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The World Bank

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Report No. 7331

PROJECT PERFORMANCE AUDIT REPORT

BRAZIL: EXPERIENCE IN DEVELOPMENT OF THE RURAL SECTOR

SECOND AGRO-INDUSTRIES CREDIT PROJECT (LOAN 1317-BR)
MINAS GERAIS RURAL DEVELOPMENT PROJECT (LOAN 1362-BR)
FIRST AGRICULTURAL EXTENSION PROJECT (LOAN 1568-BR)
BAHIA RURAL DEVELOPMENT PROJECT - PARAGUACU (LOAN 1589-BR)

June 27, 1988

Operations Evaluation Department

WEIGHTS AND MEASURES

1 meter (m)	=	3.28 feet
1 kilometer (km)	=	0.62 miles
1 hectare (ha)	=	10,000 m2 = 2.47 acres
1 square kilometer (km2)	=	100 ha =247.1 acres
1 cubic meter (m3)	=	1.31 cubic yards = 264.2 US gallons
1 kilogram (kg)	=	2.2 pounds
1 ton	=	2,205 pounds

The metric system is used throughout the report.

FISCAL YEAR

Government of Brazil = January 1 to December 31

INFLATION, MONETARY CORRECTION AND EXCHANGE RATES 1972-87

	Total % Change During Year Up to December		Exchange Rate Cr$/US$
	GPI [a]/	ORTN/OTN [b]/	
1972	15.7	15.3	5.9
1973	15.5	12.8	6.1
1974	34.5	33.3	6.8
1975	29.4	24.2	8.1
1976	46.3	37.2	10.7
1977	38.8	30.1	14.1
1978	40.8	36.2	18.1
1979	77.2	47.2	26.9
1980	110.2	50.8	52.7
1981	95.2	95.6	93.1
1982	99.7	97.8	179.4
1983	211.0	156.6	576.2
1984	223.8	215.3	1,847.0
1985	235.1	219.4	6,228.0
1986	65.0	50.7	13.84
1987	415.8	391.5	44.93

Source: Conjuture Economica, March 1988.

a/ General Price Index, Global Supply

b/ Readjustable Treasury Bonds (ORTN); official basis for monetary corrections; OTN after February 1986.

c/ New currency, the Cruzado introduced on February 28, 1986 (1 Cruzado = 1.000 Cruzeiro)

THE WORLD BANK
Washington, D.C. 20433
U.S.A.

Office of Director-General
Operations Evaluation

June 27, 1988

MEMORANDUM TO THE EXECUTIVE DIRECTORS AND THE PRESIDENT

SUBJECT: Project Performance Audit Report
BRAZIL: Experience in Development of the Rural Sector
Second Agro-Industries Credit Project (Loan 1317-BR)
Minas Gerais Rural Development Project (Loan 1362-BR)
First Agricultural Extension Project (Loan 1568-BR)
Bahia Rural Development Project-Paraguacu (Loan 1589-BR)

Attached, for information, is a copy of a report entitled "Project Performance Audit Report: BRAZIL: Experience in Development of the Rural Sector - Second Agro-Industries Credit Project (Loan 1317-BR); Minas Gerais Rural Development Project (Loan 1362-BR); First Agricultural Extension Project (Loan 1568-BR); Bahia Rural Development Project-Paraguacu (Loan 1589-BR)" prepared by the Operations Evaluation Department.

Yves Rovani

by Graham Donaldson

ABBREVIATIONS AND ACRONYMS

ABCAR	-	Associacao Brasileira de Credito e Assistencia Rural (Brazilian Association for Credit and Rural Assistance)
AE1	-	Brazil Agricultural Extension I Project
AI2	-	Brazil Agro-Industries II Credit Project
ASTER	-	Associacao de Assistencia Tecnica e Extensao Rural (Territorio) (Agency for Technical Assistance and Rural Extension (Territory)
BB	-	Banco do Brazil (Bank of Brazil)
BLA	-	Loan Agreement for Brazil Bahia Rural Development Project
BNDE	-	Development Bank of the Northeast
BPCR	-	Project Completion Report for Brazil Bahia Rural Development Project
BRD	-	Brazil Bahia Rural Development Project
BSAR	-	Staff Appraisal Report for Brazil Bahia Rural Development Project
CAC	-	Centro de Aprendizagem Comunitaria (Community Learning Center)
CAMAB	-	Companhia de Abudos e Materiais Agricolas (Bahia Fertilizers and Agricultural Equipment Company)
CAP	-	Compra Anticipada da Producao (Advance Purchasing Program)
CAR	-	Companhia de Desenvolvimento e Acao Regional (Development Company for Regional Action)
CATI	-	Coordenadora de Assistencia Tecnica Integrada (Office of Coordination of Integral Technical Assistance)
CD	-	Certificate of Deposit
CEP	-	Compra Exendente da Producao (Surplus Purchasing Scheme)

CERB	-	Companhia de Engenharia Rural da Bahia (State Rural Engineering Company)
CPCR	-	Project Completion Report for Brazil Agro-Industries II Credit Project
CSAR	-	Staff Appraisal Report for Brazil Agro-Industries II Credit Project
EMATER	-	Empresa Estadual de Assistencia Tecnica e Extensao Rural (State Technical Assistance and Rural Extension Company)
EMBRAPA	-	Empresa Brasileira de Pesquisa Agropecuaria (Brazilian Agricultural Research Corporation)
EMBRATER	-	Empresa Brasileira de Assistencia Tecnica e Extensao Rural (Brazilian Technical Assistance and Rural Extension Corporation)
EPABA	-	Empresa de Pesquisa Agropecuaria da Bahia (State Agricultural Research Company)
EPAMIG	-	Empresa de Pesquisa Agropecuaria de Minas Gerais) (State Coordinating Research Institute of Agriculture)
EPCR	-	Project Completion Report for Brazil Agricultural Extension I Project
ERR	-	Internal Economic Rate of Return
ESAR	-	Staff Appraisal Report for Brazil Agricultural Extension I Project
FUNAI	-	Fundacao do Indio (Indian Foundation)
GDP	-	Gross Domestic Product
GPI	-	General Price Index, Global Supply
INCRA	-	Instituto Nacional de Colonizacao e Reform Agraria (National Institute for Colonization and Agrarian Reform)
INPC	-	National Consumer Price Index
LA	-	Loan Agreement
M&E	-	Monitoring and Evaluation

MGLA	-	Loan Agreement for Brazil Minas Gerais Rural Development Project
MGPCR	-	Project Completion Report for Brazil Minas Gerais Rural Development Project
MGRD	-	Minas Gerais Rural Development Project
MGSAR	-	Staff Appraisal Report for Minas Gerais Rural Development Project
MINAGRI	-	Ministerio da Agricultura (Ministry of Agriculture)
NE	-	Northeast
NRDP	-	Northeast Rural Development Program
NUPIN	-	Nucleo de Projetos Internacionais (Nucleus for International Projects)
OED	-	Operations Evaluation Department
ORTN	-	Obrigacoes Reajustaveis do Tesouro Nacional (Adjustable National Treasury Bond)
OTN	-	Obrigacoes do Tesouro Nacional (Adjustable National Treasury Bond) (successor to ORTN)
PAGRI	-	Programa Agroindustrial (Agroindustrial Program)
PAPP	-	Programa de Apoio ao Pequeno Productor (Program of Assistance to Small Producers)
PB	-	Participating Bank
PCR	-	Project Completion Report
PIN	-	National Integration Program
POLAMAZONIA	-	Programa de Desenvolvimento de Areas Integradas da Amazonia (Development Program for the Integrated Areas of Amazonia)
POLOCENTRO	-	Programa de Desenvolvimento de Areas Integradas do Centro (Development Program for the Integrated Central Areas)
POLONORDESTE	-	Programa de Desenvolvimento de Areas Integradas do Nordeste (Program of Development of Integrated Areas of the Northeast)

PPAR	-	Project Performance Audit Report
PROATER	-	Programa de Assistencia Tecnica e Extensao Rural (Program of Technical Assistance and Rural Extension)
PROBOR	-	Programa de Incentivos ao Producao de Borracha Natural (Program of Incentives for National Rubber Production)
PROCACAO	-	Program de Incentivos ao Producao de Cacau (Program of Incentives for Cocoa Production)
PROVARZEAS	-	Programa de Melhoramento des Varzeas (Program for Improving Flood Plains)
RD	-	Rural Development
RURALMINAS	-	Fundacao Rural Mineira (State Rural Development Agency)
SAP	-	Special Action Program
SAR	-	Staff Appraisal Report
SECIN	-	Secretaria de Controle Interno (Federal Secretariat of Internal Control)
SEE	-	Secretaria Estadual de Educacao (State Secretariat of Education)
SEPLAN-MG	-	Secretaria Estadual de Planejamento de Minas Gerais (State Secretariat of Planning)
SES	-	Secretaria Estadual de Saude (State Secretariat of Health)
SIBRATER	-	Sistema Brasileiro de Assistencia Tecnica e Extensao Rural (National System for Technical Assistance and Rural Extension)
SUDECO	-	Superintendencia de Desenvolvimento do Centro Oeste (Superintendency for the Development of the Central West)
SUDECOOP	-	Superintendencia de Cooperativismo Estadual (State Superintendency of Cooperatives)
SUDENE	-	Superintendencia de Desenvolvimento do Nordeste (Superintendency for Development of the Northeast)
UFV	-	Universidade Federal de Vicosa (Federal University of Vicosa)
UPC	-	Standardized Capital Unit of Account

PROJECT PERFORMANCE AUDIT REPORT

BRAZIL: EXPERIENCE IN DEVELOPMENT OF THE RURAL SECTOR

SECOND AGRO-INDUSTRIES CREDIT PROJECT (LOAN 1317-BR)
MINAS GERAIS RURAL DEVELOPMENT PROJECT (LOAN 1362-BR)
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BAHIA RURAL DEVELOPMENT PROJECT - PARAGUACU (LOAN 1589-BR)

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BRAZIL: EXPERIENCE IN DEVELOPMENT OF THE RURAL SECTOR

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PREFACE

This is a performance audit of four projects designed to develop the rural sector (through credit, extension and integrated activities) in the Federative Republic of Brazil. Loan 1317 provided $83 million for on lending to agro-industry. It was approved by the Board in July 1976, and was closed in July 1984 with $33.7 million (41%) undisbursed. Loan 1362 provided $41 million for integrated rural development of the south-west of the State of Minas Gerais. It was approved by the Board in January 1977 and was closed in December 1984 with $0.95 million (2%) being cancelled. Loan 1568 provided $100 million to support development of a national extension service. It was approved by the Board in May 1978 and was closed in December 1985, having been fully disbursed. Loan 1589 provided $37 million for integrated rural development in the Paraguacu region of Bahia State. It was approved by the Board in June 1978, and was closed in August 1986, with $10.63 million (29%) being cancelled.

This audit consists of a memorandum prepared by the Operations Evaluation Department (OED) and four Project Completion Reports (PCRs), prepared by the staff of the former Latin America and Caribbean Region, Agriculture Division B. The audit memorandum is based on a review of the Appraisal Reports (Nos. 974-BR, 1291-BR, 1879-BR, and 2009a-BR), the Loan Agreements and PCRs. Correspondence with the Borrower and internal Bank memoranda on the project issues contained in Bank files have been consulted, and relevant Bank staff have been interviewed.

The audit finds the PCRs accurate with respect to the projects' principal achievements and difficulties. The points discussed by the audit have been selected as likely to be of particular importance in the design of future projects aimed at assisting the Government in the development of Brazilian agriculture in general and NE Brazil in particular.

Audit findings were discussed with officials in Brazil in May 1988, and the draft report has been modified in the light of these discussions. Project beneficiaries were met, and their experiences with the project were discussed. The Borrowers' acknowledgement with respect to Loans 1317 and 1589 are included as an Attachment.

The valuable assistance provided by the Government, its officials and other individuals met during the preparation of this audit memorandum is gratefully acknowledged.

PROJECT PERFORMANCE AUDIT REPORT

BRAZIL: AGRO-INDUSTRIES II PROJECT (LOAN 1317-BR)

BASIC DATA SHEET

KEY PROJECT DATA

	Appraisal Estimate	Actual or Estimated Actual	Actual as % of Appraisal Estimate
Total Project Cost (US$ million)	260.0	154.0	59
Loan Amount (US$ million)	83.0	50.0	60

STAFF INPUT
(Staffweeks)

	FY76	FY76	FY77	FY78	FY79	FY80	FY81	FY82	FY83	FY84	FY85	FY86	FY87	TOTAL
Pre-apr.	11.5	-	-	-	-	-	-	-	-	-	-	-	-	11.5
Appraisal	50.9	54.0	.3	-	-	-	-	-	-	-	-	-	-	105.1
Negotia.	-	5.7	1.8	-	-	-	-	-	-	-	-	-	-	7.5
Supervis.	-	-	7.0	.1	5.3	4.2	6.9	19.0	2.4	11.9	5.3	.9	6.3	69.7
Other	-	.8	.1	-	-	-	-	-	.3	-	-	-	-	1.1
TOTAL	62.4	60.5	9.1	.1	5.3	4.2	6.9	19.0	2.7	11.9	5.3	.9	6.3	195.0

CUMULATIVE DISBURSEMENTS

	FY77-80	FY81	FY82	FY83	FY84	FY85	FY86
Appr. Estimate (US$ m)	63	74	83	83	83	83	83
Actual (US$ million)	-	16	39	44	46	49	49
Actual as % of Revised Est.	-	22%	47%	53%	55%	59%	59%
Principal Repaid to 12/31/86 (US$ million)							34.2
Date of Final Disbursement:	July 24, 1986						

PROJECT DATES

	Original Plan	Revisions	Actual
Date Board Approval			07/15/76
Loan Agreement Date			09/22/76
Date Effectiveness			03/25/77
Closing Date	12/31/82		07/24/86

MISSION DATA

Mission	Date (mo./yr.)	No. of Persons	Staffdays in Field /1	Specializations Represented /2	Performance Rating /3	Trend /4	Types of Problems /5
Preparation	03/75	2	30	ac			
Appraisal	05/75	5	120	abcde			
Follow-up Apr.	07/75	1	10	a			
Supervision 1	10/76	2	27	ab	1	2	-
Supervision 2	05/77	2	16	bc	1	2	-
Supervision 3	11/77	1	1	b	-	-	-
Supervision 4	06/78	1	16	b	1	2	-
Supervision 5	11/78	1	15	b	3	2	o
Supervision 6	05/79	1	10	b	3	2	po
Supervision 7	03/80	1	10	b	3	2	po
Supervision 8	02/81	2	19	bd	3	2	po
Supervision 9	07/81	1	14	b	3	1	fp
Supervision 10	02/82	2	18	bd	2	2	fp
BTO Report	05/83	1	21	b	-	-	-
590 Update	06/83	-	-	b	2	2	of
Supervision 11	09/83	1	7	b	2	3	op
Supervision 12	12/83	1	14	b	2	1	op
BTO Report	02/84	2	20	be	-	-	-
590 Update	09/84	-	-	b	2	2	op
Completion	10/86	1	-	b	-	-	-
TOTAL							

Note: From 1983 onward the project was visited more frequently than the above table suggests--usually about four times a year, and during missions that were primarily concerned with the Third Agro-Industries Project. Since lending operations were virtually at a standstill during this period, there was little point in preparing conventional full supervision reports.

/1 Many missions covered other projects and the staffdays spent on each are not always shown. Reasonable estimates have been made.

/2 a = Agro-Industrial Specialist; b = Financial Analyst; c = Agriculturalist; d = Agricultural Economist; e = Marketing Specialist

/3 1 = Problem-free or minor problems; 2 = Moderate problems; 3 = Major problems.
/4 1 = Improving; 2 = Stationary; 3 = Deteriorating.
/5 F = Financial; O = Other; P = Political.

OTHER PROJECT DATA

Borrower:	Federative Republic of Brazil
Executing Agency:	Central Bank of Brazil
Follow-on Project:	Third Agro-Industries Credit Project (Loan 2268-BR)
Fiscal Year:	January 1 - December 31

PROJECT PERFORMANCE AUDIT REPORT

BRAZIL: MINAS GERAIS RURAL DEVELOPMENT PROJECT (LOAN 1362-BR)

BASIC DATA SHEET

KEY PROJECT DATA

	Appraisal Estimate	Actual or Estimated Actual	Actual as % of Appraisal Estimate
Total Project Cost (US$ million)	139.0	138.0	99.3%
Loan Amount (US$ million)	42.0	41.0	97.6%
Date Physical Components Completed	06/30/81	12/31/84	

STAFF INPUT
(Staffweeks)

	FY75	FY76	FY77	FY78	FY79	FY80	FY81	FY82	FY83	FY84	FY85	FY86	FY87	TOTAL
Pre-apr.	.4	21.2	1.1	-	-	-	-	-	-	-	-	-	-	22.8
Appraisal	-	138.3	26.3	-	-	-	-	-	-	-	-	-	-	164.6
Negotia.	-	-	15.7	-	-	-	-	-	-	-	-	-	-	15.7
Supervis.	-	-	24.9	37.4	41.6	10.8	17.6	16.0	9.6	4.5	4.1	1.8	15.9	183.7
Other	-	.7	1.6	.8	-	-	-	-	-	-	-	-	-	3.1
TOTAL	.4	160.2	69.7	38.2	41.6	10.8	17.6	16.0	9.6	4.5	4.1	1.8	15.9	390.0

CUMULATIVE DISBURSEMENTS

	FY77	FY78	FY79	FY80	FY81	FY82	FY83	FY84	FY85
Appr. Estimate (US$ m)	5.9	12.6	20.2	30.6	42.0	-	-	-	-
Update Appr. Estimate (US$ m)	-	-	-	-	-	32.5	36.5	40.0	42.0
Actual (US$ million)	2.0	5.8	16.0	23.0	28.8	32.5	35.3	39.2	41.1
Actual as % of Revised Est.	34	46	79	75	75	77	96	98	97
Principal Repaid to 2/1/84						0.18	0.35	0.53	0.71
Date of Final Disbursement:	July 16, 1985								

PROJECT DATES

	Original Plan	Revisions	Actual
Date Board Approval			01/11/77
Loan Agreement Date			02/23/77
Date Effectiveness			06/26/77
Closing Date	12/31/81		12/31/84

MISSION DATA

Mission	Date (mo./yr.)	No. of Persons	Staffdays in Field	Specializations Represented /a	Performance Rating /b	Trend /c	Types of Problems /d
Identification	7-8/73	5	14	abcd	-	-	-
Preparation	3-5/73	7	28	adefghi	-	-	-
Appraisal	10/75	8	152	aefhijk	-	-	-
Appraisal (Educa. Component)	01/76	2	22	cm	-	-	-
Post-Appraisal	3-4/76	3	66	hj	-	-	-
Post-Appraisal (Educa. Component)	05/76	1	7	c	-	-	-
Post-Appraisal (Health Component)	10/76	1	2	i	-	-	-
Supervision 1	04/77	4	68	chij	1	-	FM
Supervision 2	10-11/77	5	90	chij	2	1	FM
Supervision 3	06/78	2	10	hc	2	1	M
Supervision 4	07/78	2	20	hj	2	1	M
Supervision 5	05/79	3	57	agm	2	1	M
Supervision 6	11/79	4	36	acim	1	1	MP
Supervision 7	06/80	1	3	g	2	1	FMP
Supervision 8 (Partial)	09/80	1	3	a	-	-	-
Supervision 9	3-4/81	5	30	agikm	2	1	FM
Supervision 10	10/81	2	16	an	-	-	-
Supervision 11	11/81	2	16	an	2	2	FM
Supervision 12	4-5/82	5	50	aimno	2	1	FM
Supervision 13	1-2/83	2	16	an	1	1	F
Supervision 14	02/84	1	6	a	2	2	F
Supervision 15 (Educa. Component)	09/84	1		k	-	-	-
Supervision 16 (Health Component)	11/84	1	4	i	-	-	-
Supervision 17 (Educa. Component)	11/85	1	2	k	-	-	-

/a a=Agriculturist; b=Division Chief; c=Economist; d=Loan Officer; e=Livestock Specialist; f=Forestry Specialist; g=Agricultural Economist; h=Project Officer; i=Health Specialist; j=Credit Specialist; k=General Education; l=Architect; m=Rural Education Specialist; n=Financial Analyst; O=transport Engineer.
/b 1 = Problem-free or minor problems; 2 = Moderate problems; 3 = Major problems.
/c 1 = Improving; 2 = Stationary; 3 = Deteriorating.
/d F = Financial; M = Managerial; T = Technical; P = Political; O = Other.

