its allotted three years.

1.7.3 **Amendments to the Loan Agreement:** The original project was amended in regard to the Closing Date extension and reallocations mentioned above, and to reflect the transfer of the State Technical Unit from the Secretariat for Rural Development (SDR) to Secretariat for Local and Regional Development (SDLR). The Additional Financing was amended to reflect provision for retroactive financing up to an aggregate US$5.4 million,[4] transfer of the STU from SDLR to the Secretariat for Agrarian Development (SDA), and two reallocations of funds.

1.7.4 **Targets:** Following the Mid-term Review analysis of the original project in 2004, total targeted subprojects were reduced from 2,000 to 1,550, and beneficiaries from 120,000 to 109,000 due primarily to the large number of water supply investments and their higher average cost than estimated at appraisal (resulting from water connection to households and from geo-physical/other issues). The change was effected through the Operational Manual, not the Loan Agreement.

[4] To continue addressing community demand between phases 1 and 2, the State used resources from its Anti-Poverty Fund to finance 152 subprojects valued at US$5.5 m benefiting about 5,330 families. While Retroactive Financing (RF) was not included in the Loan Agreement, the State asked the Bank to consider such expenditures for RF.

1.7.5 **Additional Financing:** The Ceará Additional Financing loan was designed to scale up financing, activities and beneficiary coverage to strengthen the impact of the successful original project, without changing its basic design, methodology or implementation arrangements.[5] Loan size was identical (US$37.5 million), and the allocation of resources between components was similar for Components 1 and 2, but higher for Component 3 (see 1.5.1). The Board approved the AF on June 6, 2006 and the new Closing Date was June 30, 2009. As noted above, the AF planned to finance an additional 1,300 community subprojects for 68,000 families.[6]

2. Key Factors Affecting Implementation and Outcomes

2.1 Project Preparation, Design and Quality at Entry

Soundness of background analysis:

2.1.1 The reduction of poverty and inequality were benchmarks of the Bank's country assistance efforts, and the Northeast region was a primary focus area for well-targeted anti-poverty programs to improve human and physical capital. The analytical basis and justification rested on the documented successes and lessons of similar operations across the Northeast region, including Ceará, since 1993. Further, the Bank had financed studies, analytical work, and state economic memoranda to identify the dimensions, characteristics and causes of rural poverty and to develop strategic options for policy and programmatic actions.[7] The project was seen as an instrument for intensifying the economically-viable small farm sector in the Northeast region, as a factor in stimulating growth of the rural non-farm sector and, through the provision of basic infrastructure, as a safety net for poor rural communities in drought-prone areas and with natural resource problems.

2.1.2 The Bank's Country Assistance Strategy (CAS 22116-BR, dated May 24, 2001, FY 01-03) identified the reduction of poverty and inequality as central to the Bank's assistance efforts, and the Northeast region as a primary focus area, stressing well-targeted anti-poverty programs, human and physical capital formation, decentralization of expenditure and implementation responsibilities to the states and municipalities, and better integration of poverty policies and programs to increase impact and efficiency. The original project was consistent with these higher-level CAS objectives. The Additional Financing in turn, accorded with the CAS 27043-BR, dated November 10, 2003 (FY04-07), which called for successive projects under the Northeast CDD program to finance basic infrastructure for the rural poor, support income-generation activities, and promote closer integration of State and Federal rural initiatives in participating municipalities.[8]

Assessment of project design:

2.1.3 **Objectives:** Project objectives were rational given conditions on the ground in Ceará, were aligned with country and sector strategies, and remained consistent with the Borrower's rural priorities through two changes of Government and adjustments to those strategies. The higher level DO - not expected to be measured within the life of the project - sought a direct

[5] The Federal Government approved borrowing by the State of Ceará for a Rural Poverty Reduction Project with subsequent authorization to scale up, provided project performance was satisfactory. Given strong progress under the original project, the State sought the scale-up in the full, Federally-authorized amount of US$37.5 m. for the AF.

[6] The reduced targets but same-sized loan came from a planned increased focus on productive investments - which tend to cost more than basic infrastructure albeit benefiting fewer families - and experience with higher than expected subproject costs under phase I.

[7] Most notably, "Rural Poverty Reduction in Brazil: Towards an Integrated Strategy" (April 2001). See Annex 9.

[8] The Bank insisted that all investment resources secured from these complementary programs be targeted and approved using the project's established institutional mechanisms (community associations and Municipal Councils), thereby leveraging the project methodology within a wider set of rural policies and programs. In practice, integration was a broader process.

impact on rural poverty through four objectives for which the project could reasonably be held accountable. A decade of piloting, scaling up and evaluation of the Northeast community driven development projects provided assurance that the PDO was achievable, albeit ambitious. The integration objective was innovative and challenging to implement and measure, reflecting the Borrower's interest in leveraging support for the target population using the project's established institutional mechanisms. Objectives were considered measurable, although income results were understood to require a longer maturation and at end-project were expected to be preliminary/indicative. Overall, project objectives were consistent with the Borrower's known technical and institutional capacity at appraisal of both operations.

2.1.4 **Indicators:** Key Project Indicators (KPI) and intermediate outcome indicators however, were deficient: (a) both were too numerous (a common failing of the period), and in some cases were confusing and inconsistent with project design; (b) the KPI lacked any targets, even under the Additional Financing when this shortcoming might have been detected/remedied, and most were stated as an "increase" without citing a baseline;[9] (c) graduation was characterized as "communities" moved out of the "program" when design called for associations with productive subprojects to be graduated from further productive;[10] (d) wellbeing and income were combined in one indicator, and welfare was also to be measured in a separate KPI; (e) the PDO focused on community social capital but the related KPI called for an increase in the social capital index (SCI) of the Municipal Councils, for which there was no baseline (and no SCI); [11]and (f) the KPI on graduation was only loosely/indirectly aligned with the PDO, presumably through the Councils' resource allocation role under PDO (d).

2.1.5 **Components and organization:** Project components were few, clearly-formulated and appropriate for achieving project objectives importantly due to their internal flexibility, permitting innovations and additional activities within the broad outline and methodology. The established State Technical Unit, experienced and embedded in its parent secretariat, retained its coordination role. The organizational structure remained simple, linking relevant specialist agencies (environment, water supply, energy and training) to the STU/project via partnership agreements, without the complications inherent in their direct, daily involvement in project implementation and consequent need for an inter-agency coordinating body. Geographic coverage was state-wide, supported (at the time of appraisal) by a network of 71 field offices of the State Technical Assistance and Rural Extension Agency (EMATERCE). Funding was adequate for implementation and based on experience (but became an issue when the US Dollar devalued, subproject costs rose, and the subproject "mix" differed from appraisal estimates).

2.1.6 **Strategic choices:** The project sought to address social welfare and local economic activity through several strategic choices: (a) investments supporting the diversification of agriculture and employment opportunities; (b) maintaining the cost-effective and responsive community-based approach; (c) boosting the capacity of the Municipal Councils to engage in broader local planning, leveraging complementary resources through integration with other programs/agencies; (d) a more precise poverty targeting framework; (e) introduction of a graduation or exit strategy for the beneficiaries of productive investments; and, (f) rigorous

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[9] Baselines were not obligatory in 2001 (appraisal). However, the project worked hard to get baseline data from evaluation and this should have been included during preparation of the Additional Financing. As a Quality at Entry issue, it is noted that IEG judges same according to current standards.

[10] A community can have more than one association and an association can comprise just part of a community. The association owns the subproject, not the community. The PAD required that an association with one grant-financed productive subproject be graduated to other financing for productive activities, but that association retained eligibility for other types of project investments.

[11] A Social Capital Index was developed by Costa (Van Zyl et al, 2000) to measure the evolution of community social capital under the Northeast CDD program but it was not formally updated for this project and did not, in any case, contain variables to measure similar evolution in the Municipal Councils.

monitoring and evaluation. Modern information technology facilities were also to be piloted, increasing transparency by permitting communities to access project information in real time.

2.1.7 **Graduation:** Graduation was a new design element arising from internal Bank concerns about using grant financing for productive activities. The team argued that grants were a justifiable mechanism for jump-starting income generating activities given the obstacles normally encountered by small, poor rural borrowers seeking formal credit. The Bank and STU consulted during appraisal with the Bank of the Northeast and Bank of Brazil to try and link graduating communities to such entities through information sharing and coordination related to group credit candidates, participation of banks' representatives at Municipal Council meetings, and feedback to the STU by these banks on successful initial experiences with such borrowers. The MIS was to monitor the share of rural poor that had received grant financing for productive investments and subsequently graduated to commercial credit.

2.1.8 All associations with a productive investment were graduated and important lessons were learned. Municipal Councils also detected and de-listed communities with sufficient infrastructure/assets and organizational capacity to access mainstream financing and other services, i.e., informal graduation. However, the framework of "bridging" activities intended to transition communities to formal credit markets - including MIS-based tracking of graduating communities - was not launched, being subsumed by other project concerns including those associated with several changes of government. With the likely intensification of productive activities under a potential follow-up operation, "facilitated graduation" merits greater focus including from project monitoring and evaluation.

2.1.9 **Integration:** Local level integration of programs and policies through the Municipal Councils proved to be a more complex and dynamic process than originally conceived at the design stage, extending operationally well beyond the Municipal Councils which turned out to be just one institutional element among several with potential to support the project's target population, under project auspices. Project design envisaged the Councils as quasi exclusive agents for resource leveraging/integration activities and they were trained accordingly. However, the institutional and financial impact of a proactive SDA/STU leadership driven by state strategy favoring rapid and complete coverage of basic services for poor rural families inevitably widened the definition of integration, generating its own very positive outcomes and lessons. Some US$91.3 million were leveraged through these combined approaches, for the project-eligible population.

Adequacy of Government's commitment:

2.1.10 Government was fully-committed to project objectives and methodology under both stages and maintained that level of commitment, underscored by exceptional counterpart funding performance. Ceará has traditionally maintained a high degree of support for its CDD projects and as noted, pioneered market-based, community-driven land reform as a pilot activity midway through implementation of the RPAP project. Commitment of the Borrower agency to preparing the original project was firm, but the new agency which took over soon after effectiveness (SDLR) needed intensive coaching by the Bank team to take ownership of CDD and the rural space, conceptually and operationally. This is not surprising, given that its mandate was more urban. However, SDLR's support escalated and its unequivocal support for the appraisal and negotiation of the Additional Financing in 2005 showed how far it had evolved.

Risk Assessment:

2.1.11 Risks were correctly projected by the PAD based on previous experiences with similar projects in Ceará and other Northeast states, but there were some omissions both in the types of risks suggested, and planned risk minimization measures:

- Political risk merited inclusion. State Government change-over was known to be disruptive in Brazil and the Northeast, and effective mitigation measures were known from previous experience;
- Mitigation measures to ensure that the STU gave the Municipal Councils an annual indicative budget to support realistic investment planning could have been stronger given that it was an important requirement of the Operational Manual;
- Technical assistance availability was a project risk. Mitigating that risk by appointing a salaried Technical Advisor to each Municipal Council was sound but not implemented, and was in any case only a partial solution for the pervasive issue of technical support in the rural Northeast;
- Risks associated with project targeting should have reflected the fact that the poorest rural communities are often the least-organized and informed, with consequent project access issues. Mitigation should have called for intensive consultation, mobilization and organization of vulnerable populations from preparation onwards; and,
- There was no explicit risk assessment/mitigation of financial management consistent with the project's community-based nature and decentralized financial arrangements.

2.2 Implementation

2.2.1 **Overview:** The original Project experienced rapid start-up and disbursement due to the experience and dense network of the State Technical Unit and large stock of pending water supply proposals approved under the previous project. A change of government in late 2002 was disruptive, abolishing SDR and transferring the STU to a new, untried agency. The pace of project execution slowed as the state's fiscal situation deteriorated and counterpart funding was reduced, obliging the state to seek alternative, compensatory resources from other programs. Such leveraging was anticipated at appraisal, but evolved faster than expected.[12] Partnerships with key agencies and programs became key features of this project and galvanized execution, with disbursements exceeding 80% by end-2004. The Additional Financing encountered similar conditions, with its action plan modified just months after project effectiveness and adapted to the rural strategy of another new, incoming State Government elected in late 2006. The project was divided into three stages which influenced its impact quantitatively and qualitatively due to the new government's public policy and institutional strategy for rural areas.[13] While the general design and objectives of the original and AF projects were the same, implementation showed distinct differences including in the use of the subproject targeting/approval mechanisms (see Annex 2). The AF also introduced a territorial dimension to project implementation, focusing initially on training communities to understand core elements of its territorial strategy. Maximizing community coverage and improving access in the poorest Area 1 was also supported by the State's (informal) injection of substantial additional counterpart/other resources and proactive support for program/policy integration. Both projects disbursed fully and in aggregate exceeded all key targets.

Major factors affecting implementation and their resolution/outcome

2.2.3 **Government turnover:** As noted above, the STU's transfer to the new Secretariat of Local and Regional Development (SDLR) reduced its staffing, operational capacity and extensive field network. Headquarters staff became grossly over-burdened, since the STU also

[12] The Project Paper for the AF estimated this leveraging under the original project at 1:4 (another US$4.00 for each US$1.00 of Loan funds under Component 1). No data is available.

[13] Three phases: last six months of the outgoing government which signed the Loan Agreement; transition period in which the PCU was restructured and the project's role debated due to its transfer from SDLR to SDA and insertion in the SRDP; and, execution of the project according to four distinct segments: Sao José Infrastructure – actions supporting the Living with Drought Program and investments in water cisterns; Sao José Productive to strengthen local productive activities; Sao José Agrarian to develop on-farm actions supporting land reform settlements; and Sao Jose Social Inclusion, to support the most vulnerable groups.

coordinated the Bank-supported Land-based Poverty Reduction Project. Senior managers in SDLR initially under-valued rural areas and the CDD approach per se, favoring the urban sector. The Bank team rapidly overcame this bias by effectively demonstrating the project's positive experiences/results to SDLR leadership, and surmounted many obstacles to guarantee the STU/project a minimum working infrastructure, technical team and field presence.

2.2.4 The Additional Financing encountered similar conditions soon after effectiveness, with the STU transferred to the Secretariat for Agrarian Development (SDA), but able to maintain/strengthen its field supervision teams and organizational structure. Positive operational impacts included: more formal collaboration between the project and State/Federal agencies; adoption/initiation of a territorial approach and specific focus on human and social capital development as its foundation; shift from the IDH-M to the Social Development Index (SDI) as the basis for poverty targeting; more intensive activities in the 40 poorest (Area 1) municipalities; maximization of project investments/beneficiaries through the State's provision of counterpart funding well in excess of appraisal estimates; and, intense focus on integration with other programs to leverage benefits/resources. Moves by the state to restructure the project's field operations late in the project were countered by strong Bank guidance designed to minimize disruption, preserve field oversight capacity and boost the physical working conditions of the STU team.

2.2.5 **Institutional management of community demand:** Demand for drinking water and electricity greatly exceeded appraisal estimates. The strong institutional concurrence between the STU/State, Municipal Councils and community associations that this demand reflected legitimate community need ensured that the project attended this demand, including through intense resource leveraging activities (described elsewhere) to increase aggregate investments and families attended. In a large, profoundly dry state with 88% and 46% of all poor rural families lacking drinking water and electricity, respectively, this was a rational policy. Further, the State and municipalities were trucking water to remote communities at high cost, while about one thousand water supply subproject proposals were approved and waiting for financing at closing of the previous project in 2001. The casualty was productive investments, demand for which was clearly over-estimated at appraisal (of both stages) given major deficits of basic infrastructure in Ceará and known tendency region-wide for communities to demand water and energy before anything else. This situation created a certain tension between Bank expectations/recommendations and observed community demand on the ground, but with semi-arid conditions affecting 90% of the State, government had important programs in place and thus SDA/STU's partnerships with these programs/agencies made operational and social sense. Demand was influenced by information campaigns stressing Government's priority lines of action and the advantages of water supply and electricity. [14] While the State played a greater role than customary under the Northeast CDD rubric, the rationale was correct, the established institutional setting functioned in concert and as expected, and outcomes were positive. [15]

2.2.6 **Quality Mid-term Reviews (MTR):** Timely MTRs (2004 and 2007) with well-planned follow-up were influential elements in keeping the project on track in operational, technical and fiduciary terms. Under MTR I, a survey-based Physical Performance Study (SDLR 2004), clearly-defined recommendations and astute follow-up resulted in restructuring of the STU, additional technicians contracted, and the strengthening/reinstatement of Regional Offices in eight new micro-regions of the state. Consultants were contracted to improve field operations,

[14] By end-2007, the project was no longer financing rural electrification and by EOP, about 98% of the State's rural areas had electricity coverage, a high proportion of which derived directly/indirectly from the Project.

[15] Discussions with State officials showed unequivocally that universal access to water supply was a top priority especially in the poorest (Area 1) municipalities; by 2007, 60% of poor rural families in Ceará still lacked secure water supply. Project partnerships with FUNASA and other agencies, and through the project's insertion in the "Living with Drought" (*Convivência com a Seca*) program under its "water security" segment, were fundamental.

monitor, train and/or re-structure the Municipal Councils, and facilitate direct communication with beneficiaries including on procurement rules and procedures. MTR II was equally influential, but its timing coincided with another electoral turnover, leaving MTR II without a Physical Performance Study (PPS).[16] Financial management supervision, a procurement post review, and safeguards performance analyses were conducted, and recommendations of the recently-conducted Bank Quality at Entry Assessment (see 5.1.2) were reviewed with the STU. Importantly, MTR II galvanized the evaluation program, supported by an M&E specialist contracted by the STU and close supervision by Bank team evaluation specialists (see Section 2.3 and Annex 5).

2.2.7 **Municipal Councils:** While some 40 Municipal Councils were comparatively advanced models of what this mechanism can potentially become, and played key roles in project integration and resource leveraging activities described, others were more modest entities of varying size, composition and capacity. Many Councils lacked their own operating funds[17] remaining dependent on the mayors for logistical and other help, and many - even late in the AF – were still waiting to receive an annual indicative budget as a planning, targeting and priority-setting guide. Bank-recommended restructuring focused the Councils' activities on re-establishing subproject approval and prioritization rules, strengthening linkages between poor communities and diverse public programs, and exercising social control over the implementation of those programs/policies. Restructuring of Councils also created "space" for greater participation by women, youth, indigenous and Afro-descendent groups (*Quilombolas)* and improved overall targeting which showed some concentration of lending in Area 3 municipalities (see Section 3.5).

2.2.8 **Partnerships and Integration:** The STU under both phases made effective use of partnership arrangements to leverage financial and technical support for the project, noted in the Borrower's Letter (December 4, 2009) as fundamental for the sound execution and management of subprojects. The STU contracted technicians and consultants through the Inter-American Institute for Cooperation in Agriculture (IICA), Technical Cooperation Plan. Partners and co-participants were garnered for specific tasks.[18] Bank supervision in 2006 questioned the extent to which partner agencies had become co-executors, diluting the identity of the project, and its association in the minds of beneficiaries with certain institutional mechanisms, procedures and standards considered vital for social capital formation and sustainability. The State's plan to restructure the project's field presence and consequent dismantling of the STU's field supervision team without an immediate substitute arrangement was the primary reason, prompting corrective guidance from the Bank to boost the STU's new decentralization strategy, and more closely supervise partners' activities. Substantial additional resources were leveraged through diverse project integration activities, detailed in Section 3.2 and Annex 2.

2.2.9 **Productive Subprojects:** Water supply and electricity demand and investments over-shadowed productive subprojects which were about 36% and 68% of appraisal targets under the original project and AF, respectively. The experience generated key lessons, summarized in Section 6 and Annex 2. Agricultural mechanization (tractors and equipment) dominated productive investments under both stages. The vast majority were rated highly by beneficiaries – and by the Borrower's Letter of December 4, 2009 commenting on the Bank's draft ICR - for

[16] Contracting of the Physical Performance Study and other key analyses was delayed by the change of government, transfer of the STU to SDA, and centralization of all government procurement within the State Attorney General's office. However, all key project studies contracted were delivered prior to closing and were essential inputs to the ICR.