OTHER PROJECT DATA

Borrower:	State of Minas Gerais
Executing Agency:	Federative Republic of Brazil
Follow-on Project:	Minas Gerais II Rural Development Project

PROJECT PERFORMANCE AUDIT REPORT

BRAZIL: AGRICULTURAL EXTENSION I PROJECT (LOAN 1568-BR)

BASIC DATA SHEET

KEY PROJECT DATA

	Appraisal Estimate	Actual or Estimated Actual	Actual as % of Appraisal Estimate
Total Project Cost (US$ million)	284.0	212.7	75%
Loan Amount (US$ million)	100.0	100.0	100%
Date Physical Components Completed	12/31/82	03/13/86	-
Proportion Completed by Target Date (%)	55.0	100.0	100.0

STAFF INPUT
(Staffweeks)

	FY76	FY77	FY78	FY79	FY80	FY81	FY82	FY83	FY84	FY85	FY86	FY87	TOTAL
Pre-apr.	9.7	34.2	-	-	-	-	-	-	-	-	-	-	43.9
Appraisal	-	14.4	86.1	-	-	-	-	-	-	-	-	-	100.5
Negotia.	-	-	5.9	-	-	-	-	-	-	-	-	-	5.8
Supervis.	-	-	4.1	22.5	15.7	16.9	14.2	11.9	8.5	11.4	5.8	5.7	116.7
Other	-	.2	2.9	.8	.2	.5	-	-	-	-	-	-	3.7
TOTAL	9.7	48.8	98.9	22.6	15.8	17.3	14.2	11.9	8.5	11.4	5.8	5.7	270.7

CUMULATIVE DISBURSEMENTS

	FY79	FY80	FY81	FY82	FY83	FY84	FY85	FY86
Appr. Estimate (US$ m)	18.5	44.7	76.5	100.0	-	-	-	-
Actual (US$ million)	0.0	5.0	15.7	27.0	42.6	63.5	94.5	100.0
Actual as % of Revised Est.	0.0	11.2	20.5	27.0	42.6	63.5	94.5	100.0
Date of Final Disbursement:	June 30, 1986							

PROJECT DATES

	Original Plan	Revisions	Actual
First Mention in Files	-	-	06/76
Government's Application	n.a.	n.a.	06/76
Negotiations	-	-	04/10-12/78
Date Board Approval	-	-	05/16/78
Loan Agreement Date	-	-	05/22/78
Date Effectiveness	08/22/78	-	09/22/78
Closing Date	12/31/82	12/31/84	12/31/85

MISSION DATA

Mission	Date (mo./yr.)	No. of Persons	Staffdays in Field	Specializations Represented /a	Performance Rating /b	Trend /c	Types of Problems /d
Identification	06/76	1	2.0	a	-	-	-
Preparation I	11/76	1	2.0	a	-	-	-
Preparation II	11/76	1	2.0	a	-	-	-
Preappraisal	03/77	3	2.5	ace	-	-	-
Appraisal	06/78	8	4.0	aabccdee	-	-	-
Supervision 1	06/78	2	2.0	ab	1	-	-
Supervision 2	11/78	2	1.0	ab	1	1	-
Supervision 3	05/79	2	2.0	ab	2	2	FP
Supervision 4	02/78	3	1.7	ab	1	1	-
Supervision 5	06/80	2	2.5	ab	2	1	FP
Supervision 6	01/81	2	2.0	ae	2	1	F
Supervision 7	07/81	3	1.5	abe	2	1	FP
Supervision 8	02/82	1	1.0	a	2	2	FP
Supervision 9	09/82	2	4.0	ab	2	1	FP
Supervision 10	03/83	2	1.5	ab	2	1	FP
Supervision 11	10/83	1	2.0	a	2	1	FP
Supervision 12	04/84	1	3.0	a	2	2	FP
Supervision 13	09/84	1	2.5	a	2	1	FP
Supervision 14	03/85	1	2.5	a	2	1	FP
Supervision 15	09/85	1	2.0	a	2	1	FP
Supervision 16	01/86	1	1.0	a	1	2	P
Completion	08/86	1	1.0	a	-	-	-
TOTAL							

/a a=Agriculturist; b=Architect/Engineer; c=Extension Specialist; d=Extension Administration Specialist; e=Economist.
/b 1 = Problem-free or minor problems; 2 = Moderate problems; 3 = Major problems.
/c 1 = Improving; 2 = Stationary; 3 = Deteriorating.
/d F = Financial; P = Political.

OTHER PROJECT DATA

Borrower:	Federative Republic of Brazil
Executing Agency:	EMBRATER
Follow-on Project:	Agricultural Extension II

PROJECT PERFORMANCE AUDIT REPORT

BRAZIL: BAHIA RURAL DEVELOPMENT PROJECT - PARAGUACU 1589-BR)

BASIC DATA SHEET

KEY PROJECT DATA

	Appraisal Estimate	Actual or Estimated Actual	Actual as % of Appraisal Estimate
Total Project Cost (US$ million)	106.6	70.52	66
Loan Amount (US$ million)	37.0	26.4	71
Date Physical Components Completed	03/31/83	03/31/86	
Proportion Completed by Target Date (%)	100	75	75

STAFF INPUT
(Staffweeks)

	FY76	FY77	FY78	FY79	FY80	FY81	FY82	FY83	FY84	FY85	FY86	FY87	TOTAL
Pre-apr.	14.8	55.6	38.6	-	-	-	-	-	-	-	-	-	109.0
Appraisal	-	-	139.2	-	-	-	-	-	-	-	-	-	139.2
Negotia.	-	-	4.4	-	-	-	-	-	-	-	-	-	4.4
Supervis.	-	-	1.0	34.6	24.7	34.4	21.7	18.7	10.2	11.0	8.1	14.4	178.9
Other	-	.0	1.2	.2	-	.0	-	-	.0	.2	-	-	1.7
TOTAL	14.8	55.6	184.5	34.7	24.7	34.4	21.7	18.7	10.2	11.3	8.1	14.4	433.3

CUMULATIVE DISBURSEMENTS

	FY79	FY80	FY81	FY82	FY83	FY84	FY85	FY86
Appr. Estimate (US$ m)	2.2	7.3	16.0	27.3	35.4	37.0		
Actual (US$ million)	1.6	4.0	7.6	10.3	15.1	19.7	24.8	26.4
Actual as % of Revised Est.	73	55	48	38	100	112	99	71
Date of Final Disbursement:	August 15, 1986							

PROJECT DATES

	Original Plan	Revisions	Actual
Date Board Approval			06/06/78
Loan Agreement Date			07/19/78
Date Effectiveness			12/05/78
Closing Date	12/31/83		08/15/86

MISSION DATA

Mission	Date (mo./yr.)	No. of Persons	Staffdays in Field	Specializations Represented /a	Performance Rating /b	Trend /c	Types of Problems /d
Identification	12/75	1	11	a			
Preparation	03/76	4	64	abfh			
Preparation	10/76	4	21	Abfh			
Preparation	05/77	4	90	abfh			
Preparation	03/77	6	39	abcfgh			
Appraisal	10/77	7	140	abcfghl			
Supervision 1	11/78	5	24	abcjk	1	2	FMT
Supervision 2	05/79	4	35	aghk	2	2	MP
Supervision 3	09/79	3	25	fgh	2	2	FMP
Supervision 4	02/80	3	16	fgh	2	2	FMP
Supervision 5	07/80	5	40	afhkl	2	1	FMP
Supervision 6	02/81	6	30	afghkl	2	1	FMP
Supervision 7	10/81	4	20	afgh	2	1	FMP
Supervision 8 (Mid-term Evaluation)	05/82	4	20	fhkl	2	1	FMP
Supervision 9	03/83	4	20	fhkl	2	2	FMP
Supervision 10	12/83	4	13	dfkl	2	2	FMP
Supervision 11	04/84	4	13	dfkl	2	3	FP
Supervision 12	12/84	4	14	dfkl	2	1	FP
Supervision 13	05/85	3	14	dfl	2	2	FP
Completion	03/87	1	14	d			
TOTAL			663				

/a a=Agriculturist; b=Agricultural Economist; c=Credit Specialist; d=Rural Development Specialist; e=Economist; f=Civil Engineer; g=Irrigation Engineer; h=Financial Analyst; i=Loan Officer; j=Rural Sociologist; k=Health Specialist; l=Education Specialist.
/b 1 = Problem-free or minor problems; 2 = Moderate problems; 3 = Major problems.
/c 1 = Improving; 2 = Stationary; 3 = Deteriorating.
/d F = Financial; M = Managerial; T = Technical; P = Political; O = Other.

OTHER PROJECT DATA

Borrower:	Federative Republic of Brazil
Executing Agency:	State of Bahia
Follow-on Project:	Second Bahia Rural Development Project - Nordeste

PROJECT PERFORMANCE AUDIT REPORT

BRAZIL: EXPERIENCE IN DEVELOPMENT OF THE RURAL SECTOR

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BAHIA RURAL DEVELOPMENT PROJECT - PARAGUACU (LOAN 1589-BR)

EVALUATION SUMMARY

INTRODUCTION

The four loans covered by this PPAR, provide a sample of the Bank's assistance to Brazil in the development of the agricultural sector in general, and the Northeast of Brazil (NE) in particular. While Bank loans represent significant resources, it should be remembered that Government supplies substantially more resources than it borrows for these developmental purposes; which in turn strictly limits the extent to which Bank assistance can get ahead of current political realities.

These projects should be viewed collectively and in their historical context, both as important reflections of and influences on, the development of political ideas. For example, taken in isolation, the modest increase in extension staffs provided for in the Bahia and Minas Gerais Rural Development (RD) projects appear less adequate than if seen in tandem with a significant (US$100 million) effort such as the First Agricultural Extension project, to develop a national extension system. This, in turn, should be seen in the context of earlier decisions to develop, with Bank assistance, a world class agricultural research system in Brazil.

The Bank's ability to affect the course of political thinking through its projects is particularly important in the development of the Northeast, a region traditionally associated with intractable problems of poverty, drought and inequitable land distribution. The issue of land reform was tackled in a major collaborative research effort between the Bank and SUDENE (Superintendency for Development of the Northeast),1/ the results of which suggested that the absence of significant land reform placed strict limits on the achievement of higher incomes for the poor. In the interim, the Bank had continued to press ahead with projects, in the belief that there were sufficient small farmers without tenure problems, who could be assisted, and that the projects provided a useful context for actively continuing to press the case for land reform. The research results tended to confirm the Bank's project experience and provided the analytical underpinnings for the development of a political consensus in favor of action for land redistribution.

1/ "The Agricultural Economy of Northeast Brazil", Gary P. Kutcher and Pasquale L. Scandizzo, Johns Hopkins Press, 1981.

Experience with Bank sponsored RD projects has continued to underline the limitations on poverty alleviation in the NE without increased access by the poor to land and water, as well as small farmer oriented extension, research and marketing services. Thus the joint consideration of three projects (one to develop the national extension service, and two RD projects; one Bahia, in the NE, and the other Minas Gerais, close by), further clarifies their most important impacts and permits a comparative review of a discrete and manageable amount of the Bank's lending. The fourth project designed to lend for agro-processing raises some of the same issues as the credit components of the RD projects, and provides interesting lessons as to the difficulty of ensuring positive real interest rates in the face of high inflation.

OBJECTIVES

The Second Agro-Industries Credit Project (AI2), was designed as a follow-on project, to continue support for agro-processing investments particularly in meat processing, grain handling, milk processing and miscellaneous agro-industries including supply of basic agricultural inputs; and to ensure positive real interest rates for these types of lending. This required restricting the project's geographical scope to the South and South-East, since other areas had subsidized credit programs with which the Bank had no wish to see the project compete.

The First Agricultural Extension Project (AE1) was designed to support the development of EMBRATER (Brazilian Technical Assistance and Rural Extension Corporation), the national extension service, through which Federal and donor funds flow to individual State extension services. The development of EMBRATER was a logical complement to the Bank's earlier support of EMBRAPA (Brazilian Agricultural Research Corporation), the national agricultural research organization.

The Bahia Rural Development Project (BRD) and Minas Gerais Rural Development Project (MGRD) were designed to raise the productivity and standard of living of the rural poor by providing supervised and subsidized credit, and a wide range of other services to small farmers in the target areas of Bahia (Paraguacu) and Minas Gerais (Zona del Mata). These additional services included particularly health, primary education, potable water, land titling and social extension.

IMPLEMENTATION EXPERIENCE

The projects achieved mixed results, were characterized by substantial delays, and in the case of agricultural credit components exhibited major problems of disbursements (chiefly due to counterpart funding disruptions) and design, as they coped with competing subsidized credit, incomplete monetary correction and a lending bias towards the larger small farmers. Beyond this, the RD and AE1 projects included more than 16 implementing agencies, with predictable problems of start-up and coordination, while the BRD project encountered supervision problems especially in the ability of the Bank to focus the required time and technical expertise on the range of disparate components.

Monitoring and Evaluation: The MGRD project was unusual in providing some usable farm level data from its M&E (monitoring and evaluation) contract with the Federal University of Vicosa. This data shows (a) that Assisted farmers had average farm size and income almost three times as large as the Not Assisted farmers, but (b) that Not Assisted farmers generally performed better over the project period than the Assisted, perhaps due in part to project extension services (PPAM para. 88). By contrast the BRD project has no M&E data which allow project beneficiaries or effects to be properly documented. The AEI project appears to have had a significant production impact (PPAM para. 74).

Procurement: Procurement problems were minimal, since the predominant purchases were relatively small and construction contracts were small and decentralized. They could be provided competitively by local suppliers.

Sustainability: Basic project sustainability appears to be good. A 20% sample of processing facilities constructed under AI2, was showing good capacity utilization at the time of the PCR. There was a continuing problem of recurrent funding for the social sectors, particularly where, in the face of rapid inflation, delayed disbursements resulted in a reduction in the real resources transferred. However, within these constraints the new facilities were not discriminated against. The AE1 project was followed by AE2 which continued support for the salaries of the extra extension staff, but provided for a phase out of Bank support over the life of the project.

More fundamentally, the whole idea of providing significant support services for small farmers has been accepted as an important part of Government agricultural policy. This was reflected in the Government sponsored study which led to the Projeto Nordeste initiative, and is confirmed by Government's continued borrowing for a "second generation" of RD projects in the NE.

FINDINGS AND LESSONS

Credit: The major surprise from the audit is the inappropriateness of the credit components for a country with (a) rapid domestic inflation, (b) the use of subsidized credit as a major component of agricultural policy, and (c) where incomplete (rather than complete) monetary correction reduces the real burden of the national debt. The result was conditionality for AI2 which lead to great difficulty in disbursements (PPAM para. 8) and in the RD projects, to loans which differed little from cash grants (PPAM para. 114). The lessons are (a) that any future lending for agricultural credit should be based on a clear analysis of the current weaknesses of the credit system in Brazil, and how the project will contribute to their correction, (PPAM para. 112)2/ and (b) that RD project

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2/ This has been recognized as an intractable problem for over twenty years. A quite wide range of unsuccessful approaches to its resolution are already to hand, starting with the commodity indexed loans used under the First Livestock Loan (516-BR) approved by the Board in September 1967 (see also Annex B).

proposals for "unindexed credit" should be justified in terms of cash grants rather than as credit (PPAM paras. 32 to 36). Explicit grant elements are already provided for in the "second generation" of RD projects. However, it is important to separate the provision of grants and credit, since the motivation for the two types of assistance should be quite distinct.

The observed incomplete monetary correction under AI2, poses a question for the Bank. Should it lend on terms which are significantly more attractive than terms available to domestic savers?

Extension: The AE1 project can be characterized as principally "bricks, mortar and staff". From the long-run view this was probably the right priority since it established a firm bureaucratic position for the extension service within the public sector agencies serving agriculture (PPAM, para. 121). The relatively intensive service (leading to the majority of farmers getting no direct extension) provided for in the supervised credit components of the RD projects, emphasizes the need to explore the "methodology" of delivering technical (and profitable) information to a wide audience of small farmers, as provided for in AE1 (PPAM para. 122).

As field staff are added, increasing tension can be expected to emerge (PPAM para. 123 and footnote 25) between their use as technical advisory staff versus generalists available to deliver and coordinate the delivery, of all Government assistance at the field level. The Bank should certainly beware of supporting projects, in RD or elsewhere, which rely on delivery through the extension service without providing for additional manpower; and where new programs are designed to be delivered via the extension service, the Government should be encouraged to fully budget manpower requirements for additional staff.

Top-Down: Overall the projects appear paternalistic and centralized.3/ It is Government, not private savers, who is expected to provide the capital for agricultural development; an extension service is provided in the RD projects chiefly to assist credit applications and administer them; the Federal, rather than State Governments will provide the major new funding for extension, etc. Planning and execution has been essentially top down. There has been little recognition of the incentives for private sector participation, and no scope for beneficiary initiatives or participation. Notable exceptions to this rule were a) the evidently successful private sector participation (banks and sub-project borrowers) under AI2; b) the contracting-out of M&E to Vicosa University under MGRD, which produced useful data; and c) support for the not entirely successful cooperative development under AEI and the RD projects. Future project design could well take up explicitly, the proper balance between Federal, State and local control, and suitable mechanisms to achieve this.

3/ These terms are not intended pejoratively; paternalism and centralization have their place. Rather the intention is simply to flag an apparent tendency in project design.

Land Redistribution: The very modest progress in BRD in the provision of land to the landless or farmers with inadequate holdings4/ (as distinct from "land titling", where farmers in possession of state land without title were provided with official title to their holding), warns of the difficulty of achieving significant land reform. The "second generation" of RD projects in the NE, have made significant progress on land redistribution, and this is viewed as a necessary condition for their implementation. In its absence the NE will continue to be plagued by the problem of large amounts of underutilized land, underutilized labor and (in non-drought years) underutilized water (PPAM para. 125 to 126).

Agriculture's Role Within Regional Development: In the MGRD project, the Vicosa study shows that though subsidized credit went to small farmers, the average credit recipients had about three times the initial farmed area and almost three times the initial net income of the average farmer who did not get credit (PPAM para. 88). This poses very starkly the problem of whether there are farmers who are "too small to help"? It is sometimes implicitly assumed that with a sufficiently radical land reform, there would be land (and water) for all, and the poverty problem would go away. This may be unduly optimistic, especially since complementary services and investments are needed. A proper analysis could reveal limits to the number of poor who can reasonably be expected to get land, even with major migratory movements within the NE. There is a need to put agriculture's contribution to the resolution of the poverty problems of the NE in the proper context of population planning and the development of the region as a whole (PPAM para. 132 to 134).

Many Lessons Learnt. Many of the points made in this audit have long been appreciated by regional management, and have been incorporated in the "second generation" RD projects already presented to the Board. In particular, both Government and the Bank have agreed that action on land reform is a necessary condition for benefits from complementary initiatives.

Though the second generation RD projects have moved significantly towards including distinct grant and credit components, these should be completely separated (since the motivation for credit, subsidies and grants should be quite distinct); and certainly the M&E vacuum which characterizes BRD and AE1 (and an unfortunately high proportion of all Bank RD lending), should not be allowed to continue. It is not sufficient to budget for an M&E component. Supervision should require that this component produce the needed results. Finally, the Bank should perhaps make provision for a continued serious research interest in the development of the NE, if only to internalize the work already being undertaken by Brazilian institutions.