[17] The Operational Manual permits Councils to receive up to 3% of the value of each approved subproject for operating expenses.

[18] Superintendency for Water Infrastructure (SOHIDRA) to supervise water systems with >50 families; Ceará Water and Sanitation Company (CAGECE) for water systems with 50> families; and other public agencies linked to SDA such as the Ceará Technical Assistance and Rural Extension Company (EMATERCE), Ceará Land Institute (IDACE), Agricultural Defense Agency (ADAGRI), Service for Support to Micro and Small Business (SEBRAE) and Federal/State environmental agencies.

their economic and social benefits (see Annexes 3 and 5), including ability to plant in time for the rainy season, expansion of area planted, and job creation, but also prompted recommendations from Bank missions regarding their technical and environmental analysis, sustainability, and suitability for CDD/grant financing. Apart from tractors, there were many emblematic examples of successful small-scale enterprises in fruit production and processing, cashew nut, honey, masonry, small-scale irrigated agriculture and other activities, providing important lessons for wider replication. Several of these enterprises won important awards, most notably the *Pingo D'Agua* Project in the Forquilha Valley of Quixeramobim Municipality, where the Project helped poverty stricken communities build sustainable, small-scale irrigated farming with multiple benefits. Prizes were awarded respectively by the Ford, Bank of Brazil, and Getúlio Vargas Foundations.

2.3 Monitoring and Evaluation (M&E) Design, Implementation and Utilization

2.3.1 **Management Information System:** Project data collection and analysis depended on a Management Information System (MIS), upgraded for the original project and operated and maintained by the STU supported by contracted specialists. New features included: online connection of the field offices to STU headquarters to strengthen decentralized data collection and real time field data entry; quantitative variables to support impact evaluation; launching of the MIS on the internet for public access and transparency; inclusion of community profile variables; and, integrated financial management system and reporting capability. With some exceptions, the MIS generally functioned well. One notable shortcoming was the failure to establish the planned MIS-based framework for monitoring the share of rural poor receiving grant financing for productive activities and graduating to commercial credit.

2.3.2 **Evaluation studies:** Evaluation performance was exceptional by most project standards, exceeded appraisal goals and compensated for issues affecting the monitoring portion. The STU's contracting of an evaluation specialist to conduct the process was an important catalyst. The Project financed: a baseline study (FECAMP 2005); two Physical Performance Studies (SDLR 2004, Tecno Metrica 2009); the Ceará portion of the Binswanger (2006) quasi-experimental evaluation study which adopted a cost-effective approach by leveraging funding for the study over several states; a final Evaluation Report (ACEG, 2009) updating FECAMP (2005); several rounds of survey-based case studies and a Borrower Completion Report (SDA/COPPE, 2009). All these products were good quality, survey-based, methodologically mainstream and all the evaluations used control groups. The only deficiency in evaluation - cited by the Bank Quality at Entry Assessment of the Additional Financing (QAE 2007) - is that earlier execution of the FECAMP baseline study might have enabled investigation of income potential/rates of return prior to engaging in the Additional Financing. See Annex 5.

2.4 Safeguard and Fiduciary Compliance

2.4.1 **Safeguards.** The project was a Category B with an Environmental Management Plan (EMP) and an Indigenous Peoples Planning Framework (IPPF). Subproject proposals were systematically and routinely analyzed for consistency with the Operational Manual. Potential environmental impacts and procedures were further tightened over time due to the exceptionally strong/dominant ongoing demand for water supply. The STU retained in-house environmental specialists for the duration - operating as the Environmental Safeguards Unit - and supervision missions were vigilant regarding potential cumulative environmental impacts of multiple water supply investments. The STU had access to State and Federal environmental agencies/expertise as needed and the project Municipal Councils received training in environmental awareness. Both MTR missions (2004/2007) proposed measures for boosting safeguards performance to the STU, which was diligent in adopting key elements.[19]

[19] For example, extending the project's environmental "reach" to the subproject post-construction period; focusing on environmental education and systematic institutionalization of the EMP; creating synergies between environmental initiatives involving the same locales and beneficiaries; and developing typologies of environmental subprojects and eco-systems management.

2.4.2 **Environmental subprojects:** The Additional Financing contemplated the inclusion of subprojects to conserve and/or recuperate the environment. Nine proposals were approved in 2008 and under implementation at closing, including recovery of *mata ciliar*, agro-ecological fruit production/processing and algae cultivation. This experience highlighted the importance of activities to educate communities about the importance and potential of such subprojects. Demand-driven projects cannot assume that communities will spontaneously demand such investments which are quite different to a manioc mill or water supply system which produces rapid results. Communities need to see/understand how environmental deterioration impacts their livelihoods and wellbeing. Incentives are needed to promote communities' interest in improving their environment as a long-term investment in better productivity and incomes.[20]

2.4.3 **Indigenous Peoples Participation Plan:** Implementation of the IPPP was found by MTR 2007 to be modest but accelerating. Linkages were established with other governmental and non-governmental organizations with agreements reached regarding actions to complement basic sanitation and housing improvement already being implemented by the National Health Foundation (FUNASA). Multiple field seminars, workshops and consultations had already defined areas for special focus - mostly among indigenous groups still awaiting formal recognition by the National Indigenous Foundation (FUNAI) - explained project objectives and rules, and surveyed indigenous communities' initial subproject demands and concerns. No subprojects had been financed for indigenous groups by end-project but appropriate foundations were laid for rapid progress under potential follow-up programs.

2.4.4 **Financial Management.** Financial management performance was generally satisfactory throughout. The same financial management system was used by both stages of the project, with key improvements introduced under the first. Financial Management Supervision missions rated the project Satisfactory with the exception of a downgrade to Moderately Satisfactory by the last mission in late 2008. The Borrower's subsequent compliance with an action plan restored the rating to Satisfactory by closing. Risk was rated moderate due to the CDD nature of the project and need for tight internal controls, and more training was recommended for the community associations especially in regard to the submission of statements of expenditure.

2.4.5 **Audit.** Audit performance was generally satisfactory. With few exceptions, auditors' opinions were unqualified for Financial Statements and Special Opinions. Management Letters (*Carta Gerencial*) found the project's internal control systems satisfactory for project activities. The Bank team followed up closely with the Borrower on auditors' recommendations and there were no audit issues pending at closing.

2.4.6 **Procurement.** Procurement Post-Review (PPR) missions generally rated procurement risk as average and overall procurement performance as Satisfactory or Moderately Satisfactory. The main, unresolved issue was the STU's lack of technical and administrative capacity in the selection and procurement of consultants. Detailed recommendations were made by the Bank including the contracting of a procurement specialist well-versed in Bank procedures to speed up processing and train the STU's procurement team, and greater use of the project MIS as a procurement aid. These issues are being addressed in advance of possible follow-up programs.

2.5 Post-completion Operation/Next Phase

[20] The ICR sees potential in promoting specific environmental training in the curriculum of primary schools, as has been done in several Bank-supported sustainable rural development projects in the South/Southeastern states.

2.5.1 Transition arrangements to regular operations in the context of the Northeast CDD projects mean execution of a subproject, its formal release to the beneficiary community association - which, with some exceptions such as rural electrification systems, legally owns the investment - and its operation under pre-established rules and procedures for this phase.

2.5.2 **Operation and Maintenance:** O&M performance was very good and the sustainability outlook is positive. O&M procedures were mandatory in subproject proposals and criteria for approval. Technical assistance for O&M was generally available. Several project studies suggest that the importance of O&M is well-understood by communities. Norms and procedures are in place for productive subprojects including payment of user fees and building of maintenance funds for replacement of equipment and parts. In the case of tractors, users universally pay hourly or daily fees, with non-association members paying higher amounts. Substantial association reserves are commonly established (see Annex 5). In the case of electric power investments, O&M is handled by the local power agency/concession firm with users paying customary fees for service. For household water supply, beneficiaries typically pay about 93% of all O&M fees, with the mayors contributing the balance. Arrears are <5%, rates of satisfaction with water supply services/quality are around 96%, and beneficiaries express strong motivation to not disrupt access. Water is, in most cases, piped directly to residences and measured via hydrometer. One person per community is trained to read the meters and each household is billed.[21] A model, possibly replicable, case is the modern water supply management regime established by the Association of *Pingo D'Agua* in the Municipality of *Quixeramobim* under which the association collects data, processes water payment accounts and oversees O&M for project-financed water supply systems in 10 neighboring communities, charging a fixed tariff of R$45.00 per 10,000 liters and R$0.70 for each additional 1,000 liters (see Annex 2).

2.5.4 **Next Phase:** The State is already mainstreaming the project mechanisms, procedures and standards into its regular rural poverty reduction programs and will continue to finance similar activities with own funds. A new, potentially larger and quite different rural program stressing competitiveness and innovation, better use of existing water resources, regional development and public/private partnerships is under consideration by the State.

3. Assessment of Outcomes

3.1 Relevance of Objectives, Design and Implementation

Rating: **High overall relevance**

3.1.1 Project development objectives remain relevant and are consistent with the Country Partnership Strategy (CPS 42667-BR, 2008-2011, discussed by the Board on May 1st. 2008), explicitly via the challenge of reducing endemic poverty in the Northeast region through economic inclusion which strengthens communities' productive potential and activities and their economic integration. Basic infrastructure delivered cost-effectively to poor rural communities is essential for productive activity, as is the social capital formation promoted by the project's participatory institutions, i.e. community associations and Municipal Councils, and by the design of the subproject cycle itself whereby communities prepare, implement, operate and maintain their own investments. The integration objective has high potential to boost impact and be a key element in regional/territorial approaches to scaling-up productive activities. Project

[21] In the case of water supply from cisterns, *chafariz* and other simpler facilities, O&M is problematic in some cases and community satisfaction levels lower, due to technical and physical problems with the drilling/location of wells, and poor water quality. Water usage via *chafariz* is generally controlled by an electronic ticket of R$0.10, entitling the user to an average 20 liters.

design remains relevant and appropriate to these objectives, and demonstrated flexibility to incorporate innovative new elements.

3.2 Achievement of Project Development Objectives

3.2.1 Evaluation results show that project objectives were achieved or have high potential for achievement, and that outcomes were positive. The impact on family wellbeing and incomes is demonstrated in project-funded evaluation and case studies conducted under both phases of the project using survey-based methodologies with control groups. Results of key project-financed studies are summarized in Annexes 3 and 5.

Objective 1: *Improving wellbeing and incomes of the rural poor through better access to basic social and economic infrastructure and services and support for productive activities, using proven community-driven development techniques.*

3.2.2 This objective was achieved:

- *In aggregate, using established community-driven demand and allocation mechanisms, the project financed 2,932 community subprojects* of which 81.5% were basic socio-economic infrastructure/services (water supply 63.4%, electricity 18.1%) and productive (18.0%) benefiting 185,461 families or around 927,300 people.
- *Some 86% of beneficiary families surveyed by FECAMP for the 2005 baseline reported improved wellbeing*, citing: family health/hygiene benefits, material living conditions (housing quality, sanitation access, and durable goods ownership/use), and food access and quality. These results were confirmed by all evaluations cited in Annex 3 and 5.
- *Importantly, benefits were being delivered to the project's targeted cohort of very poor rural families* with exceptionally low average family incomes and educational attainment, high levels of adult illiteracy and a major presence of *minifundistas* and under-capitalized land reform settlements with few labor opportunities.
- *Preliminary income results showed average annual household income rising 40% in the period from August 2003 - July 2004* with income from agricultural production up 29%, from consumption of own production up 53%, and from work off-farm up 27%. Some 38% of respondents with infrastructure and productive investments reported better household subsistence conditions, rising to 56% for productive investments alone.
- *Evaluation in 2009 confirmed earlier indications for income*: average total income of rural electrification beneficiaries grew 66%; and productive activities generated an average income increase of 13%. As would be expected, for beneficiaries of (primarily) drinking water, income improvement was negligible.

Objective 2: *Increasing the social capital of rural communities to organize collectively to meet own needs.*

3.2.3 This objective was achieved:

- *Some 93% of interviewees surveyed agreed that their subproject was good for the community, and 82% confirmed that the investment was the community's top priority*. Many associations were still meeting monthly, motivated by their initial subproject to present new demands: 83.3% in 2004 and 66.7% in 2009. Overall community participation in associations, and collective decision-making/activities had grown.
- *Some 43% of association members interviewed had established links with other associations* and 35% regularly conducted some form of joint activity with them, important indicators of sustainability.
- *A high percentage of community leaders interviewed valued the project for the organizational stimulus it provided*, and these leaders themselves were cited by

community members in 65% of cases as the main catalyst to forming an association, with union leaders, local elected officials and the mayors also described as influential.

- *Results ranging from 83% to as high as 98% were obtained from interviews with municipal and community leaders regarding growth in institutional capacity* of community associations since 2002, sustainability of community subprojects, and better results than purely "supply-driven" development, at lower cost.
- *Community associations (and Municipal Councils) were viewed as inclusive, participatory and democratic institutions*. Associations' institutional capacity to represent the community and resolve its problems was rated highly in 91% of cases, with associations seen as influential in community life, and selected democratically.
- *Associations' growing strength and role in the Municipal Councils had markedly changed relations between rural communities and State authorities* as measured by the rise in municipal authorities' responsiveness to community demands.

Objective 3: *Enhancing local governance by greater citizen participation and transparency in decision-making, through creation and strengthening of community associations and Municipal Councils.*

3.2.4 This objective was achieved:

- *The project established and trained an additional 1,354 community associations (over baseline), all of which are by definition, members of the 177 participatory Municipal Councils.* All associations with approved subprojects (2,470) received training in diverse subjects designed to promote participation, transparent decision-making and effective subproject management (see Table 2.20.1, Annex 2).
- *All 177 Councils were strengthened and/or restructured* to improve representation, overall function, targeting and decision-making.
- *While Councils' level of sophistication and maturity varied, an increasing number were routinely discussing a range of public programs and issues affecting rural life*, e.g., employment, youth migration, and natural resource issues. About 20% of Councils were actively seeking resource leveraging opportunities for member associations under the project's integration goals.
- *Ceará has been at the forefront of moves by the Northeast states to mold these Councils into multi-sector arenas* for a much broader discussion of state policies and programs and the project outcomes suggest such efforts are paying off.
- *Surveys showed that associations saw their Councils as their link to the State Government and as sources of information,* highlighting the need for Councils to be well-informed about project rules, objectives and responsibilities, and especially about criteria for the selection and priority ranking of community demands.

Objective 4: *Fostering closer integration of development policies, programs and projects at the local level, by assisting Municipal Councils to extend their role in seeking funding, priority-setting and decision-making over resource allocation.*

3.2.5 This objective was achieved:

- *The project leveraged a total US$91.3 million equivalent under its integration objective, a ratio of US$2.70 for each US$1.00 of Loan funds under Component 1.*[22] Of this amount, US$13.6 million represented additional State counterpart funds processed on behalf of project beneficiaries through the Municipal Councils as envisaged at appraisal.
- *Another US$77.7 million represented resources leveraged through high-level, formal partnerships established by SDA/STU on behalf of project-eligible communities* with

[22] The Project Paper for the Additional Financing cites a ratio of 1:4 already achieved under the original project and a goal of 1:7 for the Additional Financing. Evidence for the former is unavailable and the latter target was unrealistic.

Federal and State water supply and electricity programs/agencies, but not processed through the Municipal Councils[23] (see Annex 2, Table 2.16.1).

- *Councils were trained to understand and initiate integration activities* and at closing, about 40 of the state's more advanced Municipal Councils were actively deliberating the resources of other programs, a burgeoning trend noted by Binswanger et al (2006).
- *An agreement between the Federal Ministry of Agrarian Development (MDA) and SDA saw all 177 project Municipal Councils receive extensive training for membership of 13 Territorial Development Councils* (TDC), tasked inter alia, with drawing up annual Territorial Development Plans (TDP) setting priorities and allocating resources from a range of Federal, State and Municipal programs.

3.3 Efficiency

3.3.1 An economic and financial analysis was performed based on data and information provided by a case study (SDA, 2009) of 20 productive, water supply and rural electrification subprojects collectively representing close to 100% of all subprojects financed by end-2007.[24] The methodology is detailed in Annex 3. Results are as follows:

Benefit/cost ratio: 1.42 for water supply and 1.23 for electricity subprojects. Range of 0.68 to 6.05 for productive investments studied.
IRRs: 13% for rural electrification and 18% for water supply. Range of <1% to >50% for productive subprojects studied.
Years to recover investment: 6.2 for water supply and 8.4 for electricity. Range of <1 to 10 years for productive.[25]
Project IRR: Taking the total financed subprojects and assuming costs are 10% higher and benefits 10% lower, the benefit cost ratio is around 1.16 and IRR about 11%.
Fiscal impact: The analysis relied on three sources: sales tax on home appliances purchased by electricity beneficiaries; savings from community (vs. public) management of water supply systems; and, net benefit of water supply and rural electrification subprojects, net of the cost of all subprojects. Over ten years, income and savings may reach as much as 94% of the total amount invested in financing all subprojects (R$223.3 m.).[26] See Annex 3 for a more detailed presentation including assumptions.

3.4 Justification of Overall Outcome Rating

Rating: **Satisfactory**

3.4.1 The overall outcome rating of *Satisfactory* is justified based on:

- Original and continuing relevance of project objectives and design to the needs of the rural sector in Ceará and the wider Northeast region;
- Satisfactory outcomes for all project development objectives substantiated by several full-scale evaluations/other studies of beneficiary wellbeing, employment, incomes and social capital formation;
- Preliminary indications of economic and financial efficiency and sustainability and of positive fiscal impact;
- Evidence of substantial institutional development in STU, Councils and associations;

[23] These included the Ceará Water and Sanitation Company (CAGECE), State Secretariat of Infrastructure (SEINFRA), Federal *Luz para Todos* rural electrification and Million Cisterns programs, targeting project-eligible rural communities in Ceará.
[24] Data collection occurred at end-2007, but results were not published until June 2009.
[25] Productive subprojects were less efficient because the prior analysis of their economic and financial feasibility was insufficiently rigorous, a project lesson.
[26] The final Evaluation (ACEG 2009) also estimated fiscal impact utilizing different assumptions. Based on current net income of the State of Ceará in the 12 months to April 2009 (about R$8.0 billion), the study assumes that the project's impact (i.e., from water supply, electricity and productive investments) will be small. Further assuming: (i) that beneficiaries spend what they earn (additional annual income is estimated at R$17.47 m.); (ii) about 80% of purchases are taxed; and (iii) aggregate taxes on consumption sum to 48%, the minimum fiscal impact would be R$1.61 m./year from additional, project-generated consumption.

- Strong evidence of physical sustainability of financed investments through completion, operation and O&M rates and practices;
- Successful integration experience, leveraging an additional US$91.3 million; and,
- Results exceeding/meeting targets in the vast majority of project indicators.

3.5 Overarching Themes, Other Outcomes and Impacts

(a) Poverty Impacts, Gender Aspects, and Social Development

3.5.1 **Poverty impact:** The potential impact on poverty reduction is suggested by the results of the economic and financial analysis outlined in 3.3 and detailed in Annex 3, as well as a series of specific measures of improved family income and wellbeing shown in project evaluation studies. The dominance of water supply and electricity investments has positioned a large number of poor rural families for more complex productive activities, both farm and non-farm. Social capital formation has also prepared beneficiaries to demand access to a range of Federal and State programs. Their organizational levels and membership of the Municipal Councils - which now, in turn, participate in Territorial Development Councils - increase their potential to receive and benefit from other services, programs and policies.