4/ Only 78 farmers affected, versus a BSAR (Staff Appraisal Report for Bahia Rural Development Project) target of 820, raised during redesign to 1,900.

PROJECT PERFORMANCE AUDIT MEMORANDUM

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I. PROJECTS' BACKGROUND

Context

1. The four projects were prepared in the context of very successful agricultural expansion (5.7% annually) over the period 1967-74 and renewed interest in agriculture both on productivity and welfare grounds. Though agriculture had declined from 13.3% of GDP in 1966 to about 10.0% in 1975, it continued to provide about 60% of the total value of exports. Agricultural growth had been almost entirely due to area expansion, with relatively little progress in increased agricultural productivity. However, in the early 1970s, the Government embarked on a major reorganization and revitalization of the agricultural research system,1/ leaving the way open for a major complementary investment in extension. The Bank had also assisted with agro-industrial investments, particularly in livestock processing.2/

2. The Government's National Development Plan (1975-79) aimed to increase agricultural output by 40% during 1975-79. This was to be accomplished by stimulating increased production for export to continue the agricultural sector's substantial contribution to foreign exchange earnings, and by providing a means for raising income levels of the rural poor. To achieve these ends the Government: (a) allocated substantial public resources to incorporate new areas into production through programs such as the National Integration Program (PIN) and the new POLAMAZONIA (Development Program for the Integrated Areas of Amazonia) and POLOCENTRO (Development Program for the Integrated Central Areas) programs, which were to provide agricultural credit and financing of transport and rural infrastructure in the North and Central-West, respectively; (b) promoted a significant expansion in the overall supply of agricultural credit; (c) reorganized federal research and extension services to intensify efforts to improve productivity and to serve a broader segment of the rural population; and (d) introduced special programs such as POLONORDESTE (Program of Development of Integrated Areas of the Northeast), which was designed to improve small farmers' productivity in the Northeast through the formulation and execution of integrated rural development projects.

1/ Supported by Loan 1249-BR, Agricultural Research Project, for $40 million.

2/ Loan 924-BR, First Agro-Industries Credit Project, for $54 million.

3. Brazil's economic growth rate was impressive, and Government was committed to substantial supportive agricultural interventions including POLONORDESTE which focussed on the poorest and most economically depressed large region in the country. After the Nairobi speech in September 1973, the policy climate appeared appropriate for substantial Bank assistance to agriculture, particularly of the type envisaged in the POLONORDESTE program.

Objectives

4. The objective of the four projects can be summarized as to continue support for a successful program of expansion of the agricultural sector, tempered by additional lending to focus assistance to the rural poor. The Rural Development (RD) projects reflected the new Bank initiatives promised in Mr. McNamara's Nairobi speech.

5. The decision to appraise the Second Agro-Industries Credit Project (AI2) followed from the apparent success of the First Agro-Industries Credit Project, which by the end of 1974 had (a) built up a pipeline of some 40 sub-projects under consideration with a total value of US$124 million and (b) was lending on the basis of a positive real interest rate (PCR for First Agro-Industries Credit Project, Loan 924-BR para. 3.10). It was thus natural to wish to avoid a hiatus when the first project had been fully disbursed. By the time AI2 was presented to the Board its justification was less clear (para. 40).

6. Satisfactory progress with the Bank's support for revamping the agricultural research system (Loan 1249-BR) lead naturally into increased investment in agricultural extension and the First Agricultural Extension Project (AE1), both of which flowed from the observed relative stagnation of yields in Brazilian agriculture.

7. The two RD projects, Minas Gerais Rural Development Project (MGRD) and Bahia Rural Development Project (BRD) were part of a portfolio of Brazilian RD projects being designed at the time in response both to the Nairobi speech and Brazilian concern for the rural poor. The latter was motivated both by humanitarian considerations, and a pragmatic concern for the accelerating problems of rural-urban and North-South migration.

Design

8. The Agro-Industries II Credit project was a straightforward continuation of Agro-Industries I, with some slight redistribution of projected lending between types of agricultural processing, and focussing on the Central and Southern states.3/ It was intended to provide for positive real interest rates (CSAR, para. 5.08) and provided budgets of illustrative

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3/ The Northeast was excluded from the project's scope, because of the already existing subsidized credit schemes. Thus at least in project design, a serious effort was made to avoid supporting the general policy of subsidization of agricultural credit (CPCR, para. 2.03 footnote).

investments with ERRs in the range 37 to 47%, and financial rates of return from 13 to 35% (CSAR, paras. 6.08 and 7.04). Though provision was made for monetary correction of the amount owed, no provision was made for foreign exchange risk, which was to be carried by the Central Bank. Provision was made for a wide range of public and private sector banks to participate in the onlending program, with funds to be provided from the Central Bank (51%), the Bank (40%), and the onlending banks (9%). An unforeseen result (para. 62), was that lending could be effectively interrupted by (a) lack of demand in the light of the current lending terms, (b) unwillingness of participating banks to lend on current lending terms, and (c) lack of funds from the Central Bank. At least one of these "vetoes" was usually in place.

9. The SAR and President's Report for AI2 indicated that the loan would be onlent at positive real rates of interest. In particular, paragraph 36 of the President's Report states:

> "Given the indexing of the outstanding principal of subloans the 3% and 5% interest rates are positive in real terms and would correspond to rates of about 9% to 11% in a country which did not practice indexing but which experienced a rate of inflation of 6%."4/

However, the Project Agreement only calls for:

> "interest at a rate of 3% per annum in Region I and of 5% per annum in Region II, plus adjustment based on the ORTN price, as calculated in accordance with the regulations in force on the date of this Agreement" (Schedule, Part II para. 9).

Since the ORTN (National Treasury Bond) typically (Footnote 8) has lagged significantly behind general measures of inflation, the Project Agreement does not reflect the assurances given in the President's Report.

10. The Bank did not obtain a copy of the regulations referred to above. As a later memo said:

> "We do not have the regulations on file, and because of their complexity, it might even be difficult to establish a clear position as to what represents a valid interpretation." (Memo from Projects, June 20, 1980).

This gap has been remedied.

4/ While 9% monetary interest in the presence of 6% inflation corresponds to 2.83 % real rate of interest; 3% in addition to full indexing of the principal tc account for say 60% inflation corresponds only to 1.87% real rate of interest; at 300% inflation it corresponds to 0.75% real interest.

11. The term "monetary correction" is not used in the loan documents, but Brazilian usage makes "monetary correction" synonymous with changes in the ORTN, and not with the more objective National Consumer Price Index (INPC).5/ 6/

12. Peculiarities in calculation of the ORTN have included:

(i) the purging of "accidentalities" such as massive oil price increases;

(ii) 20% of the amount corrected to be based on an assumed inflation rate of 15%; and

(iii) in some cases (e.g., 1980) pre-fixing the amount by which the ORTN can change.

As late as 1986 the OTN has lagged the GPI by 28%. The usefulness of an index subject to the above types of adjustment as a measure of "monetary correction" remains in doubt.

13. Project implementation experience (paras. 47 to 49), tends to confirm that tying monetary correction (as understood in the Bank) to an administratively determined index, the ORTN, was a significant design flaw.

14. The provision that participating banks put up some of their own money, was an interesting design feature. Even more than the agreed provision for indexing with ORTN (National Treasury Bond), the insistence on private bank participation probably prevented lending when the prospects for recovery of the real value of the loan was in doubt. This undoubtedly slowed down the rate of disbursement, but prevented this credit program from being transformed into predominantly a grant program.

15. Any index of inflation will tend to under-correct, in times of rapidly accelerating inflation. To attempt to overcome this difficulty, "monetary correction" was tied to the projected changes in the ORTN index,7/

5/ i.e., "70% monetary correction" means 70% of the change in the ORTN; which itself may lag the INPC by up to 50%.

6/ The INPC (General Price Index, Global Supply) is also published in purged and unpurged versions, where the purged version has been corrected for "accidentalities" such as the price increase for imported fuel, the ending of a wheat subsidy, too little or too much rain, etc. The result is that great care has to be taken to ensure correct translation from economic concepts to available Brazilian data series.

7/ Supervision Report, form 590, Annex 2, March 29, 1982.

which proved itself to generally understate likely changes in the ORTN, which in turn understated the actual changes in the GPI.8/

16. The Agricultural Extension I project was designed to strengthen the Federal/State extension system, and to increase the services available to small farmers particularly in the North, North-East and Central-West. Prior to the innovation of secure9/ federal funding through the EMBRATER-EMATER system, there had been a loose federation of state extension systems under ABCAR (Brazilian Rural Credit and Assistance Association), with about 5% of the funding provided by a 2% levy on loans supervised for the Bank of Brazil, (BB). This form of financing together with an emphasis on increasing production naturally led to an emphasis on the credit and other problems of large farmers. Secure federal funding was intended to allow an expansion of extension in improving the productivity of farmers with special emphasis on small farmers (SAR paras. 3.01 and 3.04). Subsequently, in 1979, Government policy called for even greater attention by extension to the problems of small farmers, even at the cost of some reduction in its attention to the most rapid expansion of total agricultural production.

17. Economic justification for the project as presented in the ESAR rested entirely on macro-economic assumptions as to the rate of shift of the production function for farmers contacted:

> "Commencing in project year two, a shift in the aggregated agricultural production curve should occur; this shift will correspond to a shift in the production functions, i.e., in the productivity of all crops grown by project participants." (ESAR, Annex 2, para. 5).
>
> "- Extension services benefit evenly all activities carried out by project participants accepting new agro-technologies.
>
> -The existing farm types ..... remain unchanged .....
>
> -The expected effects (3% increase in agricultural production) .... distributed evenly among all crops ... ." (ESAR, Annex 2, page 3, emphasis added).

A suitable disclaimer is made as to the impossibility of making detailed projections for project impact in a country as big as Brazil, but this disclaimer appears to have been used to avoid presenting even one example

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8/ Compounded changes in the GPI from 1977 to 1987 were 5,871%, versus 2,238% for the ORTN; i.e., over this period 62% of a loan would have been "written off" by the lag between ORTN "monetary correction" and the GPI measure of inflation (see inside front cover).

9/ Relatively secure funding; significant delays in the transfer of funds from the Federal Government to the States, in the presence of high inflation, was found to produce serious erosion of the real resources transferred.

of a profitable technology awaiting extension.10/ No crop budgets are presented to illustrate with and without extension scenarios, a notable omission in a project designed to improve small farmer productivity. This is not to say there was no technological basis for the project, merely that it was not presented in the ESAR. In fact, 7,903 demonstration plots were established under the project, bearing witness that there was some technology to extend.

18. The above justification from the SAR conflicts partially with the SAR's own description of project objectives as including "generally raise the income levels of farmers, particularly small farmers", (SAR, para. 304(e)), which would imply an increase in production, particularly of subsistence crops on small farms. Discussion with project staff suggests that while there was interest in the Bank in redirecting the extension service to assist small farmers, little progress was made on this until the Government decided, in 1979, that EMBRATER should give particular attention to the needs of small farmers.

19. This decision changed drastically the whole orientation of the project, and should normally have been accompanied by a formal project redesign. There was, for instance, no longer any reason to expect "a shift in the aggregated agricultural production curve" (para. 17). In the absence of a redesign, key questions such as the rapid rise in the cost of extension per hectare served, the availability of technical packages suitable for extension to small farmers, and the relative importance of knowledge versus capital and other constraints for small farmers do not appear to have been properly addressed.

20. About half the loan funds (46%) were for additional staff, with technical field staff to be expanded from 4,400 technicians in 1974, to 7,077 in 1977. The balance of the loan was for office equipment, audio-visual and libraries (13%), civil works (7%), vehicles (7%), fellowships and training (7%), consultant services and contingencies (19%). This major investment in buildings and equipment for the extension service, together with an annual Federal contribution to recurrent funding, meant that the

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10/ In marked contrast, the MGSAR provides budgets for six farm investments, in crops, livestock and forestry, to test the financial rate of return of these investments (MGSAR, para. 7.5); and to the SAR for Agricultural Extension II (Ln. 2679-BR), where Annex 4 lists eleven illustrative technologies which promise very substantial yield increases. The Issues Paper for the Extension project, July 28, 1977 (para. 4) mentions inter alia, that "increases at the farm level of 27% for rice, 25% for beans, 20% for maize, 20% for cotton and 10% for cassava all seem well within a conservative estimate of results to be expected from sound extension policy." No basis for these "conservative estimates" is given and it is not clear why similar estimates do not appear in the ESAR.

extension service's status within the State public sector was very substantially enhanced, as was its capacity to serve small farmers. In a country as vast as Brazil, it was not possible for appropriate extension messages to be developed centrally, thus the speed with which this increased capacity would be put to use varied significantly between states.

21. Project conditionality did not include any provision for the State and Federal Governments to employ the additional extension staff on a continuing basis. In the event this did not constitute a problem since the follow on project, Agricultural Extension II (Ln. 2679-BR), provided for continued employment with gradual phase-out of Bank support for the additional salaries.

22. The Minas Gerais Rural Development project was designed to be in large measure (73% of allocated funds) a credit project, but supported by extension (200 additional staff), swamp reclamation (8,000 ha), agricultural research (137 experimental and demonstration plots), rural electrification (800 km of trunk and distribution lines), health services and education. Project monitoring and evaluation was to be carried out by the Federal University of Vicosa in the form of a survey of project assisted and unassisted farmers. As an integrated project, it involved 39 Federal and State agencies in its implementation. The specification of their tasks is clear, and illustrations of the profitability of agricultural investments are provided. Provision is made for lending to be on the standard terms for agriculture in Minas Gerais (i.e., 10-15% nominal plus partial monetary correction). The problem of negative interest rates is noted, but rationalized as being tangential when the majority of the credit is to be provided to low income small farmers (MGSAR para. 1.6), (see paras. 28 to 36).

23. Two features of the MGSAR which deserve note are: (i) provision for only 80 farmers to be assisted per additional extension field worker (MGSAR, para. 1.9), and (ii) a proposal to build up the State land clearing authority RURALMINAS (State Rural Development Agency) so that it could under-cut the price of private contractors by 30% (MGSAR, para.3.14). The low ratio of farmers to be served per extension officer, reflected the orientation of the project towards supervised credit. The extension staff were to have an important role in the preparation of credit applications and the associated farm plans, and to assist with their implementation. New technology would be introduced in conjunction with the supply of credit, rather than as an activity in its own right. This contrasts with the design of AE1, which aimed to reorient the extension service from an adjunct to credit administration, to the provision of technical advice to larger numbers of small farmers. In the event, RURALMINAS was very successful in the development of swamplands,11/ but by the use of private sector contractors, rather than by developing an in-house capacity.

24. The Bahia Rural Development project design provided for 15 federal, state and private agencies and 49 municipal governments to be involved as direct executors or major collaborators (BSAR, para. 3.03). We

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11/ Lending to a national program PROVARZEAS, to develop swamplands.

now know that this implied an unsustainable supervision effort for the Bank, if all project components were to receive proper attention. The major components are clearly laid out in the BSAR so that viewed in isolation each one is suitably justified. In contrast to AE1, budgets are provided to illustrate the profitability of typical investments and hence the scope for extension (BSAR, Annex 9, and Supplementary Staff Working Paper No. 14).

25. Agricultural credit was designed to be the largest project component (31% net of Contingencies), and extension the second largest (14%) though described as the "keystone" of the project (BSAR 4.08). Other important components were assistance to cooperatives, irrigation, storage, rural roads, water supply, education, health, land titling and land redistribution. In 1982, after four years of implementation, the State Government evaluated the project and requested numerous variations including halving the number of titles to be granted from 15,000 to 7,500. After revision, key project components included 7,500 land titles to be distributed, 44,000 ha of land to be acquired and 1,900 small farmers settled, 1,500 small irrigation systems to be improved, small warehouses, rural roads, health centers and mini-posts, schools construction and repairs, and support to the State Land Institute.

26. Provision was made for a significant expansion of the extension service from 77 technical staff to 300 12/ (BSAR, Para. 4.08) and some strengthening of research. A curious omission is any cross-reference to AE1. Even with AE1 in the lending program, the appraisal mission felt the service continued to be seriously under-staffed. Despite a planned 61% increase in field staff, the AE1 seems to have left the extension service understaffed according to Brazilian norms. Raising these norms represents a continuing challenge.

27. The Bahia project aimed at having 174 farmers served per extension worker, a major increase in farmers served from the earlier ratio of 80 used in MGRD.13/

28. In 1982, the Government began planning a major new development initiative, Projeto Nordeste, which is based on a US$2.4 billion in the NE for a first stage, with substantial increases in future stages. As part of

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12/ Mostly school leavers. It is not clear why the project did not require greater preparation in budgeting, financial analysis and/or small farmer production technology.

13/ The Audit's preoccupation with increased farmer/field staff extension ratios reflects (a) the high cost per farmer served at low ratios, (b) the large number of farmers receiving no service, implicit in low ratios, and (c) the greater focus on the transfer of technology associated with higher ratios. It is simply not possible to tailor information to the exact financial and/or labor and land supply position of individual farmers, when large numbers are being contacted. This is an advantage, in that the extension worker can then teach production techniques, leaving it to the farmer to adapt them to his/her own individual circumstances.

this initiative the Bank reviewed the lessons of the "first generation" of RD projects for the NE. In general, the second generation projects have fewer components, are more tightly focussed on agricultural concerns, and in some cases include specific grant elements. Most of the lessons for RD projects suggested by this audit, have already been incorporated in the second generation projects, all of which have already been presented to the Board.

29. Agricultural Credit. The "agricultural credit" components of the RD projects were de facto grants rather than credit programs. For BRD the credit terms were:

> "Project credit terms and conditions would be those established by the Government for the POLONORDESTE program, namely interest to the farmer at 10%, unindexed, for both investment credit and seasonal production credit ... with repayment terms for investment credit of up to 12 years including up to 6 years' grace" (BSAR, para. 4.15).

The BSAR noted this involves negative real interest rates, but recommended that:

> "Since the beneficiaries of the proposed project are mainly in the lower income classes, and the possibility of misallocation of resources is greatly reduced by the proposed project extension and monitoring activities (the credit extensionist having to report at least once a year to the local bank on the progress of the individual financed projects and on the technical assistance rendered, and the project monitoring work including annual surveys of sample farms which would help provide another basis for evaluating the effectiveness of the credit intervention), the Bank should be prepared to acquiesce to the Government's position. Hopefully, the expected positive experience with small farmer repayment capacity in projects such as the one proposed will help convince the Government of the viability of adopting an interest rate policy more closely reflecting real credit costs." (BSAR para. 4.16).

30. Similarly in MGRD:

> "The unindexed and partially indexed credit would result in negative real interest rates to the farmer, but the beneficiaries would be small farmers from the lowest income groups and the credit would be closely supervised by ACAR". (MGSAR, para. 5.13).

31. While the exchange rate provides an imperfect measure of domestic inflation, it does allow calculation of an indicative measure of the grant

element in the RD credit program. The present value to the borrower of 600 Cruzeiros (Cr$) borrowed in 1976 (and equivalent to US$56.07 at the 1976 exchange rate of 10.7 cruzeiros to US$1.00) and repaid under the standard conditions for Bahia would be US$43.78 if funds were not reinvested/ or US$45.94 if they were reinvested at 8 1/2% (see Annex A). Thus the grant element ranged from 78% to 82%, and would have been greater in later years when inflation was even higher. Thus what the BSAR and MGSAR describes as supervised credit with (implicitly small) negative real interest rates, was in reality a supervised grant program.