3.5.2 **Targeting:** Poverty targeting deviated from expectations but was generally satisfactory and stronger under the AF. Better-off Area 3 municipalities (the term "better-off" being relative given that targeted populations in all three designated Areas qualified on income/other grounds as poor) obtained more subprojects than the very poorest Area 1 municipalities under both phases (see Annex 2).[27] The main reasons were: (a) many municipalities showing a concentration of subprojects housed large numbers of agrarian reform settlements covered by partnership agreements between the Federal Government's National Institute for Colonization and Agrarian Reform (INCRA) and the State Government, designed to intensify project investments in those areas; (b) targeted mobilization and organization (including information dissemination) are crucial to the ability of vulnerable communities to access project benefits under CDD projects and such activities were not sufficiently intensive prior to 2006; and, (c) capacity problems in some Councils and their imprecise understanding of project rules, including correct criteria for subproject selection and approval, may have contributed. The Additional Financing showed marked improvement due to the STU's intensive efforts to address/reverse this trend through strategic mobilization, training and awareness-building, especially of Councils and vulnerable cohorts in the 40 poorest municipalities, e.g., ethnic groups, rustic fishing communities, women and youth.

3.5.3 **Gender and Youth:** Women's direct involvement in association leadership gained traction over time and especially under the AF due to the STU's vigorous mobilization strategy. Under the original project, 21% of all beneficiary families belonged to female-headed associations, remaining stable under the AF. By end-project, 20% of all associations were led by women and about 20% of Municipal Councils had women in leadership roles. About 10% of all productive subprojects were proposed, fully-managed and staffed by women. Project actions supporting youth included regional seminars, definition of municipalities with low Social Development Indices, and a partnership between the project and the National Land Reform Program (*Programa Nacional de Crédito Fundiário* - PNCF) to mobilize young settler families and identify land reform associations with interest in/potential to benefit from project-sponsored subprojects. Groups were identified, proposals presented and subprojects were recently started.

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[27] Targeting of Areas 1-3 was based on the Municipal Human Development Index (HDI-M) under the original project and the State's Social Development Index under the AF. Use of HDI-M was common in poverty targeting but its measurement every 10 years was inconvenient for State data collection and the bi-annually-measured SDI was preferred for the AF.

3.5.4 **Ethnic Groups**: *Quilombola* (Afro-descendent) communities benefited from project investments but the MIS did not track them as a distinct cohort and no specific data is available. *Quilombola* groups are also benefiting from additional resources provided by a grant of US$375,589 (now effective) from the Japanese Social Development Fund (JSDF) to Ceará and two other Northeast states (Bahia and Pernambuco). For indigenous peoples, see 2.4.3.

(b) Institutional Change/Strengthening

3.5.5 The project financed a massive amount of training, most of which was conducted under the Additional Financing. Its impact on the Municipal Councils and community associations was largely positive and is summarized in Annex 5. The STU is an experienced body with a highly professional, stable technical and administrative core team. Evidence of its institutional development can be seen in its ability to surmount the difficulties associated with government turnover, navigate shifting rural strategies, embrace innovation, coordinate a complex series of institutional partnerships on behalf of the project, fully disburse two loans in a timely manner, proactively support leveraging of additional resources, and exceed all key project targets.

(c) Other Unintended Outcomes and Impacts (positive or negative)

3.5.6 As with its predecessor (RPAP), the project became a vehicle for important innovations including the *Comércio Justo* (Fair Trade) program promoting sales of small-farm products to national and international markets; initial implementation of a territorial development strategy; engagement with *Quilombola* (Afro-descendent communities) through educational/cultural consultation and outreach programs; and the "*arranjos produtivos*" program in selected regions of the State.[28]

3.6 Summary of Findings of Beneficiary Survey and/or Stakeholder Workshops

3.6.1 The project financed a baseline and impact evaluations, two Physical Performance Studies (PPS), several sets of case studies and a Borrower Completion Report, all of which were survey-based. The following briefly summarizes key findings of the three evaluations with a more detailed presentation in Annex 5 and appendix to Annex 3.

3.6.2 **FECAMP (2005):**[29] This baseline/evaluation covered three Northeast States - Ceará, Pernambuco and Bahia - and in Ceará sampled 629 beneficiaries and a control group of 420 families. The baseline portion confirmed that 70% of the rural population was below the poverty line, with a profile showing extreme poverty and deprivation. Access to basic services was low, adult illiteracy was high, average family income was about R$499/month or just over US$1.00/day with a high concentration of families in the lowest ranges. This study had a galvanizing effect on the project by showing that the poorest segments of the rural population, those with lowest IDH-M, were being reached. Case studies included in this evaluation showed that 86% of beneficiaries had significantly improved living conditions from 2000 (pre-project) to 2002/2003. Income results were promising and a range of variables was very positive for social capital gains.

[28] The *arranjos produtivos* strategy was adopted in 2003 to revitalize the demand for and processing of productive subprojects. SDLR/STU and other secretariats and partner agencies re-evaluated productive proposals to determine which would fit the new strategy. Conditions were established to evaluate productive proposals to ensure their viability/sustainability: technical assistance and management plan; source of recurrent financing; training plan; and, marketing plan and economic, financial and social analysis. In response to producers' perennial calls for access to credit, the State Secretariat for Labor and Business (SETE) created a R$500,000 fund which was expected by participating banks to leverage ten times this value. SETE also created the "*Compra da Gente*" program to promote the direct sale of local products to large and medium firms. The Bank recommended linking these activities with the *Comércio Ético e Solidário* program to avoid duplication and dispersion of resources.

[29] The study is in two parts: (i) Evolução do Perfil Socioeconômico dos Beneficiários e Efeitos Imediatos dos Projetos - Relatório de Consultoria Técnica. Federal University of Campinas, São Paulo (FECAMP), March 2005; and (ii) Perfil Socioeconômico da População Beneficiaria Fase II - Relatório de Consultoria Técnica, FECAMP, March 2005. For part (i) data was collected for the period 12 months immediately before receipt of the subproject, then for the period August 2003 to July 2004.

3.6.3 **Binswanger et al. (2006):** Research covered 864 households in 108 communities and 90 municipalities in the Northeast States of Ceará, Piauí and Rio Grande do Norte, sampling. 18 treatment (beneficiaries) and 18 control communities (waiting groups) in each state. The study assessed the accumulation of per capita household assets and found positive effects for all models in Ceará. Further, access to water supply rose markedly, housing conditions improved, and electricity access increased. Health improved significantly: infant mortality fell by 38% and the incidence of diarrhea fell by 70%. Chagas disease, asthma, hepatitis and dengue all declined sharply among beneficiaries in the period. All results indicated strong impacts on social capital formation, derived from the creation of associations and execution of subprojects.

3.6.4 **ACEG 2009):** The *Associação Científica de Estudos Agrários* (ACEG) of the Federal University of Ceará returned to the same cohorts (treatment and control) surveyed by FECAMP (2005), focusing on impact of water supply, electricity and productive investments. Case studies were also conducted. The project was found to be achieving the results expected for income generation, with positive signals for income derived from productive subprojects. Project beneficiaries obtained an average income of R$980.60 more than the control group. Projected income growth (monetary) attributable directly to the project averaged R$1,205/family from productive, and R$1,790/family from electricity connection. Other improvements included physical capital, access to consumer goods, residential conditions, and levels of social capital.

4. Assessment of Risk to Development Outcome

Rating: **Moderate**

4.0.1 **Sustainability:** Factors likely to promote sustainability include:

- Extensive evidence that community O&M practices are satisfactory and appropriate for the types of subprojects financed, and that the importance of O&M is well-understood;
- Evidence of social capital formation which can be leveraged for more complex and diverse investment activities, e.g., productive;
- The Borrower Letter (December 4, 2009) stresses the fundamental importance of technical assistance and training delivered to the Councils, associations and the STU itself, in developing social capital as a key element of project sustainability;
- Municipal Councils/CMDS restructured, trained and operational in all 177 rural municipalities, and now instrumental in the planning and deliberations of State Territorial Development Councils; and,
- Mainstreaming of the project mechanisms and institutions through own-financing.

4.0.2 **Environmental management:** The environmental integrity of subprojects was supported by the following:

- Environmental screening processes, established for all proposals, with access through co-participation arrangements, to environmental expertise in specific cases;
- Standard subproject designs for all commonly-demanded subprojects, with design features for potential environmental issues, e.g., waste disposal for manioc mills;
- In-house environmental professionals in the STU;
- Environmental awareness built into training programs for associations and Councils;
- Close attention to environmental compliance during Bank supervision missions including physical inspection of subprojects in the field; and,
- Introduction of/training for a new category of environmental/ecological subprojects.
- The Borrower's Letter reflects institutional internalization of environmental conservation noting the obligation of all subprojects, based on their type/nature, to respect the rules governing the use/preservation of the environment.

5. Assessment of Bank and Borrower Performance

5.1 Bank Performance

(a) Bank Performance in Ensuring Quality at Entry
Rating: **Moderately Satisfactory**

5.1.1. The Moderately Satisfactory rating is based on the following:

Positive elements:

- Close collaboration between the Bank and Borrower during the preparation phase of both operations, i.e. client orientation;
- Calibration of project design to the lessons of previous similar projects in Ceará and other Northeast states and relevance to the Borrower's rural priorities/strategy;
- Incorporation of innovative elements designed to strengthen impact, improve targeting, promote integration and resource leveraging, and respond to Bank concerns about the appropriate use of grant financing; and,
- Satisfactory QAE rating for the Additional Financing operation

Negative elements:

- Inadequate design of PDO performance and intermediate impact indicators;
- Large number of impact indicators; and
- Lack of baseline data for the original project, not remedied during preparation of the Additional Financing even with evaluations and data available.

5.1.2 **Quality at Entry Assessment (QAE):**[30] A QAE (2007) on the Additional Financing segment rated the overall project as Satisfactory. Primary results were as follows: (a) strategic relevance and approach, poverty, gender and social development, and policy/institutional arrangements rated Highly Satisfactory; (b) all other dimensions rated Satisfactory, and fiduciary aspects Moderately Satisfactory. Bank inputs and processes were rated Satisfactory. Project strengths were cited as: objectives fully consistent with country and sector strategies; exemplary partnership arrangements with other domestic donors; PDO clear, of broad scope but realistic; outstanding level of country and sector knowledge; clearly defined roles of implementation agencies and proven capacity; and, very good monitoring arrangements. The primary area needing improvement was the lack of explicit risk assessment of financial management given the community-based nature of the project.

(b) Quality of Supervision
Rating: **Satisfactory**

5.1.3 The rating is based on the following:

- Supervision missions were timely, more frequent at critical periods, well-prepared and documented. The project absorbed 129 staff weeks of supervision, on par with country norms for the type of project and length. Missions always included randomized field visits to communities, Municipal Councils and subprojects;
- Aide Memoires were focused on key elements of project design and objectives, including fiduciary and safeguards performance. Time-bound actions expected of the Borrower were followed up and outcomes reported.;

[30] The Datasheet, Section C3, shows that no QAE was conducted. The Bank system enters such information automatically and treats the original project as the overriding entity. The QAE assessment was done for the Additional Financing only, and does not therefore appear in the system.

- Consistent pressure was put on the STU to advance the evaluation agenda with regular guidance provided to the STU by the Team's evaluation specialist. Evaluation performance was outstanding as a direct result;
- Mid-term reviews were timely, comprehensive and all findings/recommendations were discussed with the STU team, with documented follow-up;
- Team members worked with both outgoing and incoming administrations to facilitate smooth transitions with minimum disruption to the project;
- Consistent focus on Financial Management and Procurement supervision/follow-up; and,
- Forceful approach to obtaining intervention from the State Governor in 2003 to alleviate opposition to the project from the new Borrower secretariat. The Bank team also stepped in rapidly in the latter stages to provide corrective guidance involving the STU accelerating its new decentralization strategy and more closely supervising partners' activities when issues of field oversight arose.

5.1.4 The main caveats applying to supervision quality - not seen as affecting the overall supervision rating - include the need for a stronger response to continued STU resistance on the matter of annual indicative budgets for Councils, and ensuring Councils accessed available funds for operating expenses, as per the Operational Manual. Further, graduation - the longer-term, structured aspects envisaged in the PAD - merited more sustained attention.

(c) Justification of Rating for Overall Bank Performance
Rating: **Moderately Satisfactory**

5.1.5 Overall Bank performance is rated ***Moderately Satisfactory*** based on the Appendix A of the ICR Guidelines (OPCS, August 2006, and updated June 05, 2007)[31]. Therefore, in consideration of the ratings for preparation and supervision (above), the overall rating is considered moderately satisfactory. Further, although the project Team's supervision performance was very strong, it was not sufficient to balance out the over-estimated indicators for productive investments, vis-à-vis the reality of acute water scarcity affecting 90% of the State territory and consequently, the productive capacity of poor, rural communities.

5.2 Borrower Performance
(a) Government Performance
Rating: **Satisfactory**

5.2.1 The Borrower's performance during preparation and implementation is rated satisfactory based on the following:

- Successive State Governments were committed to the project and its objectives as an integral element of their respective Multi-year Development Plans and rural strategies;
- Government under-scored its commitment by injecting some US$13.6 million of additional counterpart resources and leveraging another US$77.7 million from diverse programs/agencies to further expand project coverage and intensify the focus on the most vulnerable groups;
- Despite government turnover, the fundamental thrust of the state's rural strategy and pro-poor orientation did not change; and,

[31] When the rating for one dimension is in the satisfactory range while the rating for the other dimension is in the unsatisfactory range, the rating for overall *Bank Performance* normally depends on the *Outcome* rating. Thus, overall *Bank Performance* is rated *Moderately Satisfactory* IF *Outcome* is rated in the satisfactory range or *Moderately Unsatisfactory* IF *Outcome* is rated in the unsatisfactory range, except when Bank performance did not significantly affect the particular outcome.

- Government aggressively pursued preparation and negotiation of the Additional Financing and in a similar vein, is actively developing a new and larger follow-on program with progressive objectives.

(b) Implementing Agency or Agencies Performance
Rating: **Satisfactory**

5.2.2 As noted earlier, three separate state secretariats were responsible for the project over its lifespan and this had both positive and negative institutional, operational and strategic impacts on project implementation. The satisfactory rating reflects performance whereby the STU:

- Prevailed, due to technical and operational experience, over disruptive effects of government turnover and shifting rural strategy;
- Managed to ensure full and timely disbursement of both Loans, and achieved and/or exceeded all project objectives and targets;
- Aggressively pursued and successfully utilized partnerships to leverage technical, operational and financial support for the project;
- Explored and expanded approaches to productive investments under the Fair Trade initiative, *Comércio Ético e Solidário*, and *arranjos produtivos*, consistent with its longstanding track record of supporting innovation;
- Initiated a territorial development strategy and institutions with participation of project Municipal Councils;
- Ensured that Municipal Councils were established/trained in all 177 project-eligible municipalities;
- Engaged with *Quilombola* (Afro-descendent) and ethnic communities through awareness-building, educational and cultural programs; and,
- Maintained a cooperative and committed relationship with the Bank throughout.

5.2.3 These major achievements are held to outweigh several negative aspects including: resistance to providing the Municipal Councils with an indicative annual budget or advising Councils on their right to operating funds under the Operational Manual; and slow, bureaucratic handling of consultant contracts which delayed project M&E exercises, although all expected evaluation studies were delivered and are generally of high quality. On balance the rating is Satisfactory.

(c) Justification of Rating for Overall Borrower Performance
Rating: **Satisfactory**

5.2.4 The overall Borrower performance is rated Satisfactory on balance, based on very strong and at times exceptional performance in key project actions/situations noted in 5.2.1 and 5.2.2. Weaknesses described are not considered of sufficient weight to reduce the overall rating.

6. Lessons Learned

Targeting of benefits to the poorest requires an operational strategy. Targeting of the poorest goes well beyond the technical, data-based definition of where the poorest groups are located based on poverty indices and differentiated allocation of resources. An operational strategy is needed to reach them through mobilization and organization which enables them to access the project on a more equal footing from the outset. Systematic consultation and information dissemination should be initiated well before project effectiveness.

Successful integration needs an aggressive, multi-pronged approach. The project showed that decentralized integration of development programs and policies transparently and cost-effectively through the Municipal Council mechanism is one of several potential approaches to

leveraging additional resources and expertise for a poverty-targeted population. Concentrated efforts to maximize the benefits of integration call for pro-activity in establishing a diverse network of partnerships, anchored within a consistent, pro-poor sector strategy which maintains focus on the ultimate beneficiaries. Integration merits greater Bank support for its longer-term institutional and operational evolution, and to monitoring and evaluating its implementation, outcomes and impact.

Preparation and analysis of small-scale productive ventures needs equal rigor. Small scale productive ventures, grant-financed, require a business plan, technical and financial analysis, up-front marketing arrangements and formal training for the operational phase exactly as with larger ventures. Training and technical assistance for productive subprojects are crucial inputs. Beneficiaries need to get it right the first time under a one-time grant financing opportunity to jump-start employment and income generation, in addition to using the experience to qualify for mainstream credit. To avoid "reinventing the wheel", successful productive subprojects should be studied carefully to determine critical features, replicated where feasible and appropriate, and monitored over time to assess evolution and lessons. A databank (case studies) of such experiences can leverage their benefits longer-term and with wide geographic application (Annex 2).

Environmental investments need up-front attention to awareness-building. Demand-driven projects cannot assume that communities will spontaneously seek environmental investments which are quite different to a manioc mill or water supply system which produces rapid, tangible results. Communities need to see/understand how environmental deterioration impacts their livelihoods and wellbeing and the types of investments which can potentially mitigate such damage, in addition to investments which use green technologies or provide environmental services while creating jobs and income. Incentives might include financial where appropriate, to promote community interest in improving the environment as a long-term investment in better productivity and incomes.[32]

Monitoring and maintenance of investments. While the project demonstrated generally strong performance on operation and maintenance, especially in the willingness of communities to pay appropriate user fees, demand driven projects need to ensure that all community associations have the same/adequate levels of organization to successfully conduct maintenance activities, especially of water supply subprojects. In Ceará, the Borrower has created a GPS database with photographs of all subprojects and follow-up supervision of such subprojects is planned through State agencies including EMATERCE, SOHIDRA and CAGECE.

In summary, the overall experience, its lessons and evaluations demonstrate unequivocally that poor rural communities have the capacity to decide their priorities, and prepare, execute, operate and maintain their investments with funds transferred directly to the association bank account. Decentralization of fiscal and investment decision-making and implementation to states and localities including community organizations, improves efficiency and accountability, builds social capital and achieves better overall results. CDD requires a longer-term commitment to reap its full social and economic benefits, especially from productive investments.

[32] The ICR sees potential in promoting environmental training in the curriculum of local schools, and/or financial incentives to induce environmental recovery activities and tide producers through the suspension of their normal agricultural activities until such adaptations/changes become effective, as per Bank-supported sustainable rural development projects in the Southern states.

7. Comments on Issues Raised by Borrower/Implementing Agencies/Partners

(a) Borrower/implementing agencies N/A **(b) Cofinanciers** N/A

(c) Other partners and stakeholders N/A

Annex 1. Project Costs and Financing

Original Project

(a) Project Cost by Component (in USD Million equivalent)

Components	Appraisal Estimate (USD millions)	Actual/Latest Estimate (USD millions)	Percentage of Appraisal
COMMUNITY SUBPROJECTS	42.80	45.08*	105.33
INSTITUTIONAL DEVELOPMENT	3.30	3.49	105.75
ADMINISTRATION, SUPERVISION, MONITORING AND EVALUATION	1.40	1.06	75.00
Total Baseline Cost	**47.50**	**49.63**	**104.46**
Physical Contingencies	1.70	0.00	0.00
Price Contingencies	0.80	0.00	0.00
Total Project Costs	**50.00**	**49.63**	**99.26**
Front-end fee PPF	0.00	0.00	0.00
Front-end fee IBRD	0.00	0.37	0.00
Total Financing Required	**50.00**	**50.00**	**100.00**

*Includes 10% beneficiary contribution

(b) Financing - Original Project

Source of Funds	Type of Cofinancing	Appraisal Estimate (USD millions)	Actual/Latest Estimate (USD millions)	Percentage of Appraisal
Borrower		12.50	12.50*	100.00
International Bank for Reconstruction and Development		37.50	37.50	100.00

*Includes 10% beneficiary contribution

B. Additional Financing

a) Project Cost by Component (in USD Million equivalent)

Components	Appraisal Estimate (USD millions)	Actual/Latest Estimate (USD millions)	Percentage of Appraisal
COMMUNITY SUBPROJECTS	41.33	59.46 *	143.86
INSTITUTIONAL DEVELOPMENT	4.24	3.16	74.53
ADMINISTRATION, SUPERVISION, MONITORING AND EVALUATION	2.16	0.88	40.74

Total Baseline Cost	**47.73**	**63.50**	**133.04**
Physical Contingencies	0.00	0.00	0.00
Price Contingencies	0.00	0.00	0.00
Total Project Costs	**47.73**	**63.50**	**133.04**
Unallocated	2.17625	0.00	0.00
Front-end fee IBRD	0.09375	0.09	0.00
Total Financing Required	**50.00**	**63.60**	**127.20**

*****Includes US$13.6 m. of additional State counterpart funds plus 10% beneficiary contribution, for Component 1, Community Subprojects.

(b) Financing

Source of Funds	Type of Cofinancing	Appraisal Estimate (USD millions)	Actual/Latest Estimate (USD millions)	Percentage of Appraisal
Borrower		12.50	26.10*	209.00
International Bank for Reconstruction and Development		37.50	37.50	100.00

*****Includes US$13.6 m. of additional State counterpart funds plus 10% beneficiary contribution, for Component 1, Community Subprojects.

Annex 2. Outputs by Component

2.1 The following shows physical outputs by component with separate discussions on productive subprojects and targeting performance.

2.2 **Component 1: Community Subprojects:** (OP US$45.00 million, AF US$44.50 million, 90% and 89% of total estimated cost, respectively) was to finance matching grants to organized rural community associations for respectively, about 2,000 and 1,300 small-scale investment subprojects (under original project and Additional Financing respectively) categorized as infrastructure, productive and social. New types of investments specified in the Additional Financing included health, education, environment and culture. Subprojects were financed under three subprograms - PAC (State Community Schemes), FUMAC (Municipal Community Schemes) and FUMAC-P (Pilot Municipal Community Funds - of varying degrees of decentralization and autonomy. PAC was expected to absorb about 10% of all subprojects (up to US$4.5 m.) of total Component 1 costs, FUMAC about 80% (US$36.0 m.) and FUMAC-P about 10% (US$4.5 m.). PAC was the least decentralized and already being phased out in most Northeast states including Ceará, while FUMAC-P was the most advanced in giving each Council its own annual budget to manage.[33]

2.3 The project financed a total 2,932 subprojects, including 317 additional investments using State counterpart resources exclusively, benefiting a total 185,461 families, including 21,355 families benefiting from the State's own-financing. Total cost of Component 1 was about US$45.08 m. under the original project (105.3% of appraisal estimate) and US$59.46 m. (about 144% of appraisal estimate) under the Additional Financing, including the State's additional counterpart contributions of US$13.6 m. under the second phase and beneficiaries' 10% cost-share. Utilization of the Loan for Component 1 was US$33.38 million, 99% of the appraisal allocation under the original project, and US$33.88 million, 110% of the original appraisal allocation under the Additional Financing. See Annex 1. The original project utilized all three funding mechanisms (see ff. 30), while 100% of subprojects were channeled through the FUMAC Municipal Councils in the case of the Additional Financing. Table 2.1 below shows the division of resources based on PAC, FUMAC and FUMAC-P under the original project.

Table 2.3.1: Municipalities and Subprojects by Mechanism, Original Project

Mechanism	Municipalities		No. of Subprojects		
	Estimate	Actual	Estimate	Adjusted	Actual
PAC	26	27	306	237	222
FUMAC	136	148	1,639	1,270	1,169
FUMAC-P	15	6	55	43	32
Total	177	181	2,000	1,550	1,423
Total w/no repetition	177	175	NA	NA	NA

Types of subprojects:

[33] Under **FUMAC**, community associations participate in representative Municipal Councils with 80% majority membership of beneficiaries and civil society, and 20% of municipal authorities and other entities. The Councils meet regularly to debate community subproject proposals and set priorities, based on an indicative annual budget determined by the STU. Approved subprojects are sent to the STU for final technical and environmental analysis and approval. Funds are transferred directly to the beneficiary association. In Ceará, many pre-existing Municipal Sustainable Development Councils (CMDS) were adapted to project rules for representation (80/20 etc.) and became FUMAC Councils. **FUMAC-P** Councils were established as a pilot to determine the utility and feasibility of allocating a number of more advanced Councils an annual budget to manage - based on an Annual Operating Plan (POA). As with the other NE states, FUMAC-P did not function as expected and all were eventually devolved to the original FUMAC design. The main reason was that the NE State Governments never felt comfortable with the decentralization of actual funds management to these Councils. Further, some FUMAC-P tended to finance very small subprojects designed to reach the maximum number of communities, resulting in low and localized impact. Finally, under **PAC**, community associations submit subproject proposals directly to the State Technical Unit which transfers funds directly to the associations for approved subproject. There is no representative Municipal Council. This mechanism was a holdover from an earlier period, and utilized by communities in municipalities which had difficulty - for political/other reasons - in forming a Municipal Council. It is the least decentralized and studies have shown, has the least impact on social capital formation.

2.4 **Infrastructure:** Community demand was skewed heavily towards water supply (primarily drinking water) and electricity which greatly exceeded appraisal estimates under both phases. This was consistent with the well-established pattern throughout the Northeast of rural communities satisfying urgent needs for basic services before seeking productive investments, and with the strategy of the State of Ceará under three successive administrations for meeting such demand by maximizing coverage in rural areas. The institutional setting - community associations, the Municipal Councils and State authorities/policies agreed that drinking water and energy were top priorities and ensured that demands were met. The average cost of infrastructure subprojects over the two project phases was US$34,430, well below the US$50,000 limit. Each water supply subproject benefited an average 77 families and electrification, 42 families. Key indicators are shown below:

Table 2.4.1: Main Types Subprojects and Families Benefited (both phases)

Type of Subproject	Total Financed	Distribution (%)	Families Benefited	%
Rural electrification	530	18.07	22,080	11.90
Water supply	1837	62.65	142,020	76.60
Other infrastructure	24	0.82	1,200	0.63
Productive	531	18.11	19,661	10.60
Social	10	0.34	500	0.27
Total	**2,932**	**100.00**	**185,461**	**100.00**

Source: SDA/STU

Productive Subprojects:

2.5 The effort to maximize coverage of both water supply and electricity tended to over-shadow productive subprojects which reached about 52% and 80% respectively of appraisal targets under the OP and AF. Average cost of productive investments was US$36,613 and they benefited an average 37 families each. The experience generated many lessons, explained candidly by Physical Performance Studies, case studies, the final Evaluation and the Borrower Completion Report. The following highlights key findings. Additional information on productive subprojects can be found in the appendix to Annex 3.

2.6 **Tractors:** The project financed 531 productive subprojects of which 371 or 70% were agricultural mechanization (tractors and equipment), the vast majority of which were rated highly by beneficiaries for their economic and social benefits which included: ability to prepare land in time for rains; job creation capacity (average 29 new jobs/tractor); increase in area planted (net gain of 23.0 ha per subproject); and, capacity to generate substantial community savings from rental fees charged for tractor operation and maintenance, examples of which are noted in several project studies including the Physical Performance Study (Tecno Metrica 2009). Such savings are frequently applied by communities to new investments. The average rate of return on tractors studied is 18%. In general, all studies found that beneficiary communities (and non-community users) were using a pay-for-service scheme (plan required for subproject approval) and that O&M performance and thus sustainability, were strong.

2.7 Such subprojects also prompted specific recommendations from Bank missions and case/performance studies regarding their technical and environmental analysis/sustainability. There are also some concerns voiced in the Bank about whether tractors should be financed by grant funds under a CDD project. Field observation showed that a community's acquisition of a tractor/equipment should be seen as an opportunity to diversify cropping systems and introduce changes to traditional farming methods, implying beneficiaries' access to follow-up technical assistance as an integral part of the mechanization "package". Special care is also needed to ensure environmental sustainability of tractors in semi-arid areas with fragile soils and topographic issues. Further, tractor subprojects require careful analysis to avoid certain pitfalls

such as low utilization levels due to climatic conditions and/or maintenance costs, and careful assessment of demand validity. Priority for tractors ought to be - to the extent possible - linked to other productive subprojects with guaranteed markets and environmental sustainability.

2.8 **Success stories:** There were many emblematic examples of successful small-scale enterprises in fruit production and processing, cashew nut, honey, masonry, small-scale irrigated agriculture and other activities, providing important lessons for wider replication. Several of these experiences won important awards, most notably the Pingo D'Agua Project in the Forquilha Valley of Quixeramobim Municipality, where the Project helped poverty stricken communities build sustainable, small-scale irrigated farming with multiple benefits, and winning prizes awarded by the Ford, Bank of Brazil, and Getúlio Vargas Foundations. Other successful productive ventures in honey and cashew financed under the previous project were still fully operational and in the case of Barreira and Pacajus Municipalities, marketing product domestically and exporting to the United States and Europe. Local crafts of high quality and diversity also have high potential and some have already established domestic and export buyers. Employment and income creation potential is also seen in fruits, fish farming, goats and sheep, irrigated agriculture, and flowers.

2.9 **Guidelines for productive subprojects:** Evidence suggests that productive subprojects represented special analytical, technical and operational challenges for the STU and this alone, may have suppressed their higher representation in the subproject portfolio regardless of the high demand for basic infrastructure. Any follow-on operation would need to address these elements. The following are practical guidelines emerging from the project:

- Small scale, grant financed productive ventures require a business plan, up-front marketing arrangements and formal training for the operational phase in the same way as larger ventures.

- The group to be financed should be well-organized and already have accumulated experience/familiarity with the product in question, a business "vision" and adequate knowledge of potential markets;

- Financing can cover all or part of the subproject, including infrastructure. In this manner, members of the group can seek complementary financing from commercial banks, especially via the National Family Agriculture Program (PRONAF), to make a productive venture viable;

- Productive subprojects can be agricultural and non-agricultural, and should preferably be of the "mixed" type involving individual production but joint processing and marketing, the latter to build the scale needed to sell in larger markets. The question of markets needs special focus with analysis of the alternatives - local, regional, national and external.

- Productive ventures in poor rural areas should boost production diversification, multiple activities and a degree of independence from external inputs, and build productive chains/linkages. Criteria for establishing subproject priority should take into account technological choices for sustainable farming, as opposed to financing crops or animals in isolation and which do not observe/exploit the interface between productive systems.

- The STU needs a team of specialists dedicated to analyzing productive subprojects and needs to strengthen strategic partnerships for joint action to find business solutions and reduce risk;

- Technical assistance needs to be assured for the total phase of implementation, operation and consolidation. Further, both Bank and Borrower have important follow-up responsibilities to ensure that a training plan is included at the proposal phase of productive subprojects and that it is rigorously implemented. Tecno Metrica (2009) found examples of completed productive facilities either lying idle or under-utilized due to a lack of training and technical assistance to beneficiaries for the operational phase. This has implications given that beneficiaries of one-time, grant-financed productive ventures need to get it right, not only to jump-start employment and income generation, but to leverage this experience and track record to qualify for mainstream credit.

- To avoid "reinventing the wheel", successful productive subprojects should be studied carefully to determine their critical features, replicated where feasible and appropriate, and monitored over time to assess their evolution and lessons. A databank of case studies of such experiences can have longer-term benefits and potentially wide geographic application.

Box 1: Pingo D'Agua – Social Inclusion in the Dry-Lands of Quixeramobim

The Forquilha Valley, 250 km from the State capital of Fortaleza, is populated with small-scale rural producers living in villages and depending traditionally on rain-fed, subsistence-agriculture. Without income, many valley residents had migrated to larger centers with little hope of real change. There was a desperate need for alternatives to sustain families on the land. In the early 1990s, the economy of the *Quixeramobim* area had stagnated following the golden years of the cotton/dairy boom affecting the entire state. Family income fell, exacerbated by long periods of drought. Despite its beauty and natural resources, the Valley had major difficulties and was seen as a "prison" by rural residents. Under the leadership of Antonio Martins de Franca, small producer, an association was formed in 1987 to overcome hunger and misery. Various specialists – geologists, anthropologists and academics – were brought in to provide support and a vision for the region's future, and cooperation agreements were signed. Meetings were held between residents and partners, innovative ideas flowed, and local people felt free to voice their demands. The idea of prospecting for water and starting irrigated fruit production rapidly gained traction. In 1998, *Pingo D'Agua* was formally initiated, financed by the World Bank-supported Sao José Project (Ceará Rural Poverty Alleviation Project) with technical assistance from the Inter-American Institute for Agricultural Cooperation (IICA). Water was located, farmers commenced production and incomes improved.

To combat drought, the project demonstrated how, with cooperation, technology, participatory management, resources, and partnership networks, a historic problem such as lack of water can be resolved in the dry-lands (*sertão*) of Northeast Brazil. A new technique for drilling wells changed the life of *Sertão* families in *Quixeramobim*. Well placement was marked using aerial photographs. With tube-well technology, it was possible to drill down over 10 meters, with flow varying from 25,000 to 92,000 liters/hour. The explanation for such abundant flow in the sub-soils of dry riverbeds is as follows: during the rainy season, most of the water flows through river channels where the subsoil is formed from layers of clay and coarse sand – alluvial soils – which are permeable, permitting the run-off to form large underground repositories known in the *Sertão* as *cacimbas* (water-holes). The method normally used by local people meant they often did not find the principal "vein" and thus many wells had only scant flow. Outside these areas, the problem was even more serious. Farmers spent months of frustration trying to locate such zones in crystalline rock formations.

It was a revelation to everyone that horticultural products such as papaya, banana, watermelon, passion-fruit, peppers and tomatoes could thrive in arid soil with the adoption of an untried technology using subterranean water - at low cost and easy access – through the manual drilling of artisanal tube-wells in alluvial areas. *Pingo D'Agua* started with 27 pioneering small farmers distributed in 17 villages, who were able to develop subsistence plots, improve family food supply/diet and ensure income and subsistence from increasing area farmed and land productivity. Farmers provided their own labor. Drilling equipment was home-made of simple design and of steel, and technologically appropriate. Good maintenance ensured that each piece of equipment could dig hundreds of wells. Besides providing the technology, project partners provided technical oversight and training. Production was transported to processing enterprises in *Quixeramobim*, to markets, and to storage areas for school

feeding programs. The valley became an oasis in the middle of the *caatinga* and a model for similar areas. The change in community wellbeing was radical.

Project financing was basically for technical personnel representing expenditures of about R$10,000/month, about R$20,000 for equipment, and a unit cost per well of R$200 per producer. Communities developed sustainable irrigation projects using drip and micro-aspersion (hence the name *Pingo D'Agua*). Average income per hectare/family in 2008 was R$700. Families were surprised to see first-hand that their land could produce with "drops of water". Helano Nogueira now produces several melon crops per year, sells them all and has markedly improved resources available to support his family. "Everything before was hunger and misery, nothing worked for us". He was one of the pioneers in planting fruits. Part of the water supplies household needs while the rest irrigates his subsistence plot and fruit trees. His well flows at 28,000 liters/hour, and has enabled him to triple area under production and add new crops.

The president of the Forquilha Producers Association, Deusimar Candido, confirmed that the water supply at any given time is sufficient for at least two years and is renovated during the rainy season. He is selling his produce locally and in markets in the state capital of Fortaleza. He is one of the local small farmers who had abandoned his property and was living in Sao Paulo, but returned after 14 years to plant fruit and change his life once he heard about the Pingo D'Agua Project. His property is generating employment and income. Papaya, sweet potato and tomatoes are generating R$1,000/week with regular water supply. Household water supply for domestic use is described as regular and clean.

The Pingo D'Agua Project has been awarded prizes for innovation: Merit Honor for Fruit Culture from the Ceará Fruit Institute (FRUTAL); certified for its Social Technology by the Bank of Brazil Foundation; and, was a finalist in the Public Management and Citizenship Program of the Getúlio Vargas Foundation which placed it in the top 50 of some 756 projects selected Brazil-wide.

Targeting:

2.10 Project targeting followed a somewhat different path than planned at appraisal with Area 3 municipalities obtaining three times as many subprojects as the poorest municipalities in Area 1 under the first phase, and just under double those of Area 1 under the Additional Financing. The concept of "better-off" is relative given that eligible rural populations in all three areas qualified as "poor" under project income, wellbeing and asset parameters. A key factor in this outcome was that many municipalities with a concentration of subprojects housed significant numbers of agrarian reform settlements which came within the scope of partnership agreements between the Federal Government/National Institute for Colonization and Agrarian Reform (INCRA) and State Government designed to intensify project investments in those areas. Other factors included the obstacle to access in Area 1 represented by very poor communities' lack of organization and asymmetric access to information, the likelihood of some targeting laxness among weaker Municipal Councils, and pressures felt by some Councils prior to two elections to approve larger numbers of subprojects than would normally be processed in a certain period.

2.11 Data for the AF stage show improvement based on the Bank Mid-term Review's call for greater effort by the STU to bring Area 1 municipalities into the project, and the strong strategic focus of STU training events on the poorest cohorts from 2006 onwards. Intensive mobilization and training were recommended with priority for Area 1 municipalities, for associations which had yet to participate, and for priority poor groups, e.g., ethnic, rustic fishing communities, women and youth. Even so, in the case of women and youth for example, the 2007 Mid-term Review for the Additional Financing found that actions implemented were quite limited and mostly pilots, but had considerable potential. Project actions supporting youth began in 2005 and involved regional seminars, definition of municipalities with low Social Development Indices, and a partnership between the project and the National Land Reform Program (PNCF) to mobilize young people and identify land reform associations linked to the PNCF which could possibly have their existing investment funds (SICs) increased through project-sponsored subprojects. At closing, complications had arisen in regard to melding project resources with

resources from other (land reform) projects already held by these groups in special funds for on-farm/settlement investments. Actions on behalf of ethnic groups were focused heavily on laying the groundwork for their inclusion in socially and culturally appropriate ways. Subsequently, groups were identified, proposals were presented and approved and implementation started prior to project closing and is ongoing, largely with State's own funds.

Table 2.12:1 Subprojects Financed by Priority Area, 2002 - 2009

Area	Original Project	%	Additional Financing	%
Area 1	243	17	351	23
Area 2	417	29	495	33
Area 3	763	54	663	44
Total	**1,423**	**100**	**1,509**	**100**

Source: Project MIS

Table 2.12.2: Subprojects by Municipality including Subprojects financed with Additional State Counterpart, 2002-2009

Nos. Subprojects	Nos. Municipalities	%
0 - 5	42	23.70
6 - 10	39	22.06
11 - 20	47	26.58
21 - 30	27	15.25
31 - 50	18	10.16
51 - 100	4	2.25
	177	**100.00**

Source: Project MIS

Integration:

2.13 The Additional Financing project successfully leveraged a total of US$91.3 million under its integration objective, a ratio of US$2.70 for each US$1.00 of Loan funds under Component 1, well short of the projected (and quite unrealistic) ratio of 1:7 but a striking achievement nonetheless.[34] Of this amount, US$13.6 million represent additional State counterpart funds processed on behalf of project beneficiaries through the Municipal Councils as envisaged at appraisal, while US$77.7 million represent resources leveraged through partnerships established by SDA/STU with Federal and State water supply and electricity programs/agencies (see Table 2.14.1 below), targeting project-eligible rural communities state-wide but not processed through the Municipal Councils. High level partnerships/agreements were established between SDA/STU and agencies such as the Ceará Water and Sanitation Company (CAGECE) and the State Secretariat of Infrastructure (SEINFRA), as well as the Federal *Luz para Todos* and Million Cisterns programs, to benefit project-eligible communities under the State's strategic goals for water and energy coverage.