32. This has very important implications for project design. A credit program, even a credit program with marginally negative real interest rates, has certain built in safeguards, notably a rational borrower will only use the credit if he expects to earn a positive real rate of return (or at worst a marginally negative return). There is no such inbuilt safeguard for a grant program. Furthermore, with a positive real interest rate (and good repayment rates), capital is preserved, and can be relent in subsequent years. For a grant program, benefits have to exceed costs the first time the grant is made, since there is no opportunity to repeat the grant without access to new resources.

33. This is not to argue that a grant program was prima facie inappropriate for the RD projects. Rather, the SAR should have justified this component on quite different grounds. Were the poor better served by (repeated) once only income grants, or would they have been better served by investment in rural electrification, small scale irrigation, or the purchase of large estates for land reform? This is not intended to be a rhetorical question. The correct answer depends, inter alia, on the recipients' consumption pattern, propensity to save and invest, and the form of any investment.14/ No attempt was made by the SAR to address these questions. Similarly, the project design concerned itself with the problem of security, especially for long term loans. (The longer the term, the larger the grant element, and the less the need for security.)

34. While there are serious conceptual difficulties in providing credit to the very poor, there are no such difficulties in providing grants. The cumbersome (but latterly more streamlined) procedure of the Bank of Brazil, could have been avoided if the true nature of the component had been acknowledged. The exclusion of low income families from the credit program is explained as follows,

> "Many sharecroppers and producers in the size category of less then 50 ha did not attain a net income equivalent to two and one-half minimum wages, which was necessary for inclusion in the project". (MGPCR para. 7.05).

14/ Given a high propensity to save, and a cohesive community able to mobilize it's savings, then grant funding of projects may yield significant benefits over and above a cost recovery approach. See for instance The Aga Khan Rural Support Program in Pakistan, OED, May 1987.

would be explicable if it was a credit program, but for a grant program the rationale is not clear.

35. Similar queries arise with respect to the size of the sub-loans or grants. With a poverty cut-off of US$340, loans of up to $7,800 (MGSAR para. 5.8), for borrowers with sufficient assets, represented about twenty-three years or more income for a person in poverty. It is hard to believe that the SAR would have tried to justify grants of this size.

36. To the extent that the credit program resulted directly or indirectly in increased demand for labor, it probably had very substantial benefits to poor laborers. Much of the short-term credit was expected to permit farmers to hire labor or, by the provision of consumption credit, to work on their own farm. Both adjustments would increase the effective demand for labor, and assist the poor.

37. It should be acknowledged that what the Bank approved as a credit program might well have been rejected by the Loan Committee or the Board if described as a grant program. Since this project component certainly injected funds into the NE, and led to some increased dynamism amongst the smaller farmers, the lesson probably is that the Bank should consider grant programs15/ as part of a portfolio of ways of stimulating sustainable productive capacity. However, the justification for such components needs to be very carefully documented and argued; and provision of grant assistance should not be tied to the amount lent.

38. Credit, Extension and Others. Despite their different titles, these four projects share the characteristics of making major provisions for credit and extension, as brought out in Table 1, which shows that 59% of the BRD (86% of the MGRD) net of contingencies was allocated to credit and extension. Furthermore, the relatively low ratio of farmers to be served per field worker, reflected extension's key role in providing for the supervision of the credit component and implied the absence of a broad based effort to improve small farmer production techniques as a whole. (See, para. 73 for EMBRATER's argument that high numbers of contacted farmers is an inappropriate objective.)

15/ As has been done in second generation RD projects for the NE.

Table 1: CREDIT AND EXTENSION ALLOCATIONS UNDER THE FOUR LOANS
(US$ Million)

Project	Credit	Extension	Other	Contingency	Total	Completion Delay Months
Agro Industry II [a]	83.6 (59%)[e]	-	-	-	83.6	48 (65+)[f]
Extension I [b]	-	86.6 (115%)	-	13.4	100.6	36 (65+)
Bahia RD [c]	9.6 (44%)	5.2 (134%)	15.3 (89.3%)	7.6	32.6	36 (63+)
Minas Gerais RD [d]	27.2 (100.4%)	4.7 (160.3%)	5.4 (114.8%)	4.7	42.6	36 (63+)
Total	119.7	143.3	18.7	25.1	262.6	

[a] PCR, page i.
[b] Schedule I, Loan Agreement.
[c] PCR, Annex I, Table 4. Loan reallocated September 1983.
[d] PCR, Table 2.
[e] Percentage disbursed, in brackets.
[f] Percentage delay, in brackets.

Financing Plan

39. Project financing varied greatly between projects, as shown in Table 2. For MGRD, the State of Minas Gerais was the borrower (subject to a guarantee provided by the Federal Government); and for AE1, the States provided substantial funding in the form of their support for state extension services. Despite the variety of financing arrangements, no comparative lessons have emerged from the four projects on this issue.

Table 2: PROJECT FINANCING (US$ Million)

Project	Sub-Borrower [a/]	Participating Bank	State	Federal	Bank	Total
AI2	52.0	19.0		106.0	83.0	260.0
AE1			73.9	111.0	100.0	284.9
BRD				69.6	37.0	106.6
MGRD	6.8		90.4		41.8	139.0

[a/] Agro-Industry for AI2, otherwise farmers.

Pre-implementation Processing

40. As shown in Table 3, the four projects were appraised between 1975 and 1977, and were negotiated and presented to the Board between 1976 and 1978; they all were effective by the end of 1978.

Table 3: DATES OF PRE-IMPLEMENTATION PROCESSING

Project	Appraisal	Board Presentation	Effective
AI2	May 1975	July 1976	March 1977
AE1	June 1977	May 1978	May 1978
BRD	Oct. 1977	June 1978	Dec. 1978
MGRD	Oct. 1975	Feb. 1977	June 1977

41. The AI2 project was first proposed for the NE. However, the prevalence of subsidized credit in the region lead to redirection of the project to the South and Southeast, where monetary correction via the ORTN could be agreed. Preparation and appraisal corresponded to the apparent rapid uptake of the AI1 project (CPCR, para. 2.02). By August 1975 a supervision mission for AI1 was reporting a slow down in disbursements due to potential sub-borrowers turning to other sources of funds. A critical review of the yellow cover SAR by Central Projects suggested, rightly as it turned out, that the project was premature. Despite this warning the project was presented to the Board in July 1976, but the first disbursements did not take place until five years later, in April 1981. This represented a misjudgment as to the demand for credit at positive real interest rates. It is to the credit of the Bank that it lived with slow disbursement, rather than transform the project into a fast disbursing grant program.16/ However cancellation might have been better since this would have saved the Borrower five years of commitment fees.

42. The AE1 project was a natural corollary to the earlier Agricultural Research I Project (Loan 1249-BR). It was prepared largely by EMBRATER (the national extension parastatal), with assistance from two Bank missions. The Bank emphasized the importance of staff training, of technological transfer, and methods of reaching a wide audience of farmers. Despite this the SAR does not contain reference to any specific technological improvements which are ready to be exploited (para. 17). EMBRATER tended to emphasize the importance of social extension (home economics, community development and nutrition), and the physical infrastructure needed for extension; and these components were given greater emphasis when the project was redesigned in 1983 (para. 53).

43. The MGRD was the second integrated RD project appraised in Brazil. It was prepared by the State of Minas Gerais, specifically the State Rural Development Agency (RURALMINAS) and the State Secretariat of Planning (SEPLAN-MG), with some assistance from the Bank. Appraisal reduced the project from an initial proposal for US$360 million to US$139 million, but the proposal for 39 participating agencies was maintained. Project conditionality focussed on adequate staffing of the extension service; and the provision of farm plans to (small) farmers applying for subsidized credit under the project.

16/ e.g., by removing the need for bank participation, and delinking capital payments from the ORTN. There is no special merit in rapid disbursement for uneconomic purposes.

44. The BRD project was the fourth integrated RD project in the POLONORDESTE series. It was largely prepared by Bank staff (PCR, paras. 2.01 and 2.02), to apply State and SUDENE (Superintendency for Development of the Northeast) ideas on education, production, health, rural roads, cooperatives, storage, etc., to the needs of small farmers.

Board Concerns

45. Board discussion of these projects focussed primarily, and as it proved appropriately, on a criticism of the negative real interest rates prevailing in the agricultural credit system (EPCR, and CPCR para. 2.03), and the need for close supervision of credit to avoid potential misallocation. The Board was also concerned at the resulting erosion of the capital of the State Development Banks. These concerns had little perceptible effect on implementation of these projects, with real interest rates continuing negative throughout their lives.17/ Other concerns about AE1 related to its effect on native tribes and the high cost of providing extension services for sparse populations in remote areas. For MGRD, the Board's concern was whether the project reflected a substantive plan for regional development (MGPCR, para. 2.04), especially in the context of rural-urban, and on- and off-farm employment linkages.

46. The Bank's emphasis on the need to invest in audio-visual equipment and to study ways of increasing the number of farmers who could be served per field worker, was responsive to the Board's concern. It is less clear that actions to meet the Board's concern for the effect on native tribes or a coherent regional development strategy can be identified (see PPAM para. 100).

II. PROJECTS' IMPLEMENTATION AND OUTCOMES

Management

47. All four projects required the cooperation of many organizations for their success. The AI2 project had the simplest management structure, with sixteen participating Banks deciding on a decentralized basis, how much to lend under the program. As discussed earlier (para. 8), the requirement that participating banks provide some of the funding, served to

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17/ There are indicators in the case of AI2 of a split between Programs and Projects on this, with Programs eventually over-ruling Projects and agreeing with Government to disbursement rules which would result in negative real rates of interest, without direct regard for the Board discussion (para. 47). OMS 3.73 is clear that the Bank's concern is that overall interest rate policies be equitable and conducive to the encouragement of financial savings (para. 25 of OMS 3.73); that interest rates be related to the opportunity cost of capital, and significantly positive in real terms over the life of the loan (para. 26); and that preferential interest rates are inappropriate for providing regional or sectoral incentives (para. 29). The administration of credit within these three loans thus seems to have been at variance both with Bank concerns, and Bank policy.

ensure quite limited demands on project funds, and there was no need to ration funds to individual banks.

48. Apart from routine concerns for the profitability of sub-borrowers, the Bank's supervision of AI2 focussed on the vexed issue of full monetary correction, and the adequacy of the ORTN to ensure a positive real rate of interest.18/ With one exception,19/ the recommendations for dealing with the lag between ORTN and the rate of inflation start by acknowledging the basis on which the loan was presented to the Board, and then propose formulae which would (a) not give a positive real interest rate, (b) necessitate further government intervention (this time in the "right" direction) in the determination of the ORTN, and (c) as it turns out, did not result in significant disbursements. Understandably in the circumstances, the rationale for such recommendations is not spelt out.

49. Implementation of the Bank-agreed formula involved the Bank in agreeing with the Government as to how the ORTN was to be administered:

> "I wish to confirm Bank's offer to accept new commitments under Loan No. 1317-BR on following conditions: (a) subloans will be subject to full ORTN correction and meet all other conditions specified in loan documents; (b) from January 1981 through June 1981, monthly ORTN adjustments will be not less than eighty percent of the corresponding movement in the general price index on a cumulative basis (i.e. for January; for January/February for January/March; etc.) and (c) from July 1981 onwards, such adjustments will be not less than ninety percent of the corresponding movement in the general price index, on a cumulative basis (i.e. for July; for July/August; for July/September etc.)...."20/

18/ A debate made no simpler by the fact that "monetary correction" is not mentioned in the legal documents, but is taken as synonymous in Brazil with application of the ORTN index; moreover, the Bank had previously accepted a blending of its money with other highly subsidized funds so as to achieve an effective interest rate competitive with other subsidized sources of credit. In Brazil, "full monetary correction" merely means that capital amounts have been indexed in line with the ORTN; which in most years has lagged, sometimes significantly, behind the National Consumer Price Index (INPC); an index which is published in both "Purged" and "Unpurged" form (see Footnote 6).

19/ "It is our judgement that we should not, at this time, agree to disburse against any more new sub-loans made under the uncommitted balance on 1317-BR, but seek cancellation. The achievement of one of the main project purposes (i.e., to help develop a system with positive interest rates) is simply incompatible with the continuation of highly regulated and administered financial markets in Brazil." (Memo from Projects dated June 20, 1980.)

20/ Telex of October 30, 1980 to Ministry of Finance and Bank of Brazil.

and, in the process, agreeing explicitly that the index of monetary correction would be administered in such a way as not to keep pace with inflation.

50. The possibility of using a floating interest rate, based on the yield of ORTN five-year bonds, was explored by Bank staff and their counterparts, but was rejected by the Bank Management on the grounds that AI2 would soon be fully disbursed. (A reasonable assumption in the fall of 1982). In the event, lending dried up as participating banks became increasingly reluctant to provide their own capital for a project which was not fully-indexed against inflation. (i.e., the decision not to use a more realistic method of monetary correction "because the loan would soon be fully disbursed", meant in fact that disbursement dried up). In short, the AI2 loan was not managed in accordance with the assurances provided in the SAR and Board discussions.

51. The AE1 project was implemented primarily by 23 state and territorial level EMATERS/ASTERS, which are affiliated with the federal EMBRATER. The normal project start up delays were compounded by the fact that the EMATER/EMBRATER system itself was relatively new, and that insufficient counterpart funds had been budgeted at the time of signing. The Government was supportive in authorizing some commercial borrowing to help ease this constraint on counterpart funding.

52. The RD projects, though administered at the State level, nevertheless involved large numbers of organizations (15 Federal, State and private organizations operating in 49 municipalities in Bahia, BPCR, para. 2.04, and 39 agencies in Minas Gerais, MGPCR, para. 2.03), which were not normally called on to collaborate. Understandable difficulties were encountered in trying to establish the new organizational links.

53. Redesign. The AE1 and BRD projects were subjected to redesign. In part this represented a reaction to the slower than expected rate of implementation and in both cases was undertaken in the context of a request to extend the project.

54. The redesign of AE1 was in response to a request from EMBRATER in June 1980, on the basis of the first 2 years of project execution and new government agricultural policies which continued to stress production expansion. The redesign involved the inclusion of social extension (home economics, community development, nutrition) workers under the project, and a switch of funds from consultants, vehicles and office equipment to civil works and field demonstration plots. The result was a doubling of state and regional office construction and the addition of 354 local offices. Provision for post-graduate training was greatly reduced (MScs 174 to 100, and PhDs from 36 to 10), representing a change in the EMBRATER philosophy of extension following a change in its administration in 1979. Previous management placed a premium on advanced training while its successors chose to emphasize a grass roots monitor system to support fewer fully trained

extensionists, with greater use of local consultants. Despite this increased emphasis on civil works, incremental salaries for the additional workers continued to constitute over half the project costs. Though total field staff hired slightly exceeded appraisal estimates, it is not clear how many of these were social extensionists, and hence to what extent the decision to expand social extension eroded the intended expansion of technical extension services.

55. The Government's request for a two-year extension, and redesign, of BRD was made in 1983, after a Government evaluation of the first four years implementation experience (BPCR, para. 2.05). Resource reallocations reflected principally agreement on the use of the US$19.5 million "unallocated" at appraisal. Principal beneficiaries were extension (+66%); agricultural research (+52%); land titling service (+46%); health and water supply (+96%). Major changes in project scope involved a halving of the number of land titles to be issued, and the establishment and operation of a fund for land acquisition.

Start-up

56. As already remarked (para. 40), the AI2 project was launched prematurely. After an eight month delay from Board presentation to effectiveness, another four years elapsed before the first disbursement. This was caused by continued use of funds available from the predecessor project AI1, together with a lower level of total demand for project credit, than had been forecast. For the other projects, start-up problems focusing principally on supply of counterpart funds and appointment of key staff were routine rather than dramatic.

Sequence

57. No major problems were reported in the sequencing of project activities.

58. The AE1 project presents an interesting question as to the appropriate balance between hardware, staffing and organization in institution building. The strategy pushed by EMBRATER was to establish the EMATERS basic civil works, transport, staffing and audio-visual support, with relatively less emphasis on defining the extension messages to be promoted,21/ or the organization to actually carry the message to large numbers of small farmers. This probably is the correct sequencing since EMBRATER, with the help of AE1, did manage to establish the EMATERS as a significant bureaucratic presence in the agricultural administration of the States.

21/ This is in contrast to a strategy which would have put the first priority on establishing field trials, cooperating with research on implementable packages, and field activities, possibly from inferior and temporary accommodation. This is, however, a question of emphasis, and field extension was by no means neglected; 7,903 demonstration plots were grown under the project, and technologies such as better spacing of manioc, more effective use of pesticides and improvement in animal traction were promoted.

This still leaves the challenge of inducing the EMATERS to develop and deliver their state specific extension messages, but it reduces the danger that some States, for whatever reason, would become disenchanted with extension and allow their State services to be crippled by inadequate accommodation, staffing or recurrent funding.

Procurement

59. Procurement was essentially trouble-free in these projects. The small size of individual purchases meant that ICB was not called for, and that even though international companies were eligible to bid for local procurement, there was little if any, interest. The small farmer credit components involved individual purchase of small quantities of farm inputs through standard commercial channels, or payment of hired labor. Civil works and roads involved quite modest sub-projects in widely dispersed localities, which local contractors were well equipped to construct. Borrowers under AI2 were required simply to obtain quotations from at least three contractors or suppliers and to furnish them to the participating banks, for review of quality, suitability and price (Project Agreement, Schedule, para. 14).

60. Counterpart Funding. Counterpart funding was an intermittent problem for all four projects. As already discussed (para. 8), some funding difficulty was virtually built into AI2. For AE1, the funding problems were more significant in the poorer states of the north and north-west, but these problems diminished over time. The RD projects also suffered some shortage of counterpart funds. In MGRD this limited the expansion of the extension staff to 165 (rather than the projected 200), and from 1978 to 1983 the implementation of the education and social components were particularly affected. For all four projects, the high rate of inflation meant that a delay in the provision of counterpart funds, also reduced the real amount of resources transferred to the project.

Disbursement

61. The rate of disbursement fell well short of appraisal estimates for all four projects since they all suffered delays in excess of 60% of their appraised duration (See Table 1). In part this potential short-fall in disbursements can be traced to slow claims procedure by the Central Bank, in the presence of a rapid devaluation, which lead to financial reimbursement falling significantly behind real expenditure. All projects benefitted from the Bank's Special Action Program (SAP), which raised disbursements from about 30% of project costs to 67% from March 1983 on. For AE1 and MGRD the SAP just about compensated for earlier slow claims, and actual disbursement matched, or almost exactly matched, appraisal estimates.

62. For BRD the devaluation of the cruzeiro lead to real cost saving, and there is some suggestion that the low disbursements for agricultural credit (44% of appraisal) reflected a decision by the BB not to claim for all small farmer credit disbursed.22/

63. For AI2 the almost mutually contradictory lending requirements (para. 8) meant that after an initial spurt between early 1981/1982, when these conditions were simultaneously satisfied, the rate of disbursement fell off to a derisory US$0.2 million per month. After three extensions, it was agreed with Government that the balance of the loan should be cancelled.

Reporting

64. In general, audit and progress reports were satisfactory and were submitted in a timely fashion. In AE1, it was noticed that progress reports were not being used to flag problems holding up implementation in individual states. After this was drawn to the attention of EMBRATER, the progress reports became more useful for problem identification (EPCR paras. 3.16 and 3.18). As discussed under monitoring the reporting system did not extend to how the extension staff were actually being used (para. 95).

65. An interesting aspect of the MGRD project was the award of a contract to the Federal University of Vicosa to prepare an annual evaluation report, based on updating an initial sample of over 800 producers. Whilst insufficient to show causation, the resulting data means that for MGRD, in marked contrast to the BRD and AE1, we know something of the characteristics of project beneficiaries, and what happened to them. However, quarterly reports by the project coordinating unit for MGDR failed to identify the end-use of producer credit and the Borrower did not attempt to explain the apparent diversions of credit to coffee and sugar in its own evaluation.