2.14 Integration was also strengthened through an agreement between the Federal Ministry of Agrarian Development (MDA) and SDA under which all 177 project Municipal Councils now belong to one or other of 13 Territorial Development Councils (TDC), tasked inter alia, with drawing up annual Territorial Development Plans (TDP) setting priorities and allocating resources from a range of federal, state and municipal programs. Quite independently of the State's new territorial strategy, about 40 more advanced Municipal Councils were actively

[34] Evidence was not strong at appraisal of either the original project or the Additional Financing that this was already happening to any degree or that the Councils in Ceará had the capacity to handle integration as envisaged. The Project Paper for the Additional Financing cites a ratio of 1:4 already achieved under the original project.

deliberating the resources of other programs at closing, an emerging trend noted by Binswanger et al (2006) and which can be exploited under any follow-on operation.

2.15 Local level integration of programs and policies through the Councils was more complex technically and operationally than it seemed at appraisal of either stage of the project. In practice, integration also proved to be a richer and more dynamic process extending operationally well beyond the Councils which turned out to be one institutional element among several with potential to support the project's target population, under the project "umbrella". The Secretariat of Agrarian Development and its affiliate STU proactively sought ways to promote the project and needs of its target population, and to achieve the State's strategic goals for poor rural areas. The actual process, its success in integrating policies and programs, whether it improved the allocation and impact of public expenditures on rural poverty and the extent to which the Councils were/can be influential in broader local planning – all cited in the PAD as goals of integration - merit formal analysis.

Table 2.15.1: Resources Leveraged from other Programs/Activities for the Project's Targeted Population (US$ million)

Activity	Execution (US$ million)					
	Total Value	Beneficiary Contribution	Value: State	Value: Federal	Value: Bank	Private Initiatives ****
Agreement: Cisterns*	9,717,971.18	-	2,028,818.01	7,689,153.17	-	-
Other Programs SDA 2006-08*	12,162,178.11	-	6,074,591.12	6,087,586.99	-	-
CAGECE 2006-08 Rural Areas* **	23,309,130.66	-	23,309,130.66	-	-	-
SEINFRA 2006 Rural Areas* ***	32,530,183.98	-	-	21,686,789.32	-	10,843,394.66
Additional Subprojects (AF) *****	10,323,192.22	1,032,319.22	9,290,873.00	-	-	-
TOTAL	**88,042,656.15**	**1,032,319.22**	**40,703,412.79**	**35,463,529.48**	-	**10,843,394.66**
Ln. 4626-BR Component 1	45,081,786.95	4,508,178.70	5,875,398.87	1,314,777.33	33,383,432.06	-
Ln. 7387-BR Component 1	45,861,671.80	4,586,167.18	7,396,170.62	-	33,879,334.00	-
Additional subprojects (AF)*****	3,279,397.79	327,939.78	2,951,458.01	-	-	-
TOTAL Project, Component 1	**94,222,856.54**	**9,422,285.65**	**16,223,027.50**	**1,314,777.33**	**67,262,766.06**	-
Executed	**182,265,512.69**	**10,454,604.88**	**56,926,440.29**	**36,778,306.81**	**67,262,766.06**	**10.843,394.66**
% Executed	193%	100%	351%	N/A[35]	100%	N/A[36]

Source: State Technical Unit/SDA

* Converted at US$1.00 = R$1.9508 (06/30/2009)

** Investments in improved Household Sanitation, Water Supply Systems, and Sewage Systems

*** Investments in Rural Electrification - *Luz para Todos* program

**** COELCE - under *Luz para Todos* program

***** Total value of subprojects financed under the Additional Financing comprising: (a) US$3,279,397.79 of subproject investments where State counterpart contribution was higher than foreseen under the Loan Agreement; and (b) US$10,323,192.22 of subproject investments using State resources exclusively.

Reais converted at R$1.9508/US$1.00.

[35] Not calculated because not foreseen at appraisal.

[36] Ditto

2.16 Performance results at end-project are shown in Table 2.17.1 below:

Table 2.16.1: Component 1 - Project Performance Indicators at end-Project

Components and Activities	Institution Responsible	Target Original Project	Adjust. Target Original Project	Target AF[37]	Actual Total EOP	Actual to Aggregate Target (OP/AF) %
Comp.1:Community Subprojects	Beneficiary Associations	2,000	1,550	1,300	2,932[38]	103.0
Infrastructure (#)		904	697	650	2391	177.5
Productive (#)		420	325	390	531	74.3
Social (#)		676	528	260	10	1.3
Beneficiaries	STU/MC					
Total (Families)		119,000	109,000	68,000	185,461	105.0
Total (Individuals)		516,000	436,000	396,000	927,305	111.5
Women as % of productive subproject beneficiaries (%)		40	NA	NA	20	50.0
Community assns. benefited (#)	STU/MC	1,125	NA	1,300	2,470	102.0
Municipal Councils created (#)						
FUMAC (#)	STU	136	NA	177	177	130.0
FUMAC-P (#)	STU	15	NA	NA	0	0.0
Municipalities benefited (#)	STU	177	NA	177	177	100.0

2.17 **Component 2: Institutional Development** (OP US$3.50 million, AF US$3.24 million, 7% and 6.5% of total estimated cost, respectively) financed technical assistance and training to build capacity in implementing entities including the community associations, municipal councils and the State Technical Unit (STU). Modest funding was also included under the original project to support state institutional modernization related to poverty reduction programs and policies following a similar, successful activity under the previous project as part of the wider Bank/State dialogue. Activities were mainly training and information technology and equipment.

2.18 This component financed about 600 diverse training events for associations/beneficiaries, consultants, partner agencies, the Municipal Councils and the STU itself, of which about 500 events were conducted during the Additional Financing phase.

2.19 Total cost of the component was US$3.50 million under the original project (106% of appraisal estimate) and US$3.16 million under the Additional Financing (75% of appraisal).

2.20 Greater pro-activity in designing and delivering training was an important product of the state's restructuring of the project framework following the State Government's changeover in 2006. Renewed focus was put on the São José Agrário portion of the State's rural strategy which concentrated activities on land reform settlements in partnership with NGOs/other groups, and on Sao José Social focusing on indigenous and *Quilombola* groups, artisanal fishing

[37] The Additional Financing set new targets for numbers of subprojects, families and associations benefited, but all other targets carried through from the original project. No new Key Performance Indicators were included, and no baselines were set despite results of FECAMP (2005).

[38] Comprising 1,423 subprojects under original project, and 1,509 under the Additional Financing (including 317 subprojects financed exclusively with State counterpart funds).

communities, women and youth. Training for STU technical/other staff incorporated the results of project-financed studies and important adjustments were made to project implementation as a direct result. Studies by the University of Ben Gurion (Israel) and by the Federal University of Ceará were designed specifically to foster the STU's understanding of project norms, strategies and targets under each phase, and including Bank safeguards. [39] See table below.

Table 2.20.1: Training under Component 2 - Institutional Development, 2002-2009

Category	No. Events	No. Participants	Content of Training
Operations	477 (74%)	21,000	- Project norms, procedures, rules - Exchanges of experiences - Procurement and accounting (Councils) - Restructuring and training (Councils) - Environmental standards/Safeguards - Project methodology for local agents - Water supply subproject supervision - Support for productive investments - Preparation of *Carta Consulta*[40] - Training of local agents to prepare proposals for productive subprojects - Management and marketing for productive beneficiaries - Information dissemination to ethnic groups - Fish farming technical aspects - Operation and maintenance
Evaluation/Monitoring	19 (3%)	515	- Performance of FUMAC-P - Annual evaluations of STU activities - Presentations on evaluation studies/results - Definition of Logical Framework/project
Institutional Development	116 (18%)	1,882	- Technical exchanges on productive SPs - Definition state/national rural policies - Definition of territorial priorities - Sustainable development, semi-arid regions - Improve project processes - Management of small scale water supply - Construction of *Cisternas de Placas* - *Comércio Ético e Solidário* - Prepare PPA and POA - State Conference on *Rural Quilombolas*
STU capacity-building	34 (5%)	55	- Procurement management - Fiduciary/FM management - Development of *Arranjos Produtivos* - Technical Cooperation Agreement (IICA) - Technical analysis of productive subprojects - Territorial development - Exchanges of experiences/other states - Planning - Impact evaluation methodologies
Total	**600**	**23,452**	

[39] Respectively, **Desenvolvimento com Equidade e Redução da Pobreza: O Caso de Ceará.** Raphael Bar-El, University of Ben Gurion, Israel, 2005; and, **Avaliação do Projeto São Jose no Estado de Ceara: Estudo de Caso.** Akmad S. Khan e Lucia Maria Ramos Solva, UFC/Centro de Ciências Agrárias/Departamento de Economia Agrícola, Fortaleza 2002.

[40] Essentially a resume of priorities and proposals prepared by community associations on land reform settlements.

2.21 Performance results for Component 2 were as follows:

Table 2.21.1: Component 2 – Performance Indicators at end-Project

Component/Activities	Responsible Institution	Unit	Target OP	Adjusted OP	Target AF	Total EOP
B. Institutional Development						
Preparation, Annual TA/training program	STU/MC					
STU		No.	4	NA	3	7
Municipal Councils (F-P)		No.	56	NA	NA	NA
Community mobilization	STU/MC					
Beneficiaries		Seminars	130	NA	NA	155
Local leaders		Participants	2,600	NA	NA	2,800
No. training courses offered						
Beneficiary assns		No.	60	NA	NA	477
All Municipal Councils		No.	100	NA	NA	200
FUMAC Councils		No.	30	NA	NA	175
STU Staff		No.	NA	NA	NA	34
Technical assistance provided						
For subproject implement. (technology transfer)	STU/MC	SP attended	2,000	1,550	1,300	2887
To Municipal Councils	STU	Contracts	50	NA	NA	177

Source: Project MIS

2.22 **Component 3: Administration, Supervision, Monitoring and Evaluation** (OP US$1.50 million, AF US$2.16 million, 3% and 4.3% of total estimated project cost, respectively) financed the costs (excluding salaries) of project administration and coordination including supervision, monitoring and impact evaluation.

2.23 This component financed the incremental costs of project administration, supervision, monitoring and evaluation. Total component cost under both phases of the project was significantly less than estimated at appraisal: 70% of estimate for the original project and 41% of the Additional Financing estimate. Performance results are shown in Table below:

Table 2.23.1: Component 3 – Project Performance Indicators at end-Project

Component/Activities	Responsible Institution	Unit	Target OP	Adjusted OP	Target AF	Total EOP
C. Project Administration, Supervision, Monitoring and Evaluation						
Supervision						
Subprojects	STU/MC	No. visits	4,000	3,100	2,600	6,500
Municipal Councils	STU	No. visits	151	151	NA	500
Annual Operating Plans (POA)						
Prep. of POA FUMAC-P	FUMAC-P MC	No.	15	NA	NA	NA
Consolidation & preparation, Project POA	STU	No.	4	5	3	8
Standard subproject designs						
Preparation	STU	No.	5	NA	NA	5
Review/Updating	STU	No.	20	NA	NA	20
Monitoring Reports (to Bank)						

Monthly disbt. summaries and MIS update	STU	No.	48	NA	36	84
Annual, semi-annual reports	STU	No.	12	NA	9	21
External studies	STU	No.	4	NA	3	7
Evaluation studies						
Physical Performance Review (MTR)	STU	No.	1	NA	1	2
Impact evaluation						
Baseline	STU	No.	1	NA	NA	NA
Final	STU	No.	1	NA	1	2

Source: Project MIS

Annex 3. Economic and Financial Analysis

3.1 This analysis is based on data and information provided by a study conducted by the Project's State Technical Unit (COPPE), *Projeto de Desenvolvimento Rural Sustentável – Estudo de Casos* (Fortaleza, June 2009) utilizing data collected at end-2007.[41] Main findings of the study are attached as an appendix.

3.2 From 2002 to end-2007, the Project financed 2,477 community subprojects, benefitting 151,634 families, distributed over 177 municipalities. Some 65.6% and 23.7% respectively of the total number of financed subprojects at that time were drinking water supply and rural electrification which, in aggregate, accounted for 89.3% of the total subprojects and 89.1% of all beneficiary families. At that time, some 10.7% were productive subprojects and 0.04% social. For this reason, data and information for this exercise were collected from a sample of water supply, rural electrification and productive subprojects.

3.3 The main aggregate performance indicators, for water supply and rural electrification subprojects, are summarized in Table 1. The methodology applied for economic and financial analyses was the traditional estimation of the investment and benefit net present value, from which the benefit/cost ratio was calculated. From the streams of investment and benefits, Internal Rates of Return were calculated, along with the number of years needed to recover the investments. The cost data were obtained directly from the Project MIS, on an annual basis and expressed in *Reais*. Benefits were identified for each type of subproject (see below) and data/information collected from field visits and some from previous studies and expert validation. The main results are shown in Table 2. Details on data collected from field visits and additional features/results of the surveyed subprojects are shown in the Appendix to this analysis.

3.4 The economic and financial estimates (IRR, NPV, B/C ratio) were based on streams generated from the samples and expanded to the total number of water supply and rural electrification subprojects, applying some sensitivity analyses to partially compensate for the non-statistical representativeness of the samples. On the other hand, for the four types of productive subprojects no expansion was sought in view of the diversity and small number of such type of subprojects in the universe. These are to be seen as demonstrative cases of potentially successful productive investments (see Table 2 and Annex).

3.5 The field visits covered 20 sites for the selected subprojects (not all considered fully satisfactory) but the sample cannot be considered statistically representative. There were no control groups, which implies that the basic assumption is that if it were not for project financing, communities interviewed would have had no access at all (i.e., using other sources) to water and electricity[42]. In spite of these deficiencies, data and information used were considered acceptable and "typical" in many aspects, in the judgment of specialists with extensive knowledge of the field and these subprojects in Ceará. In order to compensate for these deficiencies, very conservative (i.e. lower) estimates were used instead of those obtained from field interviews. Even after using the lower estimates, a sensitivity analysis was done,

[41] This economic-financial analysis covers 2002-2007 because the relevant field data collection occurred in November 2007. Implementation continued through end-June 2009. The additional subprojects financed, from January 2008 to June 2009, did not significantly change the relative distribution of types of subprojects: water supply and rural electricity remained the most frequently financed subprojects.

[42] This is a reasonable assumption given the relatively large span of years between the foundation of the community associations and the date the financing of subprojects was obtained. For details, see appendix.

assuming the actual costs were 10% higher and, simultaneously, benefits were 10% lower. An additional analysis consisted of estimating economic and financial returns from the investment stream for all types of subprojects against the return stream for water supply plus rural electrification alone (see Table 2).

3.6 The time horizon used was 10 years, which was estimated to be consistent with the expected useful life of the investments. For the calculation of net present value of the streams of costs and benefits a discount rate of 10% was used.

3.7 Cost figures used in the analysis were obtained from the Project's MIS include investment costs financed by the World Bank, counterpart funding provided by the State of Ceará plus contribution from beneficiaries[43]. These costs were distributed according to annual payments made by the Project Technical Unit to the beneficiary associations.

3.8 The identified benefits from the water supply subprojects were: (i) savings on time for water collection; (ii) savings derived from reduction of waterborne diseases; and (iii) willingness to pay, which is a proxy for the value families attribute to the availability of water. As such it incorporates the effect of missing or unmeasured benefits such as comfort, wellbeing and others. It was measured using the average payment made by families for the water they receive from the project.

3.9 For the electricity subprojects, the identified benefits were: (i) additional employment opportunities generated by new industrial and commercial initiatives; and (ii) income generated by adults who benefitted from night schooling made possible by electricity availability.

3.10 For the productive subprojects, benefits were measured based on the net revenue of the resulting production. Details of the measurement of all these identified benefits are presented in Table 2 below.

3.11 The results shown in Table 2 are encouraging: the benefit cost/ratio is 1.42 for water supply and 1.23 for electricity subprojects even considering the limited number of measured benefits for both types of subproject. The associated IRRs vary, from 13% for rural electrification to 18% for water supply. The number of years to recover the investment for these types of investments is in the range of 6.2 to 8.4 years, therefore lower than the 10-year horizon used in the analyses.

3.12 In regard to the productive subprojects, the results are clearly mixed: while stone grinding and cashew nut production are economically and financially sustainable, the same cannot be said with respect to hammock production, which is clearly unsustainable as currently conducted, while small irrigation schemes barely reach an IRR of 10%. Both, however, have room for improvement by means of adoption of better production and business plans (including insertion in market opportunities).

3.13 The most interesting results are obtained when calculations are made for the whole project, i.e. when the total number of financed subprojects are taken into account. Four alternative estimates were done (see footnotes Table 2), the most restrictive one being alternative 4, whereas the total investment costs (i.e, for all types of subprojects funded by the Project) are charged and, on the other side, only benefits from water supply and rural electricity are considered with an additional reduction of 10% in these benefits. Even under such restrictive assumptions, the IRR is positive and equal to 10%, which compares with the current alternative market rate (SELIC) of 11.25%. Sensitivity analyses performed, by assuming costs that are 10%

[43] The inclusion of beneficiary contribution increases the total investments therefore contributing to more conservative estimates of economic and financial returns.

higher and benefits 10% lower, demonstrate what could be considered the most likely result: the benefit/cost ratio is around 1.16 and the rate of return approximately 11%.

3.14 For the single types of subprojects, the number of years to fully recover the investment in all cases is lower than 10 years, except as observed in the case of hammock production.

3.15 *Fiscal Impact:* Some limited evidence of fiscal impact can be estimated on the basis of the collected data and come from three sources: (i) sales tax collected by the State on home appliances bought by beneficiaries as electricity became available; (ii) savings derived from management of the water supply systems by beneficiaries instead of municipality and/or state; and (iii) the net benefit of water supply plus rural electrification subprojects, net of the cost of all subprojects. These sources provide, in a period of 10 years, income and savings which may reach as high as 94% of the total amount invested in the financing of all subprojects (R$223.3 million).

3.16 The conclusion that can be drawn from the simulations, even under very strict assumptions, is that community investment subprojects pay off given current conditions in Brazil, except in some cases of productive subprojects but even here, the solutions to better performance are known and need to be applied.

Table 1: Ceará Sustainable Rural Development Project (Projeto São José), Performance 2002-2007[44]

	2002	2003	2004	2005	2006	2007	Total
Sub-projects							
Water supply	322	315	251	337	306	92	1,623
Rural electrification	30	36	30	201	289	0	586
Beneficiary families							
Water supply	23,579	22,375	16,634	24,807	23,208	6,029	116,632
Rural electrification	961	1,797	888	6,420	8,387	0	18,453
Total Investment[45]							
Water supply	22,028,683	27,012,579	23,548,494	32,730,232	30,682,277	7,791,366	143,703,584
Rural electrification	2,230,816	1,598,114	2,640,124	18,673,888	29,439,173	0	54,582,118

[44] Source – Project Management Information System (MIS)

[45] Amounts expressed in Reais (R$)

Table 2: Ceará Sustainable Rural Development Project – Projeto São José: Benefit/Cost Ratio, IRR and Years to Recover Investment for Specific Subproject Types and Entire Project

Investment	PV* Investments (R$)	PV* Benefits (R$)	Benefit/Cost Ratio	IRR (%)**	YR (years)***
Water Supply	105,779,698	156,072,191	1.48	18	6.2
Rural Electrification	33,628,750	41,442,339	1.23	13	8.4
Productive:					
Stone grinding	108,601	368,674	3.39	45	2.0
Small irrigation	99,884	108,882	1.09	10	4.5
Cashew nut	90,251	545,873	6.05	>50	<1
Hammock	44,758	30.539	0.68	<1	10
Whole Project – 1[1]	139,408,447	197,514,531	1.42	17	NA
Whole Project – 2[2]	153,349,292	177,763,077	1.16	11	NA
Whole Project – 3[3]	160,766,060	197,514,531	1.23	13	NA
Whole Project - 4[4]	160,766,060	177,763,078	1.11	10	NA

***PV:** Present Value @ discount rate of 10%. Values in R$ ** IRR: Internal Rate of Return
*** **YR:** Years to Recover the Investments (payback period)
Sources: Investments - Project Management Information System (MIS); Benefits - field data collection (see Appendix)
[1] **Whole Project 1:** Investment for water supply plus rural electrification subprojects
[2] **Whole Project 2:** Same as above but assuming real cost of investments is 10% higher than originally estimated and simultaneously, estimated benefits are 10% lower (sensitivity analysis)
[3] **Whole Project 3:** Investment stream for all types of subprojects but benefit stream from water supply and rural electrification only.
[4] **Whole Project 4:** Same as 3 but with further reduction of 10% in total benefits from water supply and rural electrification subprojects

Appendix 1: Background to Economic Analysis

1.1 The São José II project, during its operational period from 2002 to June 2009, has been a fundamental instrument for further consolidating the participatory decision-making process for access to basic investments in infrastructure – notably rural electrification and water supply.

1.2 Up to end-2007, the São José II project financed 2,477 community subprojects benefiting 151,634 families (about 622,000 people), distributed in 177 municipalities. Of these, 586 were rural electrification benefiting directly some 18,453 families, and 1,624 water supply subprojects benefiting 116,716 families (about 479,000 people). The remaining 267 subprojects were 264 productive investments benefiting 16,266 families (67,000 people) and 3 social subprojects (not included in the sample).

1.3 The case study approach was adopted, taking into account the main types of subprojects and the communities and associations making the demands, executing and operating the investments financed. This analysis opted for a sample of subprojects compatible with the distribution profile of subprojects financed and representative of the universe of project activities. Three reasons are valid for expanding the application of results obtained from the study to a more representative universe: (i) apparent homogeneity of the units comprising the universe by type of subproject; (ii) the intentional decision by the Project State Technical Unit (STU) to include in the samples cases of subprojects considered moderately successful and "typical"; and (iii) communities with subprojects comprising the samples should be relatively dispersed geographically.

1.4 Based on these directives, the STU selected 20 subprojects/communities for analysis whose relationship is presented in Annex 2 and distributed as follows:

Types of Subprojects	Total Subprojects Financed	Distribution %	Size of Samples Used
Rural Electrification	586	23.7	8
Water Supply	1,624	65.6	8
Productive	264	10.7	4
Total subprojects selected*	2,474	100.0	20

A technical team from the STU conducted the field survey/research from November 1-20, 2007, interviewing beneficiaries, leaders of community associations, and people who knew about the subprojects, and their histories. Questionnaires were used, one for each type of subproject studied, with questions permitting variously, open or closed responses. To complement this information, some researchers returned to the field in December.

Rural Electrification:

1.5 The communities analyzed average 35.6 families residing in an average 36.6 house-holds. The communities are located on average 24 km from the municipal capital, and are considered poor with an average IDH-M of about 0.622, ranging from 0.597 to 0.668. According to the survey conducted, whose percentage incidence is shown below, communities vary considerably in terms of the availability of and/or free access to, social and economic equipment/facilities.

Availability of basic social investments such as schools, health posts and water supply is still seriously deficient.

Social and Economic Equipment/Facilities	% Incidence
School	50.0%
Water Supply	37.5%
Community Center	12.5%
Manioc Mill	25.0%
Churches	75.0%
Health Post	12.5%

The study showed that 62.5% of communities also had other subprojects financed by the Project. However, data revealed that the majority of these associations demonstrated pro-activity in seeking benefits for their communities.

1.6 Among the associations studied, 75% were founded prior to obtaining the financing for their electricity subproject. Foundation dates ranged from 1996 to 2006 while their subprojects were financed between 1996 and 2007. The average "wait", measured by the difference in years between foundation of the association, and date of first financing of a rural electrification subproject for 75% of the associations which already existed before the project, was about 7.6 years. Once again, evidence does not corroborate the frequent comment that the associations are formed exclusively to access/receive project financing. Even if they were, Brazilian law requires such organization prior to accessing the benefits of any public program, not just the Bank-supported project.

1.7 The associations have an average cohort of 41.9 active members varying from 15-90, an average superior to the number of families (35.6), showing that there are families with more than one member being part of the association.

Factors contributing to obtaining a rural electrification subproject:

1.8 There were various factors understood by those interviewed as having contributed positively to the project: (i) active leadership from the community combined with the influence of local political figures (75%); (ii) in 50% of cases studied there was strong mobilization of the community once they became aware that they could access financing; and (iii) Municipal Councils prioritized certain kinds of investments (37.5%).

Characteristics of subprojects:

1.9 Main characteristics of subprojects are summarized as follows:

Characteristic/Subproject-Rural Electrification	% of Cases
Average extension of the high tension lines	2.1 km
Average extension of the low tension lines	10.2 km
Tri-phasic line	37.5 % of cases
Monophasic line	100% of cases had subprojects with both
Average duration of subproject execution	7 months

Operating normally (There were cases where the association did not consider the project to be operating normally because demand for energy for industrial use had not yet been attended to).	87.5% of cases
Contribution of communities to financing	87.5% of cases
Subproject prepared and executed by firms contracted by the associations or by a concession company.	100% of cases

Principal results of subprojects:

Results	Averages of the Sample	Total (Projection)
Families directly benefited	36.4	21,370
Persons benefited	147.5	106,000
Houses connected	36.4	21,600
Streets illuminated	0.3	180
Commercial and industrial connections	0.5	297
Schools connected	0.75	445
Social centers	0.25	148
Manioc Mills	0.25	148
Health Posts	0.13	74
Creches	0.25	148
Churches	0.75	445

Social capital of communities benefited with electrification subprojects:

1.10 Communities and their respective associations, even before the execution of subprojects, were already maintaining a relatively high level of interaction between members through participation in meetings. In 67.5% of cases analyzed, meetings were still being held with the same regularity as previously. In 25% of cases, members actually started to meet even more regularly, once a month; in only 7.5% of cases, members met regularly every three months, or whenever necessary.

1.11 Those interviewed judged, in 50% of communities, that their members became more active at meetings after subproject installation, although the actual level of participation did not increase in 37.5% of cases studied. For 12.5% of cases, participation diminished after their objective was achieved. The active participation of beneficiaries, even prior to the implementation of their subproject, was evident in that 62.5% of associations analyzed had obtained financing for some other form of investment (infrastructure, productive and/or social).

1.12 In terms of the degree of confidence in the community, it was detected that after implementation of their subproject: (i) 50% of interviewees showed the conviction that residents degree of confidence had increased in relation to their association and their leaders; 37.5% maintained the same degree of confidence and of the remaining 12.5% showed a decline in confidence; (ii) 50% of communities considered that it had become easier to get the support of fellow members to resolve community problems, while 25% affirmed that they were always

present; only 12.5% said that their fellow members never contributed and the remaining 12.5% considered that it had become more difficult to get the support/contribution of members once the target of getting electricity was achieved.

Economic and financial analysis:

1.13 Considering that each rural electrification subproject generated on average 3.4 new jobs and there were 586 implemented, there were an estimated 1,992 new jobs created. Also, taking into account that the growth in income was about R$150.00 monthly per new job, it can be concluded that there was an annual increase in income valued at about R$3.6 million.

1.14 In 50% of cases, community schools began to offer night school with literacy courses benefiting an average 20 adults per class or, that 10 per community benefited with a projected total of 5,900 adult students. Supposing that this skill implied adding 20% to the minimum salary governing a person's income, total income gains were an estimated R$5.38 million.

Water Supply Systems:

1.15 **Characteristics of the communities:** The communities benefited demonstrated that they were effectively among the municipalities with relatively low IDH-M (2000): 0.660 on average, varying between 0.607 a 0.721. It should be noted that in the municipalities with higher IDH, communities are located at distances of 40 to 67 km from the center/capital. The population of the communities ranges from 17-110 families with an average of about 62. The tendency is, for the most part, to have one family per household. There are cases, as in the Community of Poço da Pedra, where more than one family lives in a house (1.2 families/home). The communities studied were situated at a distance averaging 44 km from the municipal center, with extremes ranging from 15 to 125 km, without access to municipal water supply systems.

1.16 Eleven communities were in the process of organization and were represented by their respective association. The water supply subproject results from an effort launched a long time ago. In 50% of cases analyzed the institutionalization of the associations preceded by more than 10 years, their obtaining the water supply subproject. However, in 12.5% of cases, the association was established to obtain the water supply investment. This is not to say that other communities/associations had not obtained other benefits/investments from other sources, and from the project itself, before the project-supported water supply. In 37.5% of cases, the project itself had financed other subprojects, 25% of which were electrification and 12.5% were reservoir recuperation, before the water supply investments.

1.17 Analysis of the organizational and participatory life of the communities revealed that the numbers of active association members represented a significant fraction of the population, averaging 61% and ranging from 21% to 129% (possible when more than one member of a family is a member). The percentage participation does not correlate with the community population size or with municipal IDH-M, suggesting that it depends on other factors such as the degree of commitment of local leaders, and level of information available.

1.18 The precedence of electricity over water supply is worth noting. In 100% of cases analyzed, the communities had electricity before the water supply subproject. This might reflect: (i) greater priority from communities for the benefits of electricity; and/or (ii) energy is recognized as a pre-condition for making water supply systems effective (pumps etc); and/or (iii) greater ease in obtaining financing electricity than water supply.

1.19 Communities studied did not possess much economic and social infrastructure, besides water supply. There was still a lack of fundamental social facilities such as schools and health posts. Only 62.5% had a school and none had health facilities.

1.20 According to beneficiaries interviewed, the factors which contributed most to obtaining a subproject were quite diverse: initial guidance from political local leaders; knowledge acquired from implementation of similar subprojects in other communities; and, commitment of the Municipal Councils to community development. Detailed factors contributing to obtaining a subproject are tabled below:

Factors contributing to obtaining subprojects	**% of cases**
Community was always very united	50.0
Subproject implemented in other communities	62.5
The community mobilized when it learned of the possibility of getting a subproject	50.0
Was part of the municipal sustainable development plan	25.0
Community leader is very active	37.5
Guidance from political leaders	75.0
Commitment of the Municipal Council to developing our community	62.5

1.21 Accumulated social capital in the communities can be seen in two other instances: (i) in 100% of cases, the decision to choose the particular subproject occurred at an assembly, with ample participation of beneficiaries; and (ii) within the Municipal Councils, the decision was taken by vote of the Council members.

Characteristics of the subprojects

1.22 In all cases analyzed, water supply systems were classified as complete, that is, with household connection. Water capture from ground water sources predominated (75%) with capture being mostly through the drilling of wells. In 62.5% of communities the subproject did not benefit all residences. An average 44.5% of households per community were connected, leaving an average 10.3 households to be connected. On average, 1.3 houses were built after implementation of the subproject. In only 12.5% of communities was the use of the water intended for commercial purposes.

Beneficiaries

1.23 Water supply subprojects benefited directly, on average, about 72 families per community. In total, 1,624 such subprojects were implemented, benefiting about 116,716 families. In 100% of cases, the communities benefited participated in the financing of systems, basically in the form of manual labor, although in some cases, the mayor also shared the cost. In 100% of cases the associations relied on technical assistance for subproject preparation, whether through consultants contracted by the association (50% of cases), or through the mayor's office (37.5%). In 12.5% of cases, the associations were unable to respond.

Execution, Operation and Maintenance of Subprojects

1.24 In 100% of cases, associations opted to contract firms to execute their subprojects. This number is not surprising, bearing in mind the need for specialized services such as drilling of wells and construction of elevated reservoirs.

1.25 The cases analyzed confirm that the water supply systems financed by the project are operated and maintained by the beneficiaries. In 87.5% of cases, beneficiary families were paying a user fee which varied from R$6.00 to R$11.50 per month/family. In terms of arrears, only one community reached 10%.

1.26 Completed systems tend to be an employment alternative for some members of the community. The research showed that 67.5% of the communities operated their own systems. Each community has one member occupied in each system. Assuming an error of 10% from the average, it is estimated that between 960 and 1,160 persons are occupied with operation and maintenance of all systems financed by the project, administered directly by the associations. Besides those administered by associations, there are other systems administered directly by SISAR, which also maintains people to operate the applicable systems in such a way that the numbers above are probably under-estimated.

Principal Results of Subprojects

Water quality:

1.27 Systems studied are providing water of high quality in 100% of cases. Among these, 12.5% of the water is considered of good quality naturally, unpolluted and without need for treatment. In 50% of communities the water is treated and in the other 37.5%, the community intends to implement treatment via a fee-for-service arrangement.

Coverage and capacity of the systems:

1.28 In 25% of communities, the system is reaching all residences. In general, 83.6% of households are connected to the networks, 14.6% are not connected, and 1.9% were constructed after the project was implemented. In 100% of cases, interviewees confirmed that the systems implemented have capacity to attend/benefit all households in the communities.

Interdependence of investments:

1.29 In all cases analyzed, water supply systems were installed after the installation of electricity. Data confirm that, except in exceptional conditions, water supply systems depend on the availability of electrical energy.

Water usage:

1.30 The water is destined principally for human and domestic consumption. In a majority of cases (87.5%), the water is also being used for animal consumption and 12.5% to attend to the needs of commercial installations. Some cases were identified in which the water provided by the systems is used for the irrigated production of fruits and vegetables on an individual basis.

Transformations and changes brought by water supply subprojects:

1.31 Before the subproject, communities relied on precarious sources for water: public dams, private reservoirs, mines, public water trucks, rivers, and streams. Data on such usage is shown below:

Water Source	Frequency %
Public dam	37.5
Private dams	37.5
Mines	12.5
Water trucks	12.5
River, stream	12.5
Other	37.5

Distance of fixed water sources:

1.32 Fixed sources can be at a distance of up to 2.4 km from the location of residences, demanding time and costs to obtain the water. However, the majority of fixed sources are situated at a distance of around 500 m.

Quality of water sources:

1.33 Quality of water from distinct alternative sources was considered good in 62.5% of cases (mines, rivers and reservoirs), regular in 25% (private dams) and the remaining 22.5% were considered unsatisfactory.

Time savings:

1.34 Another important transformation from water supply installation has been the time savings and improved wellbeing of families who no longer have to walk long distances carrying large volumes of water. Some 35 members of the community, on average, carry water for an average of 3.5 hours per day. This is time taken away from other activities: domestic duties, agricultural activities and rest; for young people, school tasks and play. With an error of about 10%, it is estimated that between 50,000 and 60,000 persons were dedicating 3.5 hours daily to finding water in all communities subsequently benefited with water. Considering only the adults (40%) and estimating only 50% working, there was an estimated economy of 2.2 million equivalent work days per year. At the current daily work rate of a rural laborer (R$7) and that this 50% would have been working if they had not been collecting water, the time savings in employment terms would be equivalent to something like R$15.4 million per year.

Capacity of installed systems:

1.35 According to beneficiaries interviewed, water systems in drought periods were sufficient in 87.5% of cases to attend at least the water supply needs of humans and animals. Some 12.5% required supplementary water via public water truck during the dry season (four months per year). Even with these systems, 25% were considered sufficient to attend to small individual irrigation schemes.

Impact on the reduction of water-borne illness:

1.36 Evidence from beneficiaries indicates that some of the most common illnesses experienced before the subproject were diarrhea, parasites and dengue fever. Interviews revealed a reduction of 35% in the incidence of these illnesses, mainly in children. It should be noted that dengue is not a disease transmitted directly by water and thus its incidence would not be significantly impacted by water supply subprojects.

Impact on commercial and industrial initiatives:

1.37 Due to the relatively short period between the conclusion of the subprojects studied and the actual study itself (average 6 months), only a modest increase was noted in productive/entrepreneurial ventures. In only one-quarter of cases studied (electricity/water), were luncheon stalls, milk chilling facilities and small-scale irrigated agriculture operations detected as a direct result.

Social capital development:

- Interviews revealed that the subprojects resulted in communities' greater sense of ownership/belonging, expanding their sense of confidence among their neighbors:

- Association members, following implementation of the subproject, in 87.5% of cases started to meet more regularly and 12.5% maintained the same regularity as before. This suggests the liveliness of associative activity following the conclusion of subprojects.

- The level of engagement of members in actions promoted by the associations reveals a positive trend. After installation of the subproject, members were more active in 87.5% of cases and about the same in 12.5%.

- Some associations did not limit their activities just to the Project. Even before subproject installation, 37.5% of associations had already conducted actions benefiting the community including with non-project resources. Such activities included: housing renovation; construction of cisterns, acquisition of tractors; rural electrification and community telephone services.

- After execution of the subproject, 37.5% obtained financing for other community investments among which were housing improvements and planting of fruit trees. This suggests that the subprojects promote new community initiatives.

- In 87.5% of cases, the participation of members in solving community problems became easier. In 12.5% the situation remained the same but members always contributed to finding solutions.

- All communities surveyed revealed that they had stated to act with more confidence in their efforts to present new demands to public agencies and resulting negotiations with those bodies.

Economic and financial analysis:

1.38 Completed systems have become direct (albeit limited) sources of employment and income for community members: research revealed that 67.5% of communities operate their own systems, each subproject occupying one person full-time. With an error of 10% it is estimated that in total, between 960 and 1,160 persons are occupied with the O&M of all completed systems financed. If each person receives one-half a minimum salary, there will be an aggregate gain in income of R$2.874 million. However, since these resources come from the communities themselves through O&M user fees, the impact is canceled out in terms of income generation.

1.39 There was a reduction in water-borne sickness, potentially increasing the productivity of workers. Some 35 persons per community on average, were benefited by reduced disease. If just one useful day is gained per month per beneficiary, with the daily wage rate at R$7.00, there would be an annual incremental gain of R$4.77 m.

Productive subprojects

1.40 The project financed a relatively small number of productive subprojects but with significant and sustainable capacity to generate income and productive employment. The first productive experiences demonstrated potential viability including honey, irrigated agriculture, cashew processing, craftwork and specific cases such as stone grinding (masonry).

1.41 The project financed 264 productive investments of which four were studied for this appendix: hammock-making in the Community of Mocotó in Várzea Alegre Municipality; cashew processing in Barreira Municipality; irrigated agriculture in Quixeramobim (Vale do Forquilha community); and stone grinding (masonry) in the Várzea da Onça community, in Quixadá Municipality. All communities studied have a school, 50% have a health post and 50% a community center. The average IDH of these municipalities is 0.641, ranging from 0.619 to 0.673.

1.42 In all cases, the subprojects comprise the purchase of equipment. Half included building of infrastructure. In only one of the four examples was training provided to beneficiaries and in three cases, beneficiaries received support for the purchase of materials.

1.43 In only one case was a business plan prepared for the subproject, and it was prepared by the community itself. All cases received help from outside entities, mainly SEBRAE, SDA and for two cases, the Bank of Northeast Brazil.

1.44 Beneficiary associations grouped together persons with common interests, averaging 70 beneficiaries per community, generating an average 157 additional jobs. In all cases the community association preceded the financing of the subproject. The average age of the associations at the time subproject resources were released was about 13 years.

1.45 The motivation driving associations to seek financing stemmed from experiences with activities they were already developing. All associations had already developed the activity in question, considered a local tradition and vocation of association participants. These characteristics contributed to the success of these activities even though only one association had done a market study.

1.46 A brief economic/financial analysis of these productive subprojects is presented below.

(a) **<u>Stone-grinding</u> (stone masonry):**
Beneficiary Association: Associação Comunitária dos Exploradores de Pedras da Várzea da Onça.
Community: Várzea da Onça
Municipality: Quixadá
Date of Agreement: 06/12/2006
Investment Value: R$ 119,460
Value Financed: R$ 107,514

The community of Várzea da Onça, about 18 km from the municipal center of Quixadá comprises 302 families which traditionally produced pebbles/flint stone manually and with low

returns. The subproject aimed to improve production through technological innovation and expansion of local markets taking into account existing markets, the quantity of raw material available in the region and the accumulated experience of the community. The Community association has 17 members, direct beneficiaries of the initial investments. The investment of R$119,460 generated 412 additional jobs, for community members. The investment was used to acquire a grinder, drive belt, a vibrating screen and various other pieces of equipment.