Outcomes

66. All four projects have substantial achievements to their credit. AI2 supported investments in agro-processing plants, a 20% representative sample of which at the time of the PCR still continued to have good capacity utilization and financial results. AE1 put in place the physical plant and staff for a nationally coordinated, but state based, extension service. It also refocussed extension from credit and technical assistance to large farmers, to the provision of technical advice to large numbers of small farmers, and provided the physical and institutional base for this new focus (para. 57). The two RD projects distributed significant amounts of credit (albeit de facto grants) to farmers with up to 100 hectares, and financed a range of other infrastructure and social investments for which

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22/ BB's record keeping procedures were primarily oriented to loan size, and project conditionality also related to size of holding and total borrowing.

the states are continuing to provide recurrent resources; and MGRD had one of the most effective M&E components of Bank supported RD projects.

67. The large credit component in MGRD is difficult to evaluate. It went predominantly to the larger small farmers (para. 88), and as such missed being of direct assistance to farmers falling within the Bank's poverty classification (while staying within the limits laid down by the Loan Agreement). It is also difficult to identify from M&E data any differential impact in favor of project assisted farmers (para. 90). Nevertheless, it is the subjective judgement of involved project staff that the relative dynamism of agriculture in the Zona del Mata, as compared to the rest of Minas Gerais, can be attributed significantly to project impact. A Scottish verdict of "not proven" is perhaps the best conclusion at this time, as to the benefits from the credit component of MGRD. For BRD there may have been similar problems with the credit component, but M&E data required to even argue a position, is lacking.23/

68. Even with hindsight, the Government was probably not ill-advised to borrow for these projects. Indeed, if the lessons (paras. 102 to 136) of these projects are effectively incorporated in future projects, then the audit would strengthen the above judgement, to say the Government was well-advised to borrow. However, given (a) the lack of knowledge of the impact of the credit component in BRD, (b) the documented failure of the MGRD credit component to reach the poor directly in MGRD, and (c) the Bank's official support for negative real interest rates under AI2, it is much less clear that the Bank was well advised to lend for the credit components of the relevant projects.

69. From a more mechanistic viewpoint, all four projects encountered significant delays (60+%) in their implementation, and while AE1 and MGRD were essentially fully disbursed, the other two projects involved substantial cancellations. In BRD, (US$10.5 million), this represented cost savings and so should be regarded as a plus, but in AI2 (US$33.7 million) it represented a lack of commercial demand for credit under the terms specified for the project.

70. Agro-Industries II. If the AI2 project is viewed simply as a subsidized credit project to support investment in agro-industries, the project was moderately successful. A majority of the firms in a 20% sample were operating at or close to full capacity (CPCR para. 4.03), and operating results were satisfactory. In large measure this may be due to the final borrowers being the private sector, who have their own incentive to avoid investment in unprofitable ventures. This is a markedly better outcome than the under-utilized plants which have resulted in other countries from some direct Bank lending to parastatals for agro-processing.

23/ Though the fact that the average investment credit of US$1,027 was 88% above the BSAR estimate of US$546, suggests that here too, the credit component may have deviated from the (Bank) target (BPCR, para. 3.10).

71. If, however, the policy objective of assuring positive real interest rates for investment in agro-industry projects is given the predominant weight, then clearly the project was less successful.

72. If the AI2 project provides the Bank with an insight into the provision of a long term capital market in the presence of high inflation,24/ it will have been worth its cost. The practice of providing additional long-term capital to a market which is fundamentally flawed suggests an incomplete analysis. Far from focussing primarily on the terms to be offered to Brazilian borrowers, it appears to the Audit that first priority should be given to ensuring that Brazilian lenders are given terms which reflect the true value of their savings. With this reform in place, it would then be possible to come to a realistic judgement as to the value of the Bank, or the Government, providing some incremental resources to the capital market (see paras. 106 to 113).

73. Agricultural Extension I. The AE1 project slightly exceeded its appraisal staffing targets (3,887 additional field staff, versus 3,734 projected), and as a result of redesign (para. 53) greatly exceeded its construction targets, (23 state offices versus 16; 16 in place of 8 regional offices and an additional 336 local offices). The target ratio of farmers served to incremental field staff rose to 313, up very considerably from the ratios of 46, used principally for credit supervision, which was one of the motivations for the project (Issues Paper, July 28, 1977, para. 32). This is indicative of significant progress in refocussing extension onto the service of large numbers of (small) farmers. Though the refocussing has undoubtedly taken place in accordance with Government policy (para. 16), extension is still carried out in a one-on-one context, so that actual farmers helped (directly) per extension officer still approximates 120, up from the Issues Paper but still well short of the redesign target. EMBRATER is conscious of the "low" number of farmers served, but argues that (a) most small farmers have individual problems extending beyond technology,25/ which if not addressed will make the technical advice superfluous, (b) that there is an annual turn-over of clients so that they may help almost as many farmers over a decade as a system which has annual contacts of 500 but low turn-over, and (c) it is

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24/ The Bank's record of problem recognition on this issue goes back more than twenty years (Attachment B). Its success in dealing with the problem has been much more modest.

25/ EMBRATER staff argue that the importance of non-technical problems (access to credit and more competitive markets, formation of bargaining groups, etc.) means that the time of extension officers can be used productively on non-technical matters. This is very much a policy matter. The key issues being (a) the extent to which non-technical extension either increases the effectiveness of technical extension, or competes with it, and (b) the extent to which non-technical extension be addressed to problems soluble at the micro-level.

better to give relevant advice to 120 farmers than irrelevant advice to 360. This latter point is valid, but should not prevent a continued search for ways in which extension staff can reach a wider audience, while continuing to provide relevant advice. It also raises directly the cost-effectiveness of one-on-one extension advice to small farmers. Can Brazil afford one extension officer to 1,300 ha (if small farmers average 10 ha, and 650 ha if they average five ha)? How does this compare with a cash grant, or the purchase of additional land? It may be that extension will only become cost effective for small farmers when (a) other restraints have been relaxed, and (b) effective group extension methods have been developed. The undocumented redesign of the project (para. 19), means that this question appears not to have been posed directly to date.

74. What is missing is any reference to the technologies being extended or their profitability; or to the proportion of staff time available for technical extension. The data presented in the PCR, suggests a significant production impact, however the impact on total production appears to have been less than expected at appraisal.26/ The adverse effect of the 1978 to 1983 drought would in any case make it unlikely that SAR production estimates would be fulfilled. Table 4 shows that assisted producers had substantially higher yields in 1984/85 than unassisted. Survey data is being collected to relate yields to years of assistance, and to distinguish farmers who have ceased to be contacted (but presumably continue to employ profitable practices) from farmers who have never received extension. This shows a healthy interest in EMBRATER in the evaluation of the impact of extension, and will reduce the inherent ambiguity of Table 4 as to how much of the higher yield is due to extension per se, and how much to more efficient farmers "self-selecting" themselves for extension advice. The yield differences in Table 4, are large enough for extension to appear a good investment, even if some self-selection has taken place.

26/ Export value and volume data suggest that the expansion of agricultural production fell well short of 7% p.a.

	1975	1976	1977	1978	1979
Value (1985-$M)	6,366	7,914	8,673	6,363	5,991
Volume* ('000 tons)	9,311	10,275	11,162	8,964	8,556

1980	1981	1982	1983	1984	1985
6,986	6,837	6,595	7,224	7,598	7,197
11,799	14,183	12,166	13,557	13,557	16,056

*Major exports, coffee, sugar, soyabeans, cocoa, wool and tobacco.

Source: "Brazil - A Macro-Economic Evaluation of the Cruzado Plan", World Bank, December 1987, Table 23

Table 4: PRODUCTION, AREA AND YIELDS OF PRODUCER ASSISTED AND UNASSISTED BY EMBRATER - 1984-1985

Product	Number of Producers Assisted	Production (1,000 t) Total for Brazil (2)	Production (1,000 t) From Producers Assisted (3)	Production (1,000 t) Percent (4)	Area (1,000 ha) Brazil (5)	Area (1,000 ha) Area of Producers Assisted (6)	Area (1,000 ha) Percent (7)	Yield (kg/ha) Producers Not Assisted (8)	Yield (kg/ha) Producers Assisted (9)	Yield (kg/ha) Difference (10)
Wheat	14,163	3,407	460	13.5	2,124	244	11.5	1,567	1,884	20.0 (+)
Soya	46,021	16,745	3,718	22.2	9,229	1,830	19.8	1,761	2,032	15.4 (+)
Maize	333,017	16,630	4,132	24.8	9,434	1,777	18.8	1,632	2,325	42.4 (+)
Cassava	84,882	19,772	2,941	14.9	1,670	193	11.6	11,395	15,226	33.6 (+)
Beans	278,624	1,805	507	28.1	4,372	871	19.9	371	583	57.1 (+)
Rice	145,494	7,926	1,692	21.4	4,605	963	20.9	1,712	1,756	2.6 (+)
Milk	98,555	8,242	3,560	43.2	15,348	5,482	35.7	1,582	2,165	36.9 (+)

Source: "Sistema Embrater e o Plano de Metas" EMBRATER, Brasilia, 1986, Table 6.
(4) % = 3/1
(7) % = 6/7
(10) Difference = $\frac{9-8}{8} \times 100$

75. Bahia Rural Development. Apart from attempting to get too many agencies to do too many things the BRD project misjudged the difficulty of improving the lot of small farmers. The Bahia State Government proposed a project redesign in 1983, which was accepted by the Bank. It reduced the number of small farmers to be provided with titles from 15,000 to 7,500 (in the event 8,281 were provided). However this was good compared to the redistribution of land. Land acquired and distributed to small farmers was 2,208 hectares as compared to 44,000 hectares in the redesigned project, and the number of small farmers actually settled was 78 as against 1,900 proposed in the redesigned project (or 820 in the BSAR). Even if fully achieved, the targets in BRD would not have made a significant impact on the land distribution problem in Bahia.

76. Thus the project was much more successful in the provision of titles, to (small) farmers currently occupying land without secure title than in the redistribution of land. It appears that there was real commitment to land redistribution in the State public service. However, at the level of state politics, there was effective opposition. In these circumstances, progress was made on titling, which was less disruptive of established land owners, and as such less politically sensitive. At the same time, support for the State Land Titling Service was increased in the project revision. Support for the land titling service could be expected to better document the need for land redistribution and thus change the

basis for the domestic political debate. The Bank also returned to this key developmental question in subsequent lending.27/ It is important to recognize that progress on land reform in the NE, simply cannot be judged on the basis of the outcome of a single project.

77. The 25% of the project funds reserved for on lending was to "be provided exclusively to small-scale farmers (including sharecroppers and tenants) in the Project Area", (BLA, Schedule 5, para. 1). In practice non-owners were eligible only for working capital, and were unable to obtain investment credit.28/

78. The audit concurs with the BPCR in that for BRD:

> "The project did generate social and economic benefits for its target population. Some of these benefits are difficult to define, either because they are unquantifiable, or because the project lacked an efficient monitoring and evaluation system and therefore did not register them. Nonetheless, the project succeeded in increasing education and health services where none existed prior to the project, and despite a lower than expected rate of return, farmers assisted increased their income substantially. In addition, the experiences of the Paraguacu and other POLONORDESTE projects helped the Government to focus increased attention on small farmer development in the Northeast by approving in April 1985 a new multi-billion dollar 15-year development program which emphasizes investment in agriculture and places priority on increasing small farmer production, productivity and access to land." (BPCR, para. 7.04).

79. Minas Gerais Rural Development. The MGRD project was predominantly (73%) a credit project. This was designed primarily to assist farmers owning less than 100 ha, and sharecroppers operating less than 20 ha. Not less than a third of the amount lent under the credit was to be lent to farmers having less than 50 ha and to sharecroppers (MGLA, Schedule 4, Para. 2). While the credit component was fully disbursed, it is not clear that the above lending policies were followed, especially since a minimum income limit for credit eligibility appears to have been established:

27/ In particular, the Bank is now supporting a Northeast Region Land Tenure Improvement Project (Ln. 2593-BR).

28/ Despite the explicit provision in the BLA (Schedule 5, para. 5) that no real security would be required for loans under 50 times the highest valor de referencia, (about US$55.00 in 1978, or a maximum loan without security in 1978 of US$2,750).

> "Many sharecroppers and producers in the size category of less than 50 ha did not attain a net income equivalent to two and one-half minimum wages, which was necessary for inclusion in the project". (MGPCR, para. 7.06).

80. Such a limit, if introduced, does not seem to follow from the requirements of the SAR or LA. Indeed, it appears to run directly counter to the intentions of the MGSAR (para. 5.4), to "ensure that proper participation of the smallest amongst the small farmers will be addressed".29/

81. Data collected by the Federal University of Vicosa for project evaluation purposes shows that assisted farmers had higher incomes and larger land holdings on average than the unassisted farmers. This data also suggested that in order to achieve an income of two and one-half times the basic wage, at least 24 ha. were needed, thus excluding most sharecroppers from consideration, since maximum sharecropper area was set at 20 ha. (MGLA, Schedule 4, para. 2).

82. As the MGPCR points out:

> "because of the application of negative real interest rates, the original resources applied to the short-term credit component have by now ceased to exist". (para. 4.07).

This point is returned to in the section devoted to lessons (paras. 114 to 120).

83. The educational component seems to have had the rather modest achievement of preventing the situation getting worse. About 20% of children remained out of school, because of the absence of schools beyond the 5th grade, both before and after the project. However, this leaves the drop-out rate in Minas Gerais better than (i.e., below) the national average.

84. While there had been little improvement in the indicators of infant mortality at the time of the PCR, a significant decline at one of the earliest health centers,30/ provides promise that there will be real improvement generally in the near future.

85. The calorie intake for project participants (i.e., larger and better off small farmers) increased over the project period, while the intake of non-project participants (small small farmers, sharecroppers, and landless) declined (MGPCR, para. 5.05).

29/ As the MGSAR (para. 5.4) rightly warned "... since this is a field where there has been only limited experience in Brazil and where a number of bureaucratic obstacles to implementation of policies of this nature exist, close supervision of progress in this direction and a firm Bank policy would be required to ensure participation of target beneficiaries."

30/ Lima Duarte, where infant mortality declined from 10% to 4% from 1975 to 1983.

Economic Performance

86. An ex post estimate of the ERR was included in only the PCR for for the BRD project. The estimate fell from 15% at appraisal to 11% at the time of the PCR. It has already been argued (para. 67), that even in the light of project delays, and less evident impact than projected at appraisal, the Government was justified in borrowing for these projects, with the probable exception of MGRD (para. 88).

87. Information on ERRs is presented in Table 5. The absence of ERR estimates in the PCRs for AI2 and MGRD projects would seem to indicate inadequate monitoring and evaluation (M&E) processes within the project. A soundly based M&E program should be able to provide evidence of project impact which could be used, at the very least, to provide illustrations of the ERR of sub-components (as was done in the SARs for all projects except Extension).31/ In the case of AE1, the ERR was recalculated for the PCR, but was dropped from the final draft in the light of a comment by higher management on a similar project:

> "one has to make a judgment on whether the project is worthwhile. But when the whole assessment rests on a series of unverifiable assumptions we can save ourselves a lot of time by accepting reality and forego the quite spurious mathematics. The same applies to health projects, research, education, training and family planning."32/

This comment seems to miss the point that the purpose of the ERR (or better still the present value of benefits minus costs) is to reduce to a single figure the implications of the wide range of assumptions (verifiable or unverifiable) underlying the project proposal or performance, and thus to assist the Bank in distinguishing projects worthy of support from less worthwhile projects. If the "verifiability" of assumptions is taken as crucial, the list of projects for which the ERR can be used with confidence may need to be reduced further. Since other quantitative tools for project appraisal, such as cost-effectiveness rely on the same basic data, this directive would appear to have created a significant range of project types for which the Bank has no clear methodology for the selection of those suitable for presentation to the Board. The ERR assumes that costs and the value of benefits are known, so that the rate of interest can be treated as the "unknown" and projects can be evaluated in terms of the cost of capital consistent with project viability. Cost-effectiveness acknowledges that the value of a human life or an agricultural graduate may be even less certain than the rate of interest, and hence expresses project viability in terms of a life saved or graduate trained. These points are returned to under Lessons (para. 131).

31/ The ESAR (paras. 7.04 to 7.06) notes the difficulties of illustrating ERR for a first-stage institution-strengthening project. The audit does not find this apology altogether convincing, since a discussion of illustrative ERRs would have usefully highlighted the proposal to concentrate initially on providing a firm physical and staffing base for the extension service.

32/ Quoted in memo from the Rainfed Crops Adviser, AGRPR, November 10, 1986.

Table 5: SAR AND PCR ESTIMATES OF PROJECT ERRS

Project	SAR	PCR
AI2 /a	37-47	NA
AE1 /b	11-18	64 /e
BRD /c	15	11
MGRD /d	22	negative

/a CSAR 7.04, best estimates, for beef & oil processing, and dairy sub-projects only. Lowest scenario range, 5-16%.
/b ESAR 7.06, 14% the most likely internal ERR.
/c MGSAR 8.11, agricultural components only.
/d BSAR Annex I.
/e Annex 2 of draft PCR, December 5, 1986.
NA = Not available.

88. Information on the incomes of farmers Assisted (by provision of supervised credit), and Not Assisted under the MGRD project is provided in Table 6. Salient features of this table are:

i) Assisted farmers' average incomes in 1976/77 (i.e. at the outset) were about three times higher than Not Assisted farmers.

ii) Average income of Not Assisted farmers during the project period grew significantly faster in percentage terms than Assisted farmers; and for net income, the Not Assisted farmers even grew faster in absolute terms.

89. With hindsight, the apparent low return from credit to the Assisted farmers may perhaps be explained by the use of much of it for cattle purchases in the face of an unusually prolonged drought.33/

33/ The Audit does not have data on end use of credit either in MGRD or BRD; but the study "The Integrated Rural Development Project of the Paraguacu River Basin in Bahia (PIDERP) - The Credit Component", LCAPB, January 1978 mimeo, documents that the predominant use for agricultural credit in the area of the BRD is for livestock purchases, and that banks regard livestock as good security.

Table 6: AVERAGE GROSS, NET AND AGRICULTURAL INCOMES PER FAMILY, MGRD PROJECT

(Cr$1,000 - Constant 1985 prices)a/

	Average Gross Income		Average Net Income		Average Gross Income of Agriculture Only	
Year	Not Assisted	Assisted	Not Assisted	Assisted	Not Assisted	Assisted
1976/77	22,408	60,061	11,033	38,309	18,119	52,597
1983/84	30,140	69,859	11,518	47,019	25,361	64,405
%	34.5	16.3	104.1	22.3	40.0	22.5
Δ	7,732	9,738	11,435	8,710	7,242	11,853

a/ General Price Index by Fundacao Getulio Vargas, 1985 = 100.

Source: Table 5, MGPCR.

% = 100 x (1983/84) / (1976/77)
Δ = (1983/84) - (1976/77)

90. The MGPCR reports that credit valued at US$120 million (MGPCR, Table 3) was distributed to 27,764 farmers, or an average of US$4,322 per farmer. With an exchange rate of Cr$4,024 = US$1 (1,848 in December 1984, 6,200 in December 1985) this translates to Cr$17.4 million per farmer. There is little evidence of any measurable benefit from the credit component of the MGRD project, which leaves us with just the costs. It is thus concluded that the actual ERR for MGRD was negative.

91. As already noted (para. 82), the negative real interest rates characteristic of the RD projects means that these credit funds have been exhausted. The nature of the actual investments, if any, made by credit recipients is not known, though in Minas Gerais there are indications that some of it went into coffee34/ and sugar cane which could be expected to have longer term benefits to farmers than the intended increase in annual targeted crops, and might help explain the lack of increased income for Assisted farmers.

Sustainability

92. As already noted, negative real interest rates converted the credit components of the RD projects into de facto grant programs. As such, the credit components of the projects were unsustainable. (Though

34/ Thus illustrating the small farmer's ability to use Bank resources to best private profit, even when it runs counter to Bank policies. (Minutes of Operations Policy Subcommittee Meeting of June 9, 1982).

grant recipients may have made highly productive and sustainable investments, useful data on the use of these funds does not appear to be available.) Operations and maintenance funding was incorporated in Federal and State budgets to ensure good sustainability of the social investments made under the RD projects. The "bricks, mortar and staffing" emphasis of AE1 (together with Bank support for a follow-on project), suggest that the extension project will have good sustainability.

93. More fundamentally, the whole idea of providing significant support services for small farmers has been accepted as an important part of Government agricultural policy. This was reflected in the Government sponsored study which led to the Projeto Nordeste initiative, and is confirmed by Government's continued borrowing for a "second generation" of RD projects in the NE.

Monitoring and Evaluation

94. The Minas Gerais RD project provided for a M&E contract to be awarded to the Federal University of Vicosa. This studied a sample of 800 farmers, who were reinterviewed annually. The survey was unusual amongst Bank projects in providing some useful information. In particular, it clearly identified that the project assisted the larger small farmers. For other projects M&E appears to have been essentially non-existent.

95. Improved M&E would have been particularly useful in AE1. While the number of farmers contacted was recorded and consolidated, this about exhausts the available information on the use of the extension staff. It would have appeared important to know such things as (a) the amount of time being spent on technical, social and other extensions, (b) the time on groups versus individual counselling, (c) the subject matter of technical extension, (d) calculated profitability of practices being extended, (e) adoption rates amongst farmers, (f) reasons for adoption and non-adoption, (g) estimated on-farm yield and profit increases, etc.35/

35/ Unfortunately this poor M&E performance is not atypical of Bank projects. In a recent unpublished study, OED reviewed 104 projects with built-in M&E components. It revealed that only 15% showed good M&E results, 39% had seriously deficient M&E systems, and in 46% the M&E system either was not implemented or performance was unsatisfactory. There was no significant difference in the performance of M&E between rural development and other agriculture projects. There was a strong link between general project quality and M&E outcome.

Environmental Effects

96. The BRD and MGRD projects incorporated a small component for agro-forestry, and the AI2 project incorporated conditionality to ensure that existing Brazilian health/sanitation regulations would be applied. No adverse environmental effects are noted in Supervision Reports or the PCRs. However, the swamp reclamation component of the MGRD project, though it only covered 10,771 hectares, presumably had some environmental impact.

Human Resource Development

97. As already noted, the RD projects had explicit human resource development components in the form of primary schools and health clinics. The AE1 project was largely motivated by a desire to refocus extension from the supervision of credit, to transfer of technology to small farmers, an almost "pure" human resource development activity. Adequate recurrent funds were provided from State sources for these services to be sustained.

98. The predominant use of high school leavers for the extension service, while adequate for credit supervision, probably delayed the rapid development of a technologically oriented service.

99. As originally designed the AE1 project had a large post-graduate training component (36 PhDs and 174 M.Scs). In fact, a change in EMBRATER's administration early in 1979, led to a complete redesign of this component, reflecting a different extension philosophy, which downgraded graduate training to 10 PhDs (1 delivered) and M.Scs to 100 (97 delivered).

Native People

100. The issue of special concern for native people arose only in the Board discussion of the AE1 project (EPCR, para. 2.03). There is no indication that the promised close collaboration between FUNAI and the extension services was developed. However, neither is there evidence that more should have been done.

Women

101. Both RD projects provided for social extension, focussing on nutrition, domestic sanitation, and child care. This component was introduced during redesign at the insistence of the Brazilians. Most of the social extensionists were women. The social extension program was basically an educational and diagnostic program, rather than an action program, since few, if any, funds were available for demonstrations or physical investments. Despite this limitation, it was felt to be an important and worthwhile project component.

III. LESSONS

Project Complexity

102. The RD projects confirm the new conventional wisdom[36] that implementation and supervision of multi-component projects tends to be extremely difficult.

103. Single Purpose versus Multi-Purpose Projects. The above observation might be expected to lead logically to the dictum that single component projects are to be preferred to multi-component projects. While the Bank should provide supervision missions with the appropriate technical expertise, the lesson is a little more complicated. Clearly, the extension project could not have been used as a substitute for the RD projects; there would still have been a need for farm credit, schools, health clinics, water and irrigation development, etc. Equally, no one technical skill is sufficient to provide sound advice on roads, schools, agricultural extension and policy. The option of delivering rural development via a series of complementary agricultural, road, education, health, etc. projects needs also to be considered. The key lesson is the need for an appropriate management style, one which (a) tries to keep things simple by eliminating from the project design components that do not have the "critical mass" to be effective, and (b) achieves both a national and a regional/state perspective. The Bank needs to be able to advise Government (and the Board) as to how sector support systems (research, credit, extension, input supply etc.) are functioning on a country wide basis but also how well these systems are complementing each other on a regional or state basis.

104. Recently the Agricultural Operations Division has initiated supervision missions of the RD (and other) projects with respect to a single function, say research, credit or extension, across all relevant projects. This permits a national view to be reported to Brasilia or the Bank, while at the same time identifying actions needed with respect to this one aspect of individual projects. By analogy, a country with several single component projects could often benefit from "cross-sectional" supervision missions which would examine how each of these projects was performing in a single state or region.

105. Provided simplicity is striven for, and provided that management balances its concerns with national strategies and regional complimentarities, there is probably considerable scope for a diversity of approaches to project design. Depending inter alia upon the countries' federated or centralized administrative structure, regional multi-component or a series of complementary national single component projects may be appropriate.

36/ Rural Development: World Bank Experience, 1965-85, OED, March 1988. pp. 81-83.

Credit

106. Foreign Exchange Risk: The Loans were manifestly unsuccessful either in ensuring or requiring positive real interest rates, (paras. 47 and 48). The provisions for monetary correction in the covenants of AI2 were tied to an inappropriate, administratively determined, index. In the BRD project, the Bank merely required that "each loan shall bear interest at the rate applicable to POLONORDESTE loans for similar purposes" (BLA, for BRD, Schedule 5, para. 4), or for MGRD, "terms and conditions would be similar to those prevalent in Minas Gerais", (MGSAR, para. 3.8), thus supporting the Government's policy of concessional credit to small farmers.

107. Bank policy specifies that foreign exchange risk "should normally be assumed by sub-borrowers, just as they would when borrowing from abroad" (OMS 3.73, para. 27). This policy was not followed for AI2. The likely effect of stricter adherence to Bank guidelines is unclear. Demand for sub-loans would probably have been reduced and the higher cost of credit would have led to a better screening of sub-projects. The rate of disbursement would also have been even slower. Designing developmentally sound credit projects in the context of a system of high inflation and generally negative real interest rates presents difficult conceptual problems.

108. It is a valid principle that borrowers should pay the full cost of their borrowing (otherwise, they may make investments with lower return than the full cost of the money borrowed). But it is also a relevant principle that all borrowers should face the same costs, for credit of the same maturity, and for projects with the same risks. (Otherwise, those with access to lower cost credit will accept investments which other borrowers would reject leading to the choice of a sub-optimal portfolio of projects.) Thus the demand that agricultural borrowers bear the foreign exchange risk, would logically be accompanied by a requirement that all borrowers of Government funds (agricultural, industrial and parastatal borrowers alike) bear the foreign exchange risk, since all are drawing resources from Government, some of which are being replaced by Government borrowing abroad.

109. Perhaps more importantly, it is also a principle that savers should be offered rates of return on their savings (net of transaction costs), equivalent to the charges being levied on borrowers. (Since, if savers are offered much less than borrowers have to pay, borrowers may have to forgo investments, that savers would gladly have financed). This then brings us to the nub of the phenomenon of negative real interest rates. Brazilian economic policy under many regimes, has not given savers access to financial instruments which retain their real value. Monetary correction has lagged inflation, and hence savers have seen their real savings eroded. This is a problem for poor savers, at least equally with the rich. To Government this has been seen as a reduction in the real cost of the public debt. Government, as a major borrower, has had an incentive to let monetary correction lag, even at the expense of drying up the supply of domestic savings. Farmers, and other borrowers from the public sector have benefited (partly incidentally, and partly as a matter of policy), from the tendency of Government influenced indices of monetary correction to lag behind inflation.

110. The challenge in designing an (agricultural) credit project for countries with high rates of domestic inflation is thus not: How to get (agricultural) borrowers to pay the full cost of their borrowing? But rather: How to get all borrowers to pay the full cost of their borrowing? And: How to reward all lenders for the full value of their savings?37/

111. Government resistance to proposals to make all borrowers pay the full cost of their borrowing, is to be anticipated, where Government itself is a (or the) major borrower.

112. The Board could advantageously have questioned the proposal to lend for AI2 on the twin grounds (a) Why should other sectors of the economy (including Government) be excused from paying the full cost of their borrowing? and (b) Why should the Bank lend for this purpose, when domestic savers would be only too pleased to lend on the terms to be offered to the Bank?38/

113. Where a Government does wish to borrow externally rather than domestically, it is appropriate for Government to bear the foreign exchange risk, charging the borrower an interest rate which is equitable and "conducive to the encouragement, and efficient mobilization and allocation of financial savings" (OMS 3.73, para. 25). The Bank's legitimate concern that its resources not be squandered on ill-advised investments is best met, in this context, by the general questions posed in the last paragraph.39/

37/ If the Government has the political will to do this, then the design of appropriate financial instruments should not be difficult. One could, for instance, relate monetary correction (a) to an independently calculated consumer price index (appropriately corrected for any items not freely available), or (b) to a foreign currency, (or basket of currencies) evaluated at a market determined exchange rate(s).

38/ The recent, 1987, introduction of Caderneta de Ponpanca Ouvo by the Bank of Brazil for small savers, which yields OTN correction plus 6% has resulted in a net flow, in excess of what could be relent to the rural sector, of small savings from the rural sector to the Central Bank.

39/ While OMS 3.73 (that foreign exchange risk be faced by the sub-borrower) is appropriate for situations where the decision to borrow overseas is a micro-economic decision, the audit would suggest that this is less clear where foreign borrowing is basically a macro-economic decision.

114. Subsidized Credit. AI2 differed from the RD projects in that it made a serious, if not entirely successful, effort to ensure that onlending interest rates were positive in real terms. No such effort was made in the RD projects. Indeed, (paras. 28 and 29), the CSAR recommended that current (subsidized) lending rates be accepted since the majority of the borrowers were expected to be small farmers and share croppers. As shown in Annex A, the resulting onlending conditions were such that the grant element in the RD loans was in the range of 50 to 90%, and often 80% or more. As discussed under project design (para. 32), the inclusion of a grant component in RD projects should not be rejected a priori. In the right circumstances, there may well be a place for direct grants. However, it is misleading to present a de facto grant program as if it were a credit program.

115. The non-recognition of the grant element in the RD projects lead to at least three deficiencies:

i) Delivery through the normal credit channels, directed the component towards the larger and more financially secure small farmers,41/

ii) Description as a credit component freed the SAR from providing the detailed and rigorous justification for this component that the Board and Bank management would have required for a grant program, and

iii) Larger grants resulted (up to 23 times the basic wage and an average of about 10 times the basic wage) than would appear justifiable on welfare grounds.

116. The "second generation" of RD projects (para. 27) in the NE already includes a grant component. It is worth noting that the Bank has little experience in the supervision of grant programs, which would appear

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41/ As brought out very clearly in the evaluation data collected by Vicosa University for MGRD (see Table 6).

more difficult to manage than even credit or subsidy programs.42/ 43/ The value of grant programs has already been suggested by the Aga Khan Rural Support Program,44/ which is not the same thing as saying the Bank is well-prepared to deliver such programs. It may require having to disburse a relatively large total sum as many small amounts for a range of different purposes through a large number of NGO and local institutions without destroying their grassroots nature.

42/ In theory, credit programs, with positive real interest rates, should be largely "self-policing", since borrowers will only invest in projects which are financially profitable. It was the simultaneous requirement in AI2 that lending be profitable both to the lender, e.g., the participating banks, and the borrower which prevented the project from being a fast-disbursing debacle. Subsidy programs, justified by the desire to get participants to engage in socially profitable activities (such as adoption of new technology, or reforestation) which might not otherwise be financially profitable, are also relatively easy to supervise, at least in theory. This is because clearly defined actions are expected of project participants. Grant programs can be expected to be more difficult to supervise since one wishes to (a) keep administrative costs low, (b) to have the expenditures responsive to individual or community defined needs, and (c) to achieve a permanent improvement (i.e., not to have the grant diverted into consumption).

43/ The second generation of RD projects in the NE have both grant and credit components. Part of the grant program is used to fund community initiatives for economic projects and infrastructure such as a cassava mill, a brick kiln, a sewing center, small scale irrigation, potable water, etc. A second part of the grant program is used to assist agricultural production, by writing off half the loans made under the credit component of the project. This has the twin advantages of (a) making it clear to the farmer how much he is being granted, and how much lent, and (b) hopefully leading to the recovery of the 50% of the money lent. There is, however, no a priori reason to tie the grant and lending programs together. Tying them is likely to again lead to the wealthier (small) farmers qualifying for credit, and hence for the bulk of the grant program. As an official observed, "cheap credit can lead to use of capital for project with low productivity." There is no reason to expect the activities one might be willing to provide grants for to be highly correlated with the effective demand for credit; indeed, tying a grant to credit runs the danger that the real justification for a grant program will not be clearly thought through. "Need" would be one basis, but this motivation would certainly not suggest tying the size of the grant to ability to borrow.

44/ The Aga Khan Rural Support Program in Pakistan: An Interim Evaluation, OED, May 1987.

117. Recommending the separation of credit and grant components, where a credit component is expected to pay a "positive real rate of interest", still begs the question as to how the real rate of interest should be calculated; and whether farmers would be able to hedge the risk that agricultural price movements will diverge substantially from the index used to correct for inflation.

118. A "first best" solution to the problem of risk reduction would be to institute a futures market in the difference between the economy wide index of inflation used to correct all loans, and a suitable index of agricultural commodities in the NE. Government could even provide seed money for such a market, by speculating on the difference (thus providing liquidity for farmers wishing to hedge). For small borrowers, bank's could "retail" fractions of a future contract, thus putting small borrowers on roughly the same footing as large.

119. In the absence of this first best solution, agricultural lending in the NE (or elsewhere) could be correctly indexed by an index of agricultural prices in the NE (or elsewhere). This would transfer the risk of price divergence to the lender, for which a suitable fee could be charged. This fee should be small,44/ unless there is an expectation that agricultural pricing lags consistently behind changes in the index of inflation used to correct loans generally. If there is a systematic tendency for agricultural prices in the NE to lag behind general inflation then this would suggest a structural problem which deserves analysis in its own right.

120. Use of OTN. With the introduction of the Cruzado Plan in 1986, the ORTN index was replaced by an index OTN (with Reajustaveis removed from the title, since the heart of the Cruzado Plan was the removal of the causes of underlying inflation) for the same purpose. The OTN is no better protected against administrative adjustments (para. 112) than was ORTN. OTN is the legally mandated basis for monetary correction in Brazil, and the Government's policy is to adjust OTN in line with domestic inflation. However, if past experience is any guide (footnote 8 and inside the front cover), there is a risk that full monetary correction based on the OTN may lag behind domestic inflation in the future. The use of the OTN as a basis for monetary correction does not therefore necessarily guarantee that Bank loans would be on-lent at positive real interest rates in accordance with OMS 3.73, para. 26. Compliance with this OMS in Brazil could only be assured if: (a) the OTN is replaced by an objective index and/or (b) banks are allowed to use a variety of indices to protect the real value of money lent and/or (c) lending is denominated in foreign currency.

44/ Profits, or losses, from this fee could be paid into, or taken out of, a stabilization fund, with the fee reset each year so as to pay off any losses (or distribute profits) over a few years, according to a suitable mathematical formula. (Discretion should be avoided lest the correction be used as a politically determined way of taxing or subsidizing agricultural borrowers.)

Institution Building

121. The AE1 project can be characterized as principally "bricks, mortar and staff". Despite the hiring of 3,887 additional staff (taking 54% of project expenditure), there was little evident attention to the specifics of the technological messages to be extended. From the long-run view this was probably the right priority. "Institution building" involves not only staff training and organization, but also building the reputation and image of the institution. Buildings and staff may well have been a necessary condition for extension to gain its needed weight within the bureaucracy serving agriculture. Certainly, in the course of project redesign, EMATER argued to increase the scope of the civil works program so that every state would have a headquarters building for its extension service, and 354 local offices were added. The SAR for the follow on project, AE2, gives appropriately, much more attention to the technologies ready for wide adoption.

122. The relatively intensive service (leading to the majority of farmers getting no direct extension) provided for in supervised credit components of the RD projects, emphasized the need to find more effective ways of getting technical (and profitable) information to a wide audience of small farmers. AE1 was intended to examine the "methodology" of reaching increased numbers of small farmers; it appears that there is a continued need to pursue this vital topic.

123. As field staff are added, increasing tension can be expected to emerge between their use as technical advisory staff versus generalists available to coordinate all Government assistance at the field level.45/ The Bank should beware of supporting projects, in RD or elsewhere, which rely on delivery through the extension service without providing additional manpower; and where new programs are designed to be delivered via the extension service, the Government should be encouraged to fully budget manpower requirements for additional staff and their support.

Public versus Private Sector

124. Overall, the projects appear paternalistic and centralized.46/ Planning and execution were from the "top down" with little community participation and few incentives to the private sector (with the exception of AI2). It is Government, not private savers, who is expected to provide the capital for agricultural development. An extension service is provided in the RD projects to assist write credit applications and administer them, and the Federal, rather than State Governments will provide the major new

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45/ See for instance Supervision Report of May 30, 1986, for the Sergipe Northeast I RD project (Loan 2523-BR) which reports agricultural extensionists being used as multipurpose workers, including the distribution of food for the World Food Program, with predictable loss of effectiveness in their communication of agricultural technology.

46/ These terms are not intended pejoratively; paternalism and centralization have their place. Rather the intention is simply to flag an apparent tendency in project design.

funding for extension. Support for cooperative development provides a notable, though not very successful, exception to this rule (as does the more successful contracting out of M&E to Vicosa University). Participation of the private sector under AI2 helps explain why borrowing was held back in the face of unattractive lending conditions. Future project design could well take up explicitly, the proper balance between Federal, State and local control, and suitable mechanisms to achieve this.

125. Land Reform. The very modest progress in BRD in the provision of land to the landless or farmers with inadequate holdings47/ (as distinct from "land titling", where farmers in possession of state land without title were provided with official title to their holding), warns of the likely difficulty of achieving significant land reform. Originally, the existence of a large number of small farmers with secure title, and many more small farmers without title suggested that there was considerable scope for poverty alleviation, before the structure of land ownership barred further progress.48/ Project experience, however, reinforced by Bank sponsored research,49/ has tended to emphasize the difficulty of making more than a tactical reduction in poverty while the vast bulk of unemployed or under-employed labor is unable to get access to land.

126. In agreeing to support the Government's renewed efforts in Projeto Nordeste to improve the economic prospects for the NE, the Bank has made it clear that it sees land redistribution and improved titling as a necessary condition for the effectiveness of other policies directed towards poverty alleviation. This is being supported by the Northeast Region Land Tenure Improvement Project (Ln. 2523-BR). Thus it appears that the lesson of the Bank's project experience, the Government's policy review, and the joint SUDENE/Bank research project, summarized in Kutcher and Scandizzo as

> "Without (progress on land redistribution) the analysis reveals little hope for solving the problem in a region where up to 10 million people remain near absolute poverty while agricultural land the size of France lies idle or greatly under-used", (p. 30)

is being learnt.

127. Technical Extension. Three of the projects provided very substantial support for extension, but the supervision reports are remarkably silent on the nature of the extension message being conveyed to farmers; the time devoted to this activity; adoption rates and yield increases.

47/ Only 78 farmers affected, versus a BSAR target of 820, raised to 1,900 during project redesign.