Gross returns in 2006 were about R$400,000, expenses for inputs that year totaled R$200,000 resulting in a gross annual return of R$200,000. With a real increase in invoicing of R$80,000 and of R$20,000 in inputs, the projected increase in gross income is R$60,000. Using the hypothesis that the project life will be 10 years, the Internal Rate of Return is about 49.31%, superior to the SELIC Rate which is currently 11.25%. The subproject payback period is a little over two years. Considering a margin of security of 10% for gross receipts adjusted to R$72,000, and expenditures adjusted to R$22,000, the gross result is equivalent to R$50,000 for 10 years, and a new IRR of about 40.45% p.a., still superior to the SELIC Rate.

(b) **Irrigated Agriculture**

Beneficiary Association: Associação dos Produtores do Vale do São Bento
Community: Vale do São Bento
Municipality: Quixeramobim
Date of Agreement: 11/29/2006
Investment Value: R$ 109,872
Value Financed: R$ 98,885

The subproject was prepared with the intention of recuperating damage caused by the flooding of the Forquilha/São Bento Valley in January 2004. The community was already practicing irrigated agriculture but the floods damaged their system, compromising production. The community is located 43 km from the municipal center and has 22 families. The association has 26 active members, 22 of which are occupied directly by the subproject. Initial investments financed by the project were around R$ 109,872 and utilized to recuperate the irrigation system and purchase plastic boxes to support marketing in regard to the delivery/transport of product. The subproject benefited directly about 66 families with a tradition of irrigated fruit and vegetable production. The subproject strengthened the unity and organization of producers, improved quality of life and food. It generated employment and income because the community did not have access to conventional credit lines. Due to this business, the community established a confectionary plant and markets the products door to door.

The investment was used to acquire drip irrigation tubing, micro aspersion equipment, pipes and plastic boxes.

Gross receipts in 2006 were around R$200,000. Expenses on inputs in the year totaled R$25,000 producing an annual gross return of R$175,000. The increase in gross receipts was R$ 50.000 and expenses on inputs was R$ 25,000 producing additional income of R$ 25.000. Working with the hypothesis that the duration of the subproject is 6 years due to the nature of the investments, the Internal Rate of Return is 10% p.a. and the payback period is over 4 years.

(c) **Processing and Marketing of Cashew Nut**

Beneficiary Association: Associação Comunitária de Barreira
Community: PA Rural Olaria
Municipality: Barreira
Date of Agreement: 06/12/2006
Investment Value: R$ 98,276
Value Financed: R$ 88,448

The cashew processing subproject and expansion of physical structures of the old plant was designed to respond to a long-standing complaint of the community which had worked for over 16 years on the primary processing of the product, a low return activity. The objective of the proposal was to market the cashew including for export and expand opportunities for employment and income. The community is located 1 km from the municipal center and comprises 100 families. The subproject aimed to benefit 220 people and generate 10 additional jobs. Initial, project-financed investments were about R$98,276 and used to renovate the building structure, for the oven (*estufa*) and for packaging.

Gross receipts in 2006 were about R$792,000. Expenditures on inputs and labor totaled R$648,000 producing an annual return of R$144,000. Hypothesizing that the subproject has a 5-year life, it shows an elevated IRR of about 145% p.a. The subproject payback period is less than one year. Taking into account a reduction of 20% in gross returns as a margin of security, the new IRR would be 115%, revealing that the investments made are relatively modest when compared to the volumes transacted annually by the subproject.

(d) **Marketing of Hammocks**

Associação Beneficiada: Associação Comunitária de Mocotó
Community: Sítio do Mocotó
Municipality: Várzea Alegre
Date of Agreement: 06/12/2006
Investment Value: R$ 49,233
Value Financed: R$ 44,310

The community of Mocotó is located 12km from the center of Várzea Alegre Municipality, comprises 48 families and was first benefited with a hammock plant in 1989, followed by a rural electrification subproject in 1998, tractor/equipment subproject in 2000 and water supply investment in 2004. The subproject studied sought to increase the marketing of hammocks by expanding the number of installations, and involves 36 members from four communities in Várzea Alegre. Initial investments financed by the project were about R$ 49,234 and used to construct a factory building (shed, bathroom and storage depository) and purchase seven electric machines.

For the community, the subproject increased factory income by 20%, generated jobs for a greater number of women and strengthened group cohesion.

Gross receipts in 2007 were R$ 64,167. Expenses on inputs totaled R$ 59,197, providing an annual gross result of just R$ 4,970. Monthly production of hammocks went from 50 to 150 following expansion of facilities, and the facility has most of its female workers participating in various training courses in management, rural entrepreneurship, cooperative production and marketing, seeking to make the enterprise ultimately more profitable.

This production facility is a major advance in social terms and demonstrably sustainable but the return on investment is very small. Its results so far - at least in the interim pending practical results from training received - need to be evaluated from the standpoint of impact on community organization, gender focus and the inclusion of persons with locomotion difficulties.

Annex 4. Bank Lending and Implementation Support/Supervision Processes

(a) Task Team members

Names	Title	Unit	Responsibility/ Specialty
Lending			
Supervision/ICR			
Susana Amaral	Financial Management Specialist	LCSFM	Fin. Management
Tulio Barbosa	Consultant	LCSAR	Agric. Economist
Joao Barbosa-De Lucena	Consultant	LCSAR	Agriculturalist
Edward William Bresnyan	Snr. Rural Development Specialist	LCSAR	Agric. Economist
Raimundo N. Caminha	Consultant	LCSAR	Agriculturalist
Luis O. Coirolo	Consultant	SASDA	Agric. Economist
Alberto Costa	Consultant	ARD	Anthropologist
Jorge A. Munoz	Lead Rural Develop. Specialist	LCSAR	Rural Development
Estela Neves	Consultant	LCSAR	Environment
Anna F. Roumani	Consultant	LCSAR	Rural Development
Melissa Williams	Operations Officer	SASDA	Rural Development
Luciano Wuerzius	Procurement Specialist	LCSPT	Procurement
Maria de Fatima de Sousa Amazonas	Senior Rural Development Specialist	LCSAR	Project Manager / Rural Development

(b) Staff Time and Cost

Stage of Project Cycle	Staff Time and Cost (Bank Budget Only)	
	No. of staff weeks	USD Thousands (including travel and consultant costs)
Lending		
FY01	26	123.25
FY02	9	56.02
FY03		0.00
FY04		0.00
FY05		0.00
FY06		0.00
FY07		0.00
FY08		0.00
Total:	35	179.27
Supervision/ICR		
FY01		0.00
FY02	5	27.05
FY03	6	39.93
FY04	21	65.27
FY05	31	67.94
FY06	33	85.62
FY07	12	35.98
FY08	9	55.77
FY09	17	53.97
Total:	134	431.53

Annex 5. Beneficiary Survey Results

5.1 The project financed a comprehensive evaluation program combining baseline and final impact evaluations, case/other studies, Physical Performance Studies and a final Borrower Completion Report. Ceará was also included among the three Northeast states studied for the quasi-experimental evaluation (Binswanger 2006). Beneficiary/stakeholder surveys using standard, accepted methodologies were the basis for all evaluations/studies and control groups were used in most cases (see below). The following summarizes findings of FECAMP (2005) and ACEG (2009), as well as the quasi-experimental study coordinated by Binswanger et al. (2006). A synthesis of case studies conducted in 2007 (SDA 2009) is included as background to the economic analysis and appended to Annex 3. The Borrower Completion Report has been used as a basic reference throughout the ICR. All documents listed in Annex 9 are held in Project files.

A. Baseline Evaluation (FECAMP 2005)

Methodology

5.2 The FECAMP (2005) baseline study in Ceará (the study also covered Pernambuco and Bahia) covered 629 beneficiaries and a control group of 420 families (non-participants), using smaller sub-samples for specific lines of enquiry. Total subprojects financed accounted for 44% of the total volume of resources expended at the time, benefiting 40% of total families attended by the project from 2002-2003. Interviews were conducted with representatives of Municipal Councils, at least one representative of the association benefited by the subproject and at least two beneficiary families/subprojects (total 629) and non-beneficiary families (420).

Results

5.3 The study confirmed that the project was reaching its intended beneficiaries. Analysis of the conditions of beneficiary communities, where the majority lacked basic services such as water and energy, and the socio-economic profile of beneficiaries, confirmed that the project was reaching poor communities and extremely poor families. Adult education levels were low with 77% lacking any instruction. Average monthly income was R$499 with a high concentration of families in the lowest income ranks. Even families with slightly higher incomes and who could be considered outside poverty on income alone, remained poor based on unattended needs. The study also noted the large number of *minifundistas* and under-capitalized settlements with few job opportunities, and scant insertion in labor markets either rural or urban. Analysis of families' food status also indicated that the subprojects studied were reaching poor families. In 2000 about 35% of beneficiaries were food-insecure and 27% were also suffering hunger.

5.4 The study also estimated the project's reach in terms of total rural poor, concluding that on average, 60% of the poor population of each municipality was directly attended by the 1st and 2nd Rural Poverty Reduction Projects up to end-2003.[46] Not only in relative terms but also absolute, this reach is high, since 70% of the state rural population is below the poverty line.

[46] This means the Rural Poverty Alleviation Project and follow-on Rural Poverty Reduction Project (subject of this ICR).

Family Wellbeing

5.5 Case studies consistently indicated that the living conditions and family wellbeing of beneficiaries improved markedly compared to control groups. Also, in general terms, the study was able to capture the perception of interviewees in regard to the project's impact on quality of life and their families in the period from 2000 (before implementation of their subprojects) and 2003. About 86% of beneficiaries stated that the project had improved their quality of life, stating in order of importance: (i) impact on family health; (ii) impacts on material living standards (house, sanitation, durable goods); and (iii) impacts on food conditions. Among the impacts on living conditions of beneficiaries of the main subprojects was the expansion of houses with piped water supply (18% to 50%), electricity (62% to 90%), and septic tanks (42% to 51%).

5.6 **Water supply.** In regard to water supply (piped and cisterns), a sector in which the project was strongly represented, analysis using PNAD data showed that significant progress had been made in Ceará, an exceptionally dry state. Ceará was notable among the three states studied for evolving rapidly from a precarious water situation to the best among the three. Improvements from water supply and cisterns (representing 87% of all beneficiaries in Ceará at the time of FECAMP's field surveys) frequently cited included: (i) better quality of water consumed (60%); (ii) regularization of water supply (88%); (iii) reduced health problems in 88% of cases from not having to carry heavy loads of water over distance; (iv) greater physical comfort of family members (78%); (v) more time for leisure/other activities; (vi) reduced incidence of disease (30%); and (vi) increased variety of foodstuffs (28%). About 20% of interviewees mentioned improved production conditions. In the case of small scale dam subprojects, there was an increase in agricultural production and herds, indicated by 21% and 36% of beneficiaries respectively.

5.7 **Electricity.** In regard to electricity specifically, it should be noted that the previous project (Rural Poverty Alleviation Project) had a strong impact on state indices of households connected to electricity, contributing significantly to increasing the percentage of rural households with electricity from 25% in 1995 (IBGE) to 63% in 2000 and 79% in 2003 (an incremental 16% potentially attributable to the original project in its early stages). Some examples of improvements brought by electricity were: (i) use of domestic appliances in 84% of households sampled/surveyed permitting greater comfort, access to information and diversification of food due to conservation options; (ii) use of kerosene lamps has been replaced by public lighting with health benefits; (iii) increased real estate value of residences in 96% of homes surveyed; (iv) the possibility of attending adult literacy classes at night, as 58% of interviewees stated that their community had established a night school.

Income

5.8 Income results in FECAMP (2005) were positive but preliminary due to the relatively short time elapsed since subproject implementation. Total average income grew faster in Ceará than the other states, even though Ceará's state average was lowest at the outset. Average annual nominal household income increased 40% from R$4,268 pre-project to R$5,999 (August 2003 - July 2004). Average real household income rose 7% in the period. Average nominal income per capita rose almost 40% and real per capita income 6%. Income from agricultural production rose 29%; from consumption of own production 53%; and from work off-farm 27%, in the period Some 38% of respondents with infrastructure and productive investments reported better household subsistence conditions. Considering just productive investments (primarily agricultural

mechanization), that figure rose to 56%, attributed to better incomes resulting from subproject implementation.

5.9 The results of productive subprojects surveyed were also mostly positive and pertain to medium-term impacts because the sample selected for this part of the analysis was of subprojects implemented under the previous, Rural Poverty Alleviation Project. In the case of agricultural mechanization subprojects, agricultural production increased for 57% of interviewees and 44% indicated that the subproject promoted the creation of other productive activities. Such subprojects showed increased income in 40% of households surveyed.

Social Capital

5.10 Besides the direct effects on living conditions, beneficiaries also cited various factors which indicated a positive impact on social capital. Some 93% of interviewees agreed that the project was good for the community and 82% indicated that the subproject was what the community needed, demonstrating consistency between desires and the decision about the subproject. In addition, 70% of beneficiaries agreed that their community was now meeting to try and get additional improvements, and 70% and 60% respectively indicated that the project prompted the participation of residents at association meetings during and after subproject implementation.

5.11 The positive influence of the project on the associations was noted by the study, which indicated that 60% of them were created via the influence of the project which served as a stimulus for community organization, as cited by 60% of community leaders which indicated that an additional motivation to form the association was to organize the community. Community leaders were cited in 65% of cases as the main figures in association formation, and in second place were cited union leaders, municipal representatives and mayors.

5.12 Certain data revealed important characteristics about associations such as the fact that 65% of them had their own center/premises, and that 28% of these used their own resources to construct it. Besides this, 64% of associations which received subprojects requiring maintenance collect fees from members for this purpose. Another interesting aspect is the formation of associative networks: about 43% of the associations interviewed declared that they had links/relationships with other associations and 35% were conducting a joint activity in recent years. These results indicated a very positive aspect related to sustainability and the good functioning of these associations, especially due to the high cost for these communities in having to travel in rural areas (to participate in meetings), as well as to capture resources.

5.13 **Municipal Councils**. Over 50% of communities said that the Councils were an advance in representing community interests and 44% said that these functioned as a source of information about subprojects. The Councils contributed to better information dissemination between communities, thereby reducing the bias provoked by the asymmetry of information and "privileged" access to relevant information. However, the results demonstrated that this work of the Councils was already being done, even though the study showed that Councils could further improve in this area. In addition, the study revealed that criteria used by the Councils to approve subprojects were compatible with project objectives, indicating that the three main priorities for approval were, that the community be among the neediest, that the subproject benefit the greatest number of people possible, and the overall level of poverty in the community.

5.14 In regard to the general functioning of the project, the study concluded that: (i) its principal rules - transparency, participation, and governance - were being followed; (ii)

participants knew the rules and contributed to ensuring they were followed; and (iii) attempts to deviate from those rules were easily identified and repelled, by the community itself.

B. Quasi-experimental Impact Study (Binswanger, 2009)

Methodology

5.15 Research covered 864 households in 108 communities and 90 municipalities, with half comprising project beneficiaries and half a group of control communities in the Northeast States of Ceará, Piauí and Rio Grande do Norte. The sample in each state was 18 treatment and 18 control communities. The study was based on data on the current situation in 2005 (when field research was done) compared to 2002, the latter using recall, i.e., questions asked in 2005 on subjects' previous situation.[47] The control group was selected from communities which had requested and been awarded subprojects but where the subprojects had either not yet been implemented or had been implemented only a short time before the field research. The treatment group consisted of communities with subprojects approved in the first year of the original project, i.e., 2002. Various methods were used to reduce selection bias.

5.16 Analysis showed that the treatment groups were a little better off than the control group in the period before project execution in 2002. Level of education of household heads, access to electricity, home ownership, and total value of electrical appliances, agricultural tools and animals, were higher for the treatment group. Since the control group was selected from among then-recent project beneficiaries, it was concluded that the program, already reaching poor communities in 2002, was constantly improving its focus on poor communities over time. Communities receiving subprojects later were worse off in terms of infrastructure, education, access to health clinics, and certain kinds of household assets.

Household assets

5.17 The study assessed the accumulation of per capita household assets and found positive effects for all models estimated, although none of the coefficients associated with the treatment group were statistically significant. Several reasons were suggested: a rise in income of families living in poverty is probably consumed rather than invested, so measuring only the impact on assets would not reflect the project's real effect on income; the sample size was relatively small for measuring small increases in capital; and, measuring recall data can generate errors and wide variations. Further study was recommended utilizing the FECAMP (2005) sample since sufficient time would have passed for income and capital effects to emerge from subprojects financed in 2004. For electrical appliances and agricultural equipment, a statistically significant impact was found in Ceará. Although most subprojects involved water supply, there was a larger variation in those assets for households benefiting from the project.

[47] The option of returning to the FECAMP (2005) treatment and control groups was rejected because FECAMP included only subprojects implemented between the end of 2003 and 2004 so that the period between implementation and impact assessment was too short to provide results on medium- and long-term impact.

Family wellbeing

5.18 Results were as follows:

(a) The evaluation reported access to water supply rising from 31% to 43% from 2002-2005 among its surveyed cohorts, improved housing conditions, electricity access increasing from 80% to 89%, and household assets up substantially.

(b) Results showed that in communities with access to the project, a greater proportion of families had access to water compared to the control group. Further, in Ceará, the absolute number of water supply subprojects was highest.

(c) There was significant improvement in health: infant mortality fell by 38% and the incidence of diarrhea fell by 70%. Other diseases – Chagas disease, asthma, hepatitis and dengue - all declined sharply among beneficiaries in the period. [48]

(d) In communities with access to the project, a greater portion of beneficiary communities had access to electricity than the control group.

Social capital

5.19 Binswanger et al. interviewed municipal, community and household subjects to assess the project's social capital formation capacity, with important results, as presented below:

Associations:

(a) Results ranging from 83% to as high as 98% were obtained for indicators such as the growth in institutional capacity of community associations since 2002, sustainability of community subprojects, and better results than purely "supply-driven" development, at lower cost.

(b) Stakeholders interviewed pointed to the sustainability of most community subprojects and strong social impact on strengthening community associations, improving quality of life, and increasing rural family income.

(c) Levels of community participation in associations, collective decision-making and collective activities had grown. Community associations (and Municipal Councils) were viewed as inclusive, participatory and democratic institutions where decisions were made by the majority.

(d) Associations' institutional capacity to represent the community and resolve its problems was rated highly, and the associations were seen as influential in community life, and selected democratically (91% of respondents).

(e) Importantly, associations' growing strength and role in the Municipal Councils had markedly changed relations between rural communities and State authorities as measured by the rise in municipal authorities' responsiveness to community demands.

[48] See Rural Poverty Reduction in Northeast Brazil - An Evaluation of Community-driven Development. Binswanger, Amazonas, Barbosa, Costa, Menezes, Pazello and Romano, World Bank, 2009.

(f) Households surveyed expressed respect for their association which is linked among most interviewed with a growth in trust, solidarity, cooperation and participation in collective activities.

(g) At the household level, levels of formal and genuine participation of beneficiaries in identifying local priorities and selecting the appropriate community action are high. Consistent with this, rates of satisfaction with the actual demand of respective communities and the actual investment implemented, are equally high.

(h) Ratings above 80% were recorded for items such as associations' capacity to bring subprojects that benefit the community, represent community's interests, promoting collaboration between communities, strengthening ties of friendship between residents, and participation in the meeting to select the investment.

5.20 In summary, Binswanger et al. (2006) view the scale of measured changes in social capital as signaling a process of intensive growth in the stock of social capital and that the Northeast projects are having a massive influence on this. After implementation of subprojects, social capital continues to grow but at a slower pace. The effects of setting the process in motion are long-lasting. The projects' influence is through the use of new, specific forms of institutional arrangements to help communities become more active, to engage them in inter-community collaboration networks, and to transform their relations with the State from dependency to partnership.

Municipalities:

5.21 Results are as follows:

(a) In 79% of municipalities, based on interviews with members of Municipal Councils, it was felt that organization of communities had had positive effects on municipal administration, and in 81% it was believed that establishing the Councils had had the same effect.

(b) Even so, the use of the Councils as channels for providing information on the actions of the municipal administration had not grown and remained around 12%.