48/ "Rural Development Issues and Options in Northeast Brazil", World Bank Report No. 665a-BR, June 1975, p. ii, para. 6.

49/ "The Agricultural Economy of Northeast Brazil", by Gary P. Kutcher and Pasquale L. Scandizzo, Johns Hopkins Press, 1981.

This suggests that greater priority is needed for the technical supervision of extension components. As a "soft" area, it is important not only to provide the resources necessary for an effective extension program, but also to check that these are being used effectively for their intended purpose.

128. Monitoring and Evaluation. The M&E results reported in the MGPCR, throw more light on the differences in characteristics and performance of Assisted and Not Assisted farmers, than they do on the reasons for differing performance, and as such have limited usefulness in improving the efficiency of interventions. However, the M&E results reveal very clearly that the MGRD project assisted predominantly the larger small farmers. Without the M&E results there would be no clear basis for this finding.50/

129. In BRD and AE1 there is no comparable data as to the characteristics of the project beneficiaries, or the changes which took place over the life of the project. This should be simply unacceptable. Unfortunately, it is characteristic of the Bank's RD lending, that more attention is given to who the SAR intends should be helped, than who actually is assisted.51/ Given the M&E results, it is moot as to whether MGRD can be regarded as a RD project, since it almost certainly failed to have over half its actual beneficiaries even in relative poverty. (Average net income for Assisted farmers was US$9,520 in 1976/77, in 1985 dollars.)

130. In the absence of M&E data for BRD and AE1,52/ there is no possibility of giving more than impressionistic information on the characteristics of project beneficiaries, which leaves the Bank's management undesirably exposed in the event that skeptics wished to question the actual effect of the US$252 million disbursed for the first generation of RD projects.

50/ Since much of the Bank's supervision activity can be described as "informal M&E", Bank staff get a variety of useful insights into all aspects of project performance from this activity. However, they may occasionally miss important issues, such as degree of penetration of the target group; but more importantly, it is difficult for supervision to identify problems of project performance on more than an anecdotal basis. Supervision is thus an important adjunct to M&E, but cannot serve as a complete replacement for it.

51/ Bank projects are classified as Rural Development or non-RD at appraisal on the basis of the intended target groups or beneficiaries, not in terms of actual impact. The Bank does not reclassify projects as RD or non-RD on the basis of actual performance. Rural Development: World Bank Experience, 1965-1986, OED, March 1988, Box 1.1.

52/ This is less of a problem for AI2, since there are relatively few sub-borrowers, and their projects are presumably documented in the files of participating banks.

131. Economic Rate of Return. Despite the internal economic rate of return's well known deficiencies as a measure of project success,53/ its preparation does provide an orderly way of examining intended and likely project costs and benefits. If some project components have no measurable benefits, the ERR can still be applied to illustrative sub-components, to give a feel for the rate of return and the assumptions needed to achieve this rate of return. A decision by Management not to offer an ERR estimate as part of the project justification for certain project categories should prompt the question: How does management propose to identify poor projects in these categories? This question is particularly pertinent in the case of AE1, which would appear to have been effectively completely redesigned in the course of implementation (paras. 18 and 19).

132. Strategy for Poverty Alleviation. The marked difference between farmers Assisted and Not Assisted by the MGRD project, poses very starkly a question as to whether there are farmers who are "too small to help"?54/ If not, then why did the project so significantly miss assisting the smallest farmers?

133. It is sometimes implicitly assumed that with a sufficiently radical land reform, there would be land (and water) for all, and the poverty problem would go away.55/ Is this true? If not, then what is the

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53/ Principally (a) that in the absence of an underlying critical path analysis, it tends to give the most optimistic rate (i.e., if everything goes right) rather than the expected rate, and (b) that the price of capital is only one of the infinite number of prices affecting project success. For many of the Bank's borrowers, the price of foreign exchange (i.e., exchange rate) should probably be thought of as even more important than the price of capital, suggesting a break-even exchange rate, rather than interest rate analysis. If the Bank were willing and able to lend all that a country wished at a 10% rate of interest, then the (expected not optimistic) ERR with a 10% cut-off would be appropriate. In the face of capital, and foreign exchange rationing, it is suspect.

54/ A question which also follows from the 1975 strategy report's observations: "While, on equity grounds, rural development programs should probably be aimed at the landless population and the very small landowners, since these groups constitute the core of the rural poverty problem in the Northeast, the greatest potential for improvement of production lies in the group of small- and medium-landowners and the sharecroppers with more secure tenancy, which already have some degree of access to and control over use of land." Rural Development Issues and Options in Northeast Brazil, World Bank Report 665a-BR, June 1975, p. ii.

55/ The Kutcher Scandizzo study (op.cit.) concludes inter alia: "Even if a reform of the existing estate sector were supported by a subsidy on wages, more than one million families would remain without entrepreneurial access to land and water and near absolute poverty." (p. 211.)

Bank's overall strategy for poverty alleviation in the NE? Should the Bank's very significant lending for RD in the NE be set in the context of a wider program of general economic development for that region that includes population planning, education (to make migrants more employable), rural electrification (to assist small scale rural industry), off-farm employment, intra-regional migration, etc.?

134. In this connection, it appears significant that after sponsoring a major agricultural survey and modeling effort in the mid 1970s (footnote 50), the Bank has withdrawn from substantive research on the intractable development problems of the NE. Since there seems to be a general consensus amongst those practically involved with the development of the NE, that "the answers are not all in", this absence of a research dimension to the Bank's support is hard to explain.

135. Many Lessons Learnt. Many of the points made in this audit have long been appreciated by regional management, and have been incorporated in projects already presented to the Board. In particular, both Government and the Bank have agreed on a "second generation" of RD projects for the NE, which see action on land reform as a necessary condition for benefits from complementary initiatives.56/

136. Though the "second generation" RD projects have moved significantly towards including distinct grant and credit components, these need to be completely separated (since the motivation for credit, subsidies and grants should be quite distinct); and certainly the M&E vacuum which characterizes BRD and AE1 (and an unfortunately high proportion of all Bank RD lending), should not be allowed to continue. It is not sufficient to budget for an M&E component. Supervision should require that this component produce the needed results. Finally, the Bank should perhaps make provision for a continued serious research interest in the development of the NE (i.e. at least $0.5 million p.a.) if only to internalize the work already being undertaken by Brazilian institutions.

56/ "Brazil-Northeast Agriculture: Present and Future Opportunities", mimeo, LCPAB, November, 1986.

ATTACHMENT A

PROJECT PERFORMANCE AUDIT MEMORANDUM

BRAZIL: EXPERIENCE IN DEVELOPMENT OF THE RURAL SECTOR

SECOND AGRO-INDUSTRIES CREDIT PROJECT (LOAN 1317-BR)
MINAS GERAIS RURAL DEVELOPMENT PROJECT (LOAN 1362-BR)
FIRST AGRICULTURAL EXTENSION PROJECT (LOAN 1568-BR)
BAHIA RURAL DEVELOPMENT PROJECT - PARAGUACU (LOAN 1589-BR)

CALCULATION OF PRESENT VALUE OF SUBSIDIZED CREDIT

BRD: "interest to the farmers at 10%, unindexed, ... with repayment terms for investment credit of up to 12 years with 6 years grace". (BSAR, para. 4.15).

Calculation of the present dollar value of a loan under these conditions is given in Table 1. Reading along the row for the fourth year, we see that there was still 600 Cr$ of capital outstanding, no capital repayment was made, interest at 10% cost 60 Cr$, and there were no loan receipts, resulting in an outflow of 60 Cr$ in the fourth year. The exchange rate was Cr$52.7 = US$1, so that the $ value of this outflow was $1.13, which, taken from the previous cumulative balance of the loan evaluated in dollars would have left a balance of $45.15, as shown in column (9).

Reading down column (9) we have the balance of the loan, in dollars, if no interest was earned, (i.e., as if the borrower had converted it immediately into dollars, and held it in a non-interest bearing account, only paying out the amounts of dollars needed to meet the loan payments). At the end of the period, after all commitments had been met, $43.78 would remain in the account. Alternately expressed, the borrower could have spent $43.78 (or 78% of the loan proceeds) and still have had sufficient funds to meet repayment requirements.

Columns (10), (11) and (12) carry out essentially the same calculation assuming that interest was earned (equivalent to the purchase of a World Bank bond) on the outstanding balance. In this case 82% of loan proceeds could have been spent, whilst still retaining sufficient funds to service the loan.

In this case we can say the grant element in the loan was from 78% to 82%, depending on our calculations.

For loans taken out later, the grant element (due to inflation) would have been larger; for annual loans it would have been less (though with inflation at 400% per year, the grant element for an annual loan reaches 80%); with partial monetary correction, but lower nominal interest, as in MGRD, the effect is indeterminate, but the grant element would still have been substantial.

CASH FLOW IN CRUZEIROS AND DOLLARS FOR 600 CR LOAN

(1)	(2)	(3)	(4)	(5)	(6)	(7)	(8)	(9)	(10)	(11)	(12)
Year	Loan Outstanding	Capital Repayment	Interest Payment	Loan Receipt	Cash Flow	Exchange Rate	$ Flow	Cumulative $	8 1/2% Interest	Discounted Flow	Present Value
0 (1976)	0	0	0	600	600	10.7	56.07	56.07	1	56.07	56.07
1	600	0	60	0	-60	14.1	-4.25	51.82	.92165	-3.92	52.15
2	600	0	60	0	-60	18.1	-3.31	48.51	.84944	-2.81	49.34
3	600	0	60	0	-60	26.9	-2.23	46.28	.78288	-1.75	47.59
4	600	0	60	0	-60	52.7	-1.13	45.15	.72155	-.82	46.77
5	600	0	60	0	-60	93.1	-.64	44.51	.66501	-.42	46.35
6	600	0	60	0	-60	179.4	-.33	44.18	.61291	-.20	46.15
7	600	100	60	0	-160	576.2	-.28	43.90	.56489	-.16	
8	500	100	50	0	-150	1,847.0	-.03	43.82	.52063	-.04	45.95
9	400	100	40	0	-140	6,228.0	-.02	43.80	.47983	-.01	45.94
10	300	100	30	0	-130	13,840.0	-.01	43.79	.44224	0	45.94
11	200	100	20	0	-120	44,930.0	-.01	43.78	.40759	0	45.94
12	100	100	10	0	-110	50,000.0(?)	0	43.78	.37585	0	45.94

ATTACHMENT B

PROJECT PERFORMANCE AUDIT MEMORANDUM

BRAZIL: EXPERIENCE IN DEVELOPMENT OF THE RURAL SECTOR

SECOND AGRO-INDUSTRIES CREDIT PROJECT (LOAN 1317-BR)
MINAS GERAIS RURAL DEVELOPMENT PROJECT (LOAN 1362-BR)
FIRST AGRICULTURAL EXTENSION PROJECT (LOAN 1568-BR)
BAHIA RURAL DEVELOPMENT PROJECT - PARAGUACU (LOAN 1589-BR)

ONLENDING TERMS UNDER VARIOUS BRAZILIAN LOANS

Over the years the Bank has used various loan terms for onlending in order to maintain the value of repayments in real terms. The most common lending terms have included 100% correction of outstanding balances by the ORTN,1/ with foreign exchange risk borne by the Central Bank. Other arrangements have included:

i) Monetary correction of outstanding balances using a composite index of cattle and wool prices (First Livestock Project, Ln. 516-BR, September 1967).

ii) Monetary correction fixed at 10% p.a.; but foreign exchange risk borne by sub-borrower (Northeast Industrial Credit Project, Ln. 656-BR, January 1970).

iii) Monetary correction of outstanding balances based on the cruzeiro dollar exchange rate (Grain Storage Project, Ln. 857-BR, September 1972; Interim Second Livestock Project, Ln. 868-BR, December 1972).

iv) Monetary correction using the ORTN index, but BNDE (Development Bank of the Northeast) to bear the foreign exchange risk (Development Banking Project, Ln. 1206-BR, February 1976; and Second Feeder Roads Project, Ln. 1730-BR, June 1979).

v) Monetary correction of outstanding balances by GPI (Sewage Collection Project, Ln. 1525-BR, February 1978).

vi) Monetary correction of outstanding balances at 100% of ORTN for firms with annual sales in excess of US$4 million (and 65% of ORTN for smaller firms), State Governments to bear the foreign exchange risk (Sao Paulo Industrial Pollution Control, Ln. 1822-BR, March 1980).

1/ Which has not kept pace with indices of consumer or producer prices (see inside of front cover).

vii) Monetary correction of outstanding balance to follow, at a minimum, the UPC (Standardized Capital Unit of Account) applied by the National Housing Bank. Foreign exchange risk to be borne by the State (Market Towns Improvement Project, Ln. 2343-BR, August 1983).

In short, to date monetary correction has been based on an index of commodity prices, the exchange rate, and a range of indices of domestic inflation. A comparative study of this experience would appear to be timely.

ATTACHMENT C

COMMENTS FROM THE BORROWER

CABLE 1

MAY 23, 1988

MR. GRAHAM DONALDSON

DIVISION CHIEF

AGRICULTURE, INFRASTRUCTURE AND HUMAN RESOURCES

WE HAVE NO ADDITIONAL COMMENTS TO MAKE ON THE PCR ON THE RURAL CREDIT PROJECT LOAN 1589-BR.

JOSEH STELMAN T. PORTO, CHIEF, DEPARTMENT OF RURAL CREDIT, CENTRAL BANK

CABLE 2

MAY 24, 1988

DR. GRAHAM DONALDSON

DIVISION CHIEF

AGRICULTURE, INFRASTRUCTURE AND HUMAN RESOURCES DIVISION

OPERATIONS EVALUATION DEPARTMENT

WORLD BANK

WASHINGTON - DC

THE CENTRAL BANK INFORMS THAT THEY HAVE NO COMMENTS ON THE REPORT, IN RELATION TO THE PPAR ON AGRO-INDUSTRIES II (LOAN 1317).

DANIEL DE OLIVEIRA, SAIN

PROJECT COMPLETION REPORT

BRAZIL

SECOND AGRO-INDUSTRIES CREDIT PROJECT

LOAN 1317-BR

June 11, 1987

Projects Department
Latin America and the Caribbean Regional Office

I. INTRODUCTION

1.01 The capacity and efficiency of agro-industries is of considerable importance to the Brazilian economy. In recent years, roughly half of all export earnings and perhaps 10% of total GDP (about equal to the value added on-farm) derive from this sector, which, broadly defined, includes:

(a) the processing of agricultural raw materials, including drying, grading and packaging;

(b) the production of agricultural inputs, such as fertilizer, balanced feed, improved seeds and implements; and

(c) the storage, marketing and distribution of agro-industrial products.

In addition to its importance in the economy as a whole, the agro-industrial sector is of particular importance to agriculture: it provides the improved seeds, chemicals and other inputs necessary for efficient production; it provides a market for agricultural products and, at the same time, a powerful stimulus to improving their quality. Nonetheless, the sector has been handicapped by Government restrictions on imported goods and services, export and value added taxes, and interventions in the financial markets.

1.02 The Bank has long recognized the importance of the agro-industrial sector in Brazil. The First Agro-Industries Credit Project (Loan 924-BR) was appraised in 1973 and closed in 1980. This first project was directed mainly to beef processing. The two principal objectives were: (a) to introduce, for the first time in a Bank-financed project in Brazil, on-lending that was subject to full monetary correction; and (b) to increase beef exports by 140,000 tons a year by 1978. Government policies, however, were not conducive to the success of the project. Manipulation of the correction index used (ORTN) led to interest rates becoming increasingly negative in real terms. At the same time, competing lines of more highly subsidized official credit made the project virtually inoperative for substantial periods. Also, largely as a result of Government restrictions, total national beef exports in 1978, far from having increased, had declined to less than half the pre-project figure at 63,000 tons. Nonetheless, some sound investments were financed and, in particular, a contribution was made to the development of cold storage in Brazil.

1.03 As will be seen, a further result of the difficulties of the first project was a long delay in the start of disbursements under the Second Agro-Industries Credit Project, the subject of this report.

II. PROJECT FORMULATION

Identification, Preparation and Appraisal

2.01 The first reference on files, on April 27, 1972, is to a possible agro-industries project in the Northeast of Brazil. A feasibility study was prepared by consultants in 1973 and pre-appraisal and preparation missions visited Brazil in the first part of 1974. Throughout, there was concern in the Bank about the Government's policy of providing credit at subsidized interest rates in the Northeast. After a series of discussions with the Brazilian authorities, some at ministerial level, it proved impossible to reach agreement on this issue and the idea of an agro-industries project in the Northeast was abandoned in December 1974.

2.02 It was rapidly succeeded in January 1975 by a proposal for a Second Agro-Industries Project in the South and Southeast. A feasibility study was prepared by April 1975 and the project was appraised in May/June. During the processing of the appraisal report there was concern over the pace of commitment of the First Agro-Industries Project. A critical review of the yellow cover SAR by a Central Projects economist said, correctly as it turned out, that the project was premature. This view did not prevail, however, and the project went forward with no substantive comments from the Loan Committee and only minor changes in the loan documents at negotiations.

Board Approval

2.03 The Board discussion focussed largely on the general direction of Bank lending in Brazil, whether the balance of operations between the Northeast and the rest of the country was appropriate, and how the Bank compared with the Interamerican Development Bank in this regard.[1/] Concern was also expressed by the Board about the erosion of the capital of the State Development Banks, which were expected to do the bulk of the lending. In one respect, this concern was well founded: the financial difficulties of these banks have persisted and worsened over the years; there is, however, no evidence that they had any significant direct impact on the project.

Objectives and Description

2.04 The project was to be a continuation of the First Agro-Industries Project (Loan 924-BR) referred to in para. 1.02 above. It was to cover the nine central and southern states of Brazil. Over a period of three years, it was to help finance facilities for meat processing (estimated at 46% of total investment), grain handling (19%), milk processing (10%), and miscellaneous agro-industries, including some engaged in supplying basic

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1/ Subsequently, Mr. McNamara asked the region about its decision not to proceed in the Northeast because of the interest subsidies prevailing there. A detailed justification of the decision was set out in the memorandum from the Regional Vice-President dated July 28, 1976.

agricultural inputs (25%). The relative size of the project components was based on an analysis of subprojects financed or under consideration for financing under the first project.

2.05 The 110 to 130 firms expected to be financed would range in size from medium to large and would be owned mostly by private entrepreneurs and investors or cooperatives. The Bank loan funds were to be channelled through the Central Bank to the participating banks (PBs), which would have primary responsibility for the appraisal of subloans. The Central Bank was to be responsible for the overall coordination and implementation of the project. The PBs were expected to include the Bank of Brazil (BB), regional and state development banks, along with two state commercial banks with development portfolios, and a number of private investment banks, provided that these were found suitable by the Central Bank.

Project Costs and Financing

2.06 Total project cost excluding taxes were estimated at US$260 million (Cr$ 2,130 million), of which US$83 million (Cr$ 681 million), or 32%, represented the foreign exchange requirements. The main elements of project costs and financing were estimated as follows:

Costs	US$ million	%
1. Meat processing	120	46
2. Grain processing	50	19
3. Milk processing	25	10
4. Miscellaneous	65	25
Total Project Cost	260	100
Financing		
Subborrowers	52	20
Federal Government (through Central Bank)	106	41
Participating Banks	19	7
Bank	83	32
Total	260	100

Working capital requirements were normally to be financed separately by the PBs. In special cases, however, if no other sources were available, permanent working capital up to an amount not exceeding 30% of the fixed investment cost of the related subproject would be eligible to be financed by the project. The Bank loan was expected to be committed over about three years and disbursed over about five and a half years.

2.07 Subloans were to be limited to 80% of the total cost of fixed investment (excluding the cost of land) plus permanent working capital; they were to have a maturity of up to ten years, including a maximum grace period of three years. Loan balances were to be subject to full monetary correction, based on the ORTN index. Interest rates on the adjusted balances were to be 3% in the states of Espirito Santo, Mato Grosso, Goias, Santa Catarina and the region north of the 18th parallel in Minas Gerais, and 5% in other states.

III. IMPLEMENTATION

General

3.01 Loan 1317-BR was approved by the Board on July 15, 1976, was signed on September 22 of that year and became effective on March 25, 1977. It was to be four years, however, before the first disbursement was made in April 1981. This long period of inactivity was due to the slow pace of commitments and disbursements under the first project (para. 1.02), which in turn was essentially due to the availability of competing subsidized lines of credit from the National Economic Development Bank (then BNDE, now BNDES). In addition, in mid-1978, for reasons of monetary policy, all subloan approvals under the first project were temporarily suspended; the second and third projects were to be similarly affected some years later (para. 3.10).

3.02 At the end of 1980, the first loan was closed and the outstanding undisbursed balance was cancelled. The credit line in the Central Bank known as PAGRI, which the first loan had helped to finance, continued to be financed by the second loan. This enabled the financing of subprojects that were still in progress at the end of 1980 to be completed.

3.03 For a short time the project progressed well, but then slowed down to a negligible rate, as shown by the following figures of annual disbursements from the Bank loan:

	US$ millions		US$ millions
1981	15.9	1984	2.6
1982	23.1	1985	2.4
1983	4.7	1986	0.6

3.04 By 1981 competing long-term funds at lower rates of interest were no longer readily available. At the same time, a number of quantitative controls on exports and price controls on agricultural products (both processed and unprocessed) had been largely abolished or relaxed, and there was a substantial devaluation of the cruzeiro. By the early part of 1982, indeed, the pipeline of subprojects under consideration was sufficient to absorb the remainder of the loan and the evidence of future demand from PBs was strong enough for the Central Bank to propose a third agro-industries project (para. 3.09).

3.05 In the early months of 1982, however, monetary correction based on the ORTN index began to lag behind inflation. This threatened the project's ability to comply with the amendment to the loan documents set out in Mr. Lerdau's letter of January 13, 1981, which provided for suspension of disbursements if the three month rolling average of the ORTN index fell more than ten percentage points behind the comparable inflation figure.

3.06 A supervision mission discussed this issue with the Central Bank in May/June 1982. In their letter dated June 11, 1982 the Central Bank (which could control neither the ORTN index nor inflation nor, as a result, compliance with the amended legal agreement) proposed the introduction of a

floating interest rate, based on the yield of five-year ORTN bonds. Acceptance of the proposal was recommended in the supervision mission's Back-to-Office Report dated June 1982.

3.07 The Bank did not agree to this proposal (Mr. Lerdau's letter dated September 13, 1982) since the loan was nearly entirely committed; it did, however, make the existing arrangement somewhat more flexible by changing the three month rolling average referred to in para. 3.05 above to a 12 month rolling average (a market determined floating rate system was in fact adopted in the third project). The interest rates of 5% and 3% after monetary correction were now substantially subsidized and this was reflected in the project pipeline, which had expanded significantly in response.

3.08 Unfortunately, the investment climate deteriorated and in 1983 Brazil was in its most severe recession of the post-war period. In addition, interest rates on CDs had reached 20-25% in real terms, so that PAGRI became unattractive to PBs which had to provide 10% of the financing from their own funds at 3% or 5%. By the same token, of course, the PAGRI rates had become attractive to potential subborrowers. In September 1983, therefore, the Central Bank agreed that the rates on the PBs own funds should be based on the average cost of funds to the major ("first line") domestic banks. This, together with some hopes of economic recovery, created renewed interest in the program.

3.09 Meanwhile, in June 1983 the Board approved the Third Agro-Industries Credit Loan for US$400 million, including a working capital facility of US$100 million under the Special Action Program. The interest rate was fixed at four percentage points above the average yield on five-year Government bonds, after full monetary correction, and readjustable six-monthly. As noted above, there were at the time some hopes of economic recovery and the Bank was concerned to give all possible help to Brazil, which was facing acute foreign exchange difficulties. Nonetheless, even though the Staff Appraisal Report emphasized the risk that economic conditions might delay disbursements, it is clear in retrospect that the Third Loan (like the Second) was premature and that, in any event, a smaller loan amount would have been advisable.

3.10 Evidence for the above was soon forthcoming. In 1984 the Government's policy, in accordance with its agreements with the International Monetary Fund, was to contain monetary and credit expansion within strict limits. Early in the year disbursements from all official credit lines through the Central Bank, including PAGRI, were frozen. Moreover, the allocation for 1984 in the monetary budget for both the second and third projects was in the order of US$10 million equivalent. Faced with this situation and a high degree of uncertainty about the future, PBs and potential subborrowers lost interest. Only eleven subloan contracts were signed in 1984 and none thereafter. In retrospect, it would have been appropriate to close the loan at this stage and it is not clear why this was not done.

3.11 In 1985 disbursements fell to a level of about US$200,000 a month. With no new contracts being signed, the cancellation of the undisbursed balance of the loan became inevitable. However, the Central

Bank was reluctant to request this, in the hope that economic activity would pick up, and with it the demand for loan funds. Nonetheless, in October 1985, the project officer proposed cancellation, and on January 6, 1986 the Bank sent a telex informing the Brazilian authorities of its intention to cancel. The Brazilians were still reluctant, and during the course of the project implementation review in January 1986 it was agreed to reconsider the situation once more. This was done during a supervision mission in April 1986, when agreement to cancel was finally reached with the Central Bank. The outstanding balance of some US$33 million was cancelled on July 9 and the loan was closed following a final disbursement on July 24, 1986.

Compliance with Loan Covenants

3.12 There were temporary failures to comply with the following:

(a) Section 3.01 of the Loan Agreement, concerning the provision of funds in a timely manner to enable the Central Bank to carry out the Project. In the early part of 1984, funds were not provided in a timely manner; but the problem was subsequently resolved.

(b) Para. 6 of Part 1 of the Lending Policies Schedule to the Loan Agreement, as amended by Mr. Lerdau's letter dated January 13, 1981 concerning the relationship to be maintained between monetary correction and the general price index. The manipulation of the monetary correction (ORTN) index in June-November 1983 led to the loan falling into default early in 1984. A number of other loans were similarly affected. The Government gave assurances that the situation would be corrected, and, from December 1983 to March 1986, monetary correction was in line with the index.

IV. FINANCIAL IMPACT

Agro-Industries

4.01 The application of loan funds to the different categories of agro-industrial enterprises is shown below, compared with the estimates made at the time of appraisal:

	Actual	Appraisal Estimate
	US$ millions	
Meat	14	38
Grain	11	13
Milk	3	8
Miscellaneous	21	24
Total	49	83

The cost of the investments which the project helped to finance totalled US$154 million, as compared with an appraisal estimate of US$260 million.

4.02 The Central Bank estimates that the financial rates of return obtained by the subborrowers were mostly in the range 13-15%, with some higher, so that incremental annual gross profits would be some US$22 million equivalent. The increased productive capacity increased both domestic and export sales. Because of the variety of industries and regions involved, the changes in economic conditions and the last of reliable shadow prices, it has not been practicable to calculate an economic rate of return.

4.03 The program was responsible for the direct creation of some 12,000 new jobs. A review of a representative sample of subprojects (about 20% of the total) by the PBs shows that--the majority of firms are operating at or close to full capacity, with and showing good financial results. Overdue loan repayments have been negligible in the sample of firms chosen. The firms financed ranged from small operations with a dozen or so employees to large agroindustrial groups and cooperatives. The activities financed covered, among others, cold storage, animal feeds, grain processing, textiles, poultry and meat production, packaging materials and dehydrated food products. A number of firms financed more than one investment project through PAGRI. It is to be feared, however, that the generally good results so far achieved may be jeopardized by the current economic crisis.

Participating Banks

4.04 Sixteen banks were included in the program. Most of these were regional and state banks, with the Regional Development Bank of the Extreme South (covering Parana, Santa Catarina and Rio Grande do Sul) and the State Development Bank of Parana participating the most. Private banks were also represented, however, and included Bamerindus, Citibank and Unibanco.

4.05 The total amount of PAGRI financing was, of course, negligible in relation to the total credit portfolios of the PBs and so its impact on their financial position was very modest indeed. The spread allowed the PBs was 2-2@%, which was somewhat low in view of the fact that the administrative costs of appraising and supervising PAGRI subprojects were much higher than for routine credit operations. On the other hand, PAGRI subborrowers seem to have been good credit risks for the most part. The results of a sample subprojects have been noted in para. 4.03 above. The overall figures show most PBs with no overdues at all, although two of the state development banks had overdues in excess of 20% in 1986.

4.06 The real test of PAGRI's financial impact on the PBs is the extent to which they were prepared to participate in and promote the program. Given the economic conditions for most of the project period, the frequent and unpredictable Government interventions in the markets for agro-industrial products, and the uncertain availability of counterpart funds, it would probably be unrealistic to expect more than was achieved. It is worth noting, however, that more than 60 banks have sought accreditation under the third project, as compared with less than 20 under the second.

Central Bank of Brazil

4.07 In its brief report on the results of the project, the Central Bank says that during the period 1981/1985 PAGRI produced income of some US$22.6 million equivalent and expenses of about US$16.7 million, leaving a net income for itself of US$5.9 million. When the accounts of the project are finally closed and the subloans and the Bank loan all repaid, the Central Bank expects to be left with a positive balance of US$33 million.

4.08 The PAGRI balance sheets (Annex 2) for the years 1981 through 1986, prepared by the Central Bank, do indeed show receivables of some US$48 million equivalent at October 31, 1986, as compared with US$15 million due to the Bank. This gives good coverage for the servicing of the Bank loan. The picture is much less favorable, however, if full inflation correction is applied to the Central Bank's cash flow over the period covered by the balance sheets.

4.09 The results of such a calculation are shown at Annex 3. These show an erosion of Central Bank and Government counterpart funds of about US$22 million (this figure will not be quite accurate, because annual rather than monthly inflation adjustments have been made, but the order of magnitude is almost certainly reliable). This erosion has been due to:

(a) the monetary correction index having been adjusted by less than 50% of inflation (as measured by the Getulio Vargas IGP/DI) over the last ten years; and by about 75% of inflation over 1981-86; and

(b) the negative spread on Bank loan funds. The Central Bank's on-lending rate to PB's averaged a little under 3% after monetary correction; the Bank loan was at 8.85% with exchange correction.

4.10 These losses of the Central Bank were, of course, gains in the hands of the subborrowers. This does not, of course, mean that the impact on the economy was neutral: first, the public sector deficit was increased albeit by a relatively very minor amount; and second, although a projected 12% financial rate of return was required for the approval of subprojects, the low or negative real rate of interest may have encouraged investments whose return may have been less than the cost of the Bank loan.

Performance of the Central Bank and the Bank

4.11 The performance of the Central Bank, the executing agency, was generally good. In the early years of the project, there were some difficulties with the formalities required and the time taken to approve subprojects. Procedures were gradually streamlined, however, and good working relationships established with PBs. Shortages of counterpart funds and interruptions in disbursements resulted from macro-economic monetary and credit policies and were beyond the control of the project.

4.12 The Bank's supervision of the project was regular and there was good continuity of staff. The handling of project difficulties was in general pragmatic and helpful. In retrospect, however, it seems clear that the start of the project was premature and its final closure unduly delayed. In addition, the Bank's unwillingness to adopt variable, market based interest rates in 1982 (paras. 3.06, 3.07) is difficult to understand.

V. CONCLUSIONS AND LESSONS

5.01 The main conclusions to be drawn from the long and for the most part uneventful history of the project are that:

(a) the project went forward too early, as pointed out by a reviewer of the SAR (para. 2.02). The abandonment of the Northeast project (para. 2.01) may have been a factor here;

(b) during its brief active life the project financed some sound investments and laid the basis for a broader acceptance by the Brazilian banking system (especially in the private sector) of Bank operations in the sector;

(c) in the early years, the project interest rates were significantly, but not heavily subsidized, with an average project rate of about 4%% comparing with ORTN bond yields in the range 6% to 8%; the project rates became heavily subsidized in the later years, however; and

(d) given the long period covered by the project, the existence of competing and more heavily subsidized lines, the rapidly changing conditions in the Brazilian economy and financial markets, and unpredictable and frequently disruptive Government interventions, it was inevitable that the terms and conditions (and especially the fixed interest rates) of the project would render it inoperable from time to time.

5.02 There are, perhaps, two main lessons to be drawn from the project. The first concerns the broad context for credit projects. There may be periods when the Bank for compelling reasons, is willing to help economic adjustment by increasing the transfer of resources to a country. During these periods, however, there is often great economic uncertainty, an unfavorable investment climate, and a need for the Government to pursue restrictive monetary and credit policies. In such circumstances, credit programs may not be the best vehicle for large scale Bank operations.

5.03 The second lesson may be that, since financial markets are constantly changing and evolving, Bank financed credit operations need to be designed in a way that makes them adaptable to varying circumstances; they should ensure that sub-borrowers bear the full cost of Bank funds, including a reasonable spread for the financial intermediaries. The foreign exchange risk should either be passed on direct to the sub-borrowers, or borne by the participating banks who would pass on to sub-borrowers the cost of hedging the risk. For this purpose, a planned series of smaller operations, with disbursement periods of 12-18 months, might be more easily kept up to date and improved than one or two large operations with disbursement periods of around four years.

ANNEX 1

BRAZIL

SECOND AGRO-INDUSTRIES CREDIT PROJECT (Loan 1317-BR)

PROJECT COMPLETION REPORT

Balances Due to Central Bank from PBs at December 31, 1986

	Cz$ thousands
BRDE	233,601
BDMG	44,053
BADESP	63,776
BADESUL	87,903
BADESC	65,797
BADEP	143,584
BAMERINDUS	11,418
BANDES	18,012
BD-GOIAS	17,435
BESC	17,487
CITIBANK	5,376
UNIBANCO	2,229
BNCC	4,162
AGROBANCO	591
NACIONAL	2,406
Total	717,830

BRAZIL

SECOND AGRO-INDUSTRIES CREDIT PROJECT (Loan 1312-BR)

PROJECT COMPLETION REPORT

PAGRI Balance Sheets 1981-1986

At December 31	1981	1982	1983	1984	1985	Oct.31 1986
	Cz $ millions					Cz$000's
ASSETS						
Cash	(4,418)	802	(717)	(2,640)	12,399	2,494
Net Applications 1/						
Refinancing	5,792	12,899	16,152	27,151	53,555	58,106
Accrued charges (monetary correction and interest)	2,574	13,698	51,159	179,448	541,225	668,052
Accrued Expenses						
Exchange correction	434	3,423	23,909	76,249	214,084	196,378
TOTAL ASSETS	4,382	30,822	90,503	280,208	811,263	925,030
LIABILITIES AND EQUITY						
World Bank 2/						
Net disbursements	1,242	4,454	5,751	8,096	16,980	16,020
Exchange correction	434	3,423	23,909	76,250	214,084	196,378
Central Bank Advances	-	8,750	7,750	8,651	-	-
Federal Budget						
Monetary Reserve, Decree Law 1638/78	160	204	497	497	8,670	8,912
Fiscal Budget	-	-	-	-	-	29,434
Net Earnings						
Previous years	(63)	(28)	293	1,436	7,266	40,304
This year	35	321	1,144	5,830	33,038	(34,070)
Accrued Earnings	2,574	13,698	51,159	179,448	551,225	668,052
TOTAL LIABILITIES AND EQUITY	4,382	30,822	90,503	280,208	811,263	925,030

NOTES:

1/ PAGRI disbursements and accrued charges net of repayments--i.e. balances due from PBs.

2/ Disbursements from Bank loan and accrued charges net of repayments--i.e. balance due to World Bank

BRAZIL

SECOND AGRO-INDUSTRIES CREDIT PROJECT (Loan 1317-BR)

PROJECT COMPLETION REPORT

Central Bank Net Cash Flow and Balances Due to Bank and From PBs

	Outflow				Inflow			Net Outflow		
	Disbursements to PBs	Debt Service Principal	Interest etc.	Total	1317 Disburs.	Repayments by PBs	Total	Current Cr$/CrZ$	Constant CrZ$	IGP-DI
1977	-	-	6	6	-	-	-	6	6,742	0,089
1978	-	-	11	11	-	-	-	11	8,871	0,124
1979	-	-	15	15	-	-	-	15	7,853	0,191
1980	-	-	30	30	-	-	-	30	7,853	0,382
1981	5,792	209	99	6,100	1,452	134	1,586	4,514	562,843	0,802
1982	7,107	611	586	8,304	3,823	906	4,729	3,575	227,997	1,568
1983	3,253	926	3,085	7,264	2,223	4,229	6,452	812	20,346	3,991
1984	10,999	1,389	13,300	25,688	3,735	19,131	22,866	2,822	22,064	12,790
1985	26,404	2,989	46,549	75,942	11,873	79,587	91,460	(15,518)	(37,258)	41,650
1986	3,694	7,178	157,173	168,045	6,218	164,487	170,705	(2,660)	(2,660)	100,000
Total	57,249	13,302	220,854	291,405	29,324	268,474	297,798	(6,393)	824,651	

	Balances 12/31/86
Due from PB's	717,830
to IBRD	(225,195)
Net amount due to Central Bank	492,635
Inflation adjusted net cash outflow	(824,651)
Erosion of Central Bank counterpart	332,016
US$ equivalent @ 15:1	22.1 millions

	IGP-DI	ORTN/OTN
1977	0,089	0,209
1986	100,000	106,400
Variation	1,124	509
Correction as % of inflation		45%

BRAZIL

MINAS GERAIS RURAL DEVELOPMENT PROJECT

LOAN 13: -BR

PROJECT COMPLETION REPORT

June 8, 1987

Country Department I
Latin America and the Caribbean Region

BRAZIL

MINAS GERAIS RURAL DEVELOPMENT PROJECT (LOAN 1362-BR)[1/]

PROJECT COMPLETION REPORT

I. INTRODUCTION

1.01 This project was the second integrated rural development project appraised in Brazil. It was implemented in the Zona da Mata, situated in the eastern part of the State of Minas Gerais, as part of a State Program of Integrated Rural Development. The project was prepared by the State of Minas Gerais, with the assistance of two Bank missions.

1.02 Due to good climate and its proximity to large consumer centers, agriculture in the Zona da Mata flourished during the 18th and 19th centuries, particularly the production of coffee, dairy products, and sugar. Over the last 50 years, however, development of lands in southern Brazil through mechanization and large-scale production, and the effects of a coffee eradication program, brought about a steady decline of agriculture in the region. The Zona da Mata became a depressed area, with considerable chronic poverty, and a substantial emigration of people in search of work and better opportunities elsewhere in Brazil.

1.03 Partially as a result of the earlier predominance of coffee, the Zona da Mata has a reasonably equitable distribution of land holdings, with about 57% of the land concentrated in holdings of not more than 100 ha. A large number of farmers are engaged mainly in seasonal cattle fattening or small dairy operations, coupled with the production of subsistence food crops. Rural income per capita for the area was estimated in 1975 at about US$250, well below the national average for the rural sector of US$340.

1.04 The goal of the development program in the Zona da Mata was to link productive support components with social infrastructure to promote balanced social and economic development of the region. The justification for the project matched the Bank's growing emphasis on rural development and the improvement of living standards of small farmers.

1/ The project has usually been known under its Brazilian denomination, PRODEMATA.

II. PROJECT FORMULATION

A. Identification, Preparation and Appraisal

2.01 The State Government recognized the extent of absolute poverty of the region and believed that a high rate of growth was necessary to increase the income of the poor. However, it did not believe that the "trickle down" effects of rapid growth would be sufficient without a concentrated regional development effort and the provision of social services for the poor.

2.02 The project was prepared with these goals in mind, and its concepts and operating policy were developed by the staff of the State Rural Development Agency (RURALMINAS) and the State Secretariat of Planning