(c) While a significant portion of Councils have become forums for discussing public policy and other issues of community interest, most deliberation is restricted to the project itself and PRONAF. In 35%, 36% and 45% of municipalities, Councils <u>discuss</u> other federal, state and municipal programs, respectively. But in only 28%, 20% and 28% respectively, are Councils forums for <u>deliberation</u> on those programs and their resources.

(d) The conclusion is that the Councils are still evolving as instruments for implementing public policy and public accounting. However, the Councils have a critical role in representing poor rural communities traditionally excluded from established channels for political representation.

5.22 All results indicate, with statistical significance and a high degree of confidence, that the Northeast projects have a strong impact on social capital formation, derived from the creation of associations and execution of subprojects.

C. Impact Evaluation (ACEG, 2009)

Methodology

5.23 The *Associação Científica de Estudos Agrários* (ACEG) of the Federal University of Ceará sought to identify and measure impacts stemming from the subprojects, to determine their impact on income and a range of other elements. The study also sought to determine the evolution of income of beneficiaries originally studied by FECAMP in its Socio-economic Profile (baseline) study of 2004. ACEG (2009) applied questionnaires divided proportionally between the project's three focus Areas, in 34 municipalities, and analyzed two populations: a Treatment Group comprising 98 subprojects (concluded August 2006 to June 2008), and a Control Group representing 66 subprojects (approved August 2006 to December 2008) but either without agreements signed, or with funds released but works not implemented. The study focused on water supply, electricity and productive investments. [49] Case studies were also conducted of six associations. Main results are summarized below.

Results:

5.24 The project was judged to be achieving the results expected for income generation, with positive signals for income derived from crop and vegetable production, a variable affected directly by productive subprojects. Project beneficiaries obtained an average annual income of R$980.60 more than the Control Group. The study warns that results for productive subprojects are only estimates.

5.25 Other improvements included physical capital, access to consumer goods, residential conditions, and levels of social capital. Negligible values for health and services (education and health) were seen to reflect the reality of rural areas - lack of efficient, effective social policies - despite the massive investment in water supply. Also, as noted by the report, the health and services variables utilized for the study involved activities extending well beyond those proposed by the project. The report stresses the preliminary nature of these results.

5.26 Among the variables analyzed, positive and significant impacts were identified for productive subprojects in the variables Income from Permanent Work and Income Obtained from Crop and Vegetable Production, permitting conclusions about their economic importance to beneficiaries. In regard to other variables, while impacts (ATT) were not as significant, they did attribute favorable impacts to the project.

5.27 **Water supply.** Results show that owning land increased the probability that a family would be a beneficiary of a water supply investment. Most variables showed positive for water supply impact. While their effect per se on income is small (although they do contribute), there is a tendency for consumption of own production to increase, which may indicate a better use of the time released by not having to search for water and with positive signals for food security. Results also show a substitution of temporary for permanent work and an increase in income from crafts, also possibly the result of women having more time due to not having to fetch water.

[49] A series of indices were constructed and propensity score matching combined with qualitative observation used to compare impact between groups, and the ATT (average treatment effect on treated) used to determine the effect of the project on its beneficiaries.

5.28 These results prompt the conclusion that support given to these communities needs to be complemented by policies which generate employment and income because the final goal of water supply is essentially to improve access to water and thereby improve quality of life, i.e., their primary objective is not job creation/income. The statistically most significant changes brought by water supply were on Consumer Goods and Social Capital.

5.29 **Electricity**. In a majority of variables, electricity was found to generate positive impacts. Impact data for rural electrification show that access favors the acquisition of consumer goods - especially domestic appliances - and has significant impact on income from crafts, income from commercial activities and non-agricultural production, which are increased through the use of electrical equipment providing productive alternatives.[50] The ability to store food in refrigerators has potential to change the eating habits of beneficiaries.

Total Income:

5.30 Looking at the three main types of investments, ACEG (2009) notes:

(a) While the greater impact on income in absolute terms was shown to be from rural electrification, these income levels were even after the subproject the lowest of all three types. While the average total income of beneficiaries of rural electrification grew from R$2,685 to R$4,478, average incomes of water supply beneficiaries went from R$5,203 to R$5,209 and average income from productive subprojects went from R$7,160 to R$8,070.

(b) Productive subprojects have impacts of greater magnitude than the others on income obtained from the sale of crop and vegetable production, but the overall conclusion was that income from other productive subprojects remained modest. The project alone is not sufficient to promote structural change in the levels of employment and income.

(c) Electrification subprojects promote greater impact on total income and their impact is extended to other variables.

(d) Water supply subprojects are not mechanisms for income generation. Their effects are more notable on social variables (access to services, social capital, and access to consumer goods).

Conclusion:

5.31 Results are described as preliminary and do not yet show dramatic change. The reasons cited are as follows:

(a) The period considered by the study was short and included a change of government (2006) which split the context into two phases: a short phase with an intense concentration of subprojects released in the period immediately pre- and post-election, which may have introduced a certain flexibility in criteria for the selection of subprojects to be supported; and a second phase, which followed the assumption of office by the new government and resulted in a slowing of the project, re-definition of basic criteria, and priorities reflected most strongly after the period considered;

[50] This result contrasts with finding of the 2009 Physical Performance Review (Tecno Metrica) case studies that despite access to energy, virtually no beneficiary interviewed owned electric equipment with potential for income generation, e.g., power tools and sewing machines.

(b) All the communities studied were located in semi-arid areas, in municipalities which historically have co-existed with population exodus, mostly male and young, heading for larger urban centers. If these subprojects contribute to creating conditions which reduce the intensity of this exodus or even reverse it, this is considered a positive impact because it would guarantee the critical mass of many locales. If the project creates minimum conditions allowing people to stay and/or return, it will have created conditions for alternative economic activities.

Results of ACEG Case Studies

5.32 ACEG (2009) also studied 18 agricultural mechanization (tractor and equipment) subprojects financed by the project from 2002-2004. Results are summarized below.

5.33 **Social capital:** Results were broadly consistent with other studies. Surveys showed that in 2009, communities already had many years of participating in community activities and most were organized into associations. Most had experience of collective activities, social movements and organization of community events. Most had not participated in any project prior to the Bank-financed project. However, participation in associative bodies was not solely due to the project. In regard to participation in choosing their subproject, they expressed a high degree of participation: 75% in 2004 with 61% still actively engaged in 2009. There was a high incidence of monthly meetings of associations: 83.3% in 2004 and 66.7% still meeting monthly by 2009. High ratings were given to associations for promoting advances for communities, boosting them politically in their efforts to secure benefits, improving communities' level of information about their main problems, and facilitating their access to project benefits. In terms of communities' insertion in their associations, interviewees mentioned participation in meetings and courses, especially courses in leadership formation, association management and preparation and management of subprojects.

5.34 **Impact of Investment in Tractors:** Beneficiaries in the six communities studied cited as impacts of their tractor acquisition:

- access to plowing at an acceptable price, creation of employment and income for the community, and availability of the tractor at convenient times;
- timely planting of crops with less risk of crop failure;
- increased community participation in the association but some erosion in certain cases when members learned that they would be charged for tractor usage;
- increased productivity, area farmed, availability of transport for crops and water, i.e., alternative uses for tractor, and reduced costs of soil preparation; and,
- increased monetary income of household from sale of increased production.

5.35 Despite these benefits, many families reported that the tractor did not change their traditional farming methods and types of crops but did improve their production conditions, comfort, and quality of life. Communities still noted an extensive list of deficiencies not affected by the tractor and requiring resolution, e.g., access to credit and technical assistance.

5.36 **Operation and Maintenance:** Associations invariably charge community users a fee ranging from R$40 to R$60 per hour and a higher fee of R$50 to R$70 per hour for non-members. Some families felt these fees were too high. Resources are used to maintain the equipment, pay the tractor operator (generally about 10-20% of the income from tractor rental), and to acquire other community benefits such as wells. Communities commonly build quite substantial funds from tractor rental.

D. Physical Performance Study (Tecno Metrica, 2009)

5.37 Tecno Metrica (2009) included a survey of 30 productive subprojects including manioc mills, tractors, community processing facilities, fish farming, education and technical training. Results included the following:

- Manioc mills registered comparatively low satisfaction indices averaging 37.8% due mainly to a lack of meaningful change in beneficiaries' incomes, job situation and hence community conditions. It should be noted that manioc mills are commonly regarded by project technicians as more a social investment than productive, designed to improve family/community subsistence.

- Tractor acquisition was evaluated positively, permitting timely planting, increasing area planted, creating employment and generating income, while also enabling communities to build quite substantial O&M funds from tractor rental fees (including from use by neighboring communities), often permitting them to make new investments.

- Satisfaction levels were positive for all other types of productive ventures surveyed.

- Tractor subprojects surveyed showed distinct variations in utilization based on the extent to which a community was able to develop collective production. In most cases, communities were well-organized, planting both individually and collectively, the latter including corn, sunflower and castor bean (*mamona*), the latter two with government crop purchase incentives for bio-diesel production. In some cases, the community was unable to organize collective activities or a regime for collective use of the equipment, indicating a need for technical support.

- While 70% of families considered their productive subproject was attending to the community's needs, under-utilization was observed, due variously, to lack of technical assistance, training, monitoring and/or strategic planning for the operational stage . This affected to varying degrees tractors, honey production facilities, and fish farming, and is a key lesson on the factors limiting a productive subproject's potential to create jobs and income.

- A separate survey by Tecno Metrica to define the main socio-economic characteristics of sampled families found that among the high proportion with electricity, most lacked any form of electrical equipment associated with income generation, e.g., sewing machine or electric tools, suggesting the need for a massive push to support professional training and capacity-building to exploit the accumulating infrastructure endowments of poor, rural communities.

Annex 6. Stakeholder Workshop Report and Results

N/A

Annex 7. Summary of Borrower's ICR and/or Comments on Draft ICR

A. Executive Summary: Borrower Completion Report (SDA/COPPE, 2009)

The Rural Poverty Reduction Project in the State of Ceará – PCPR – known as Projeto São José (PSJ) was conceived as an instrument for implementing the State's local, sustainable development activities with the active participation of communities, designed to increase the access of the poorest rural populations to employment and income generating activities as well as infrastructure, notably rural electrification and water supply, and basic social services, as a way of reducing rural poverty.

Under its first phase, PSJ II operated through three general lines of action (PAC, FUMAC and FUMAC-P), based on the level of organization of the Representative Entities. These lines also represented the greater or lesser level of decentralization of project decision-making, with PAC the least decentralized and the FUMAC-P the most. The PSJ under this first phase financed 1,423 subprojects, of which 1,250 were infrastructure, 218 productive and 2 were social, benefiting a total of 1,170 communities and 90,146 families in 170 municipalities of the state.

PSJ II, since its preparation by the old SDR, passed through two institutional changes which had an impact on its operations, mainly in regard to the development vision and structure of each secretariat, and the project suffered from the effects of these changes.

The principal objective of SDLR was regional development through the strengthening of non-agricultural activities in rural areas, especially around cities designated as development "polos". This change by SDLR distanced the project from EMATERCE, which without doubt made the development of productive subprojects more difficult because they were not a priority in this period when efforts were directed towards infrastructure, mainly universal access to electricity and water supply, a priority already foreshadowed in the Loan Agreement.

With the change of government at the beginning of 2007, the project came to be managed by the Secretariat for Agrarian Development which took the path of greater attention to productive initiatives following the strategy of the new government and aligning itself with the Sustainable Rural Development Plan (PDRS).[51] Greater priority was given to productive subprojects through agreements with social movements and activities destined to promote pro-activity of less-assisted communities such as *Quilombolas* and indigenous located in municipalities with lower IDS (Social Development Index), and with less structured Councils, principally through training both for the communities and for possible preparers of subprojects and including civil society, the objective being to broaden the base of the Councils. Also, training for the STU provided by the Bank, IICA and others, contracted to resolve specific needs, helped the STU to speed up the process of assessing the feasibility of productive subprojects in the final stages of the project.

As a cross-cutting theme, environment was also prominent, in order to guarantee the compliance of all technical and normative elements necessary to identify environmental impacts of community subprojects and measures or actions needed to eliminate, control or minimize undesirable or adverse impacts.

[51] PDRS – Plano de Desenvolvimento Rural Sustentável 2008/2011.

The second phase of the project – PSJ II phase II – initiated in June 2006 operated with just one line of action, FUMAC. Under this phase, 1,192 subprojects were financed, of which 1,036 were infrastructure, 155 were productive and one was social in 160 State municipalities. These investments benefited 73,960 families in 989 communities.

Under this second phase, the PSJ also had additional financial resources of the State Treasury which permitted the financing of an additional 317 subprojects of which 152 were infrastructure, 158 were productive and 7 were social benefiting another 295 communities and 21,355 families in 107 municipalities. In this way, the PSJ II second phase benefited 95,315 families and 1,197 communities in 169 municipalities with 1,509 subprojects.

Leveraging

Within this context, the PSJ II attended 176 municipalities of the State of Ceará by financing 2,932 community subprojects, benefiting 185,461 families with total resources on the order of US$105.0 million over the seven years of the project. Considering activities of other projects, leveraged by the PSJ, such as *Luz para Todos*, an agreement with the Cisterns program and other CAGECE actions, additional resources equivalent to 92% over and above the resources of the Loan Agreement benefited the same target population.

Lessons Learned and Vivid Experiences

In a State which, despite advances, is still poor, with communities dispersed in locations difficult to access, the project confirmed that prior activities of mobilization, support for organization and training are conditions for these populations to have access to public policies such as the Sao Jose Project, for example. In this manner, the inclusion of the poorest municipalities will only happen with stronger institutional development activities. These activities are also important for the communities to have a more precise idea of the type of support they should be requesting so that actual investments are suitable for their real needs and potential. The possibility of linkages to other sources of financing can deepen the potential impact of project results, such as those verified under the agreement with FUNASA which integrated activities where previously actions were parallel or at times, over-lapping.

Once the most basic infrastructure needs are overcome, and only after this, it is fundamental to support subprojects which support local development by generating employment and income. Productive subprojects are much more effective in their purpose/effectiveness if linked to a logical development path. In this manner, interaction with social movements tends to improve results. From the viewpoint of market access, priority should be given to subprojects which are inserted in productive chains which are already consolidated.

Through experiences towards the end of the project, it was verified that, without interfering in the autonomy of associations, it is possible to conduct procurement in a more efficient form with support from modern procurement instruments available to the State, reducing the risks of external interference. It is also important to advance in modern ways with greater affinity with the characteristics of the proposed new operation to accelerate processes, as much by the STU as by Bank technicians. Finally, project Monitoring and Evaluation needs to be internalized in such a way that it can be a more effective instrument to correct and alter project management practices.

B. Borrower Letter Commenting on Bank's Draft ICR

GOVERNO DO ESTADO DO CEARÁ
Secretaria do Desenvolvimento Agrário

Ofício nº 2817/2009 Fortaleza, 4 de dezembro de 2009.

Ilma. Sra.
Maria de Fátima Amazonas
ICR Team Leader PCPR Ceará
Acordo de Empréstimo 4626BR e
Financiamento Adicional 7387BR – The World Bank
Washington – DC

Assunto: Relatório BIRD – Projeto de Combate à Pobreza Rural PCPR – Acordo de Empréstimo 4626BR e Financiamento Adicional 7387BR

Prezada Senhora:

Ao cumprimentá-la comunicamos o recebimento do Relatório BIRD de Avaliação de resultados dos acordos de empréstimos acima referidos, celebrados entre o Banco Mundial e o Estado do Ceará, sobre o qual fazemos algumas considerações iniciais.

O relatório aponta, como igualmente ocorre com os Estudos realizados – treze no total - e o relatório final elaborado pela Unidade Técnica, os avanços e impactos decorrentes da implantação do Projeto.

Ficamos muito satisfeitos com o reconhecimento de que os desafios enfrentados ao longo desses oito anos de execução foram superados como também concordamos com a avaliação positiva do impacto do Projeto na qualidade de vida das famílias beneficiadas pelos subprojetos de infraestrutura e na renda dos beneficiários de subprojetos produtivos (itens 3.1, 3.2.6 e 3.2.7).

Das "lições aprendidas" (item 6), destacamos que a capacitação e assistência técnica foram fundamentais para o fortalecimento do Capital Social das comunidades, dos Conselhos Municipais e da Equipe Técnica e para a sustentabilidade dos subprojetos apoiados. Destacamos também a importância dos subprojetos de mecanização agrícola como instrumentos de acesso à tecnologia e geração de renda pelo aumento da produtividade. Que a questão ambiental deve ser transversal a todos os projetos, com exigências de enquadramentos de acordo com a característica de cada um, e que o respeito às regras de bom uso e preservação do meio ambiente é dever de todos. Que as parcerias são fundamentais para a

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Av. Bezerra de Menezes 1820 – Fortaleza - Ceará

garantia de execução e gestão adequada dos subprojetos. A equipe técnica soube aprender com as adversidades e manter uma trajetória ascendente na eficiência da gestão do Projeto

Em decorrência da relevância e dos resultados apontados o Governo do Estado considera de grande importância dar seqüência a estas ações, avançando no sentido da emancipação das comunidades e sua integração aos mercados. Para tanto externou a disposição de investir recursos substancialmente maiores para um novo Projeto na perspectiva do desenvolvimento rural sustentável, fortalecendo estruturas formais participativas e de controle social, tendo em vista a execução descentralizada. Disposição no mesmo sentido já foi demonstrada pelo BIRD em recente correspondência ao Governo do Estado do Ceará dispondo-se a estabelecer uma nova parceria para este fim.

Entretanto, não podemos deixar de manifestar nossa insatisfação com a classificação "moderadamente satisfatório" dada ao desempenho geral do projeto pelo Estado que, no nosso entender, não reflete a evolução da *performance* do PCPR, quando os indicadores apontam para atingimento e superação das metas físicas, financeiras e também sociais, das quais podemos destacar os seguintes avanços: 1) a situação em que os Conselhos Municipais estavam estruturados em poucos municípios e hoje presentes na totalidade (177), 2) a universalização do fornecimento de energia elétrica 3) 63% da população rural do Estado do Ceará atendida pelos projetos de abastecimento de água para consumo humano pelo PCPR/PSJ, 4) Superação das metas de execução dos subprojetos produtivos na segunda fase e 5) Considerável alavancagem de recursos financeiros do Estado e da União (1:4).

Na expectativa de sua revisão para reavaliação do conceito auferido ao desempenho geral do Projeto, agradecemos mais uma vez a inestimável contribuição da equipe do Banco Mundial não só com a elaboração deste relatório como pela parceria permanente na execução do projeto.

Atenciosamente,

Wilson Vasconcelos Brandão Junior
Secretário Executivo
SDA Secretaria do Desenvolvimento Agrário
Estado do Ceará

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Annex 8. Comments of Co-financiers and Other Partners/Stakeholders

N/A

Annex 9. List of Supporting Documents

Project Appraisal Document (PAD), Report No. 21434-BR, June 4, 2001

Relatório de Revisão de Meio Termo (SDLR, 2004)

Baseline Study, Federal University of Campinas (FECAMP), 2004

Project Paper (Additional Financing), Report No. 36062-BR, May 8, 2006

Rural Poverty Reduction in Northeast Brazil: An Evaluation of Community-driven Development, Binswanger, Amazonas, Barbosa, Costa, Menezes, Pazello and Romano, World Bank 2009.

Projeto de Desenvolvimento Rural Sustentável: Projeto São Jose – Estudo de Casos, SDA, June 2009

Estudo de Desempenho Físico: Projeto São Jose II, Tecno Metrica/SDA, June 2009 (including case studies)

Projeto de Combate a Pobreza Rural do Estado do Ceará: Avaliação de Impacto, Federal University of Ceará/ACEG, June 2009.

Projeto São Jose: Relatório Final de Execução do PSJ II 2002-2009, Fase I (4626-BR) e Fase II (7387-BR), SDA/Sztutman/Nascimento, June 2009.

Implementation Status Reports (ISR)

Supervision Aide Memoires

Loan and Guarantee Agreements

Fiduciary Supervision Records (Financial Management and Procurement)

QEA Assessment Report FY 08

MAP: IBRD 37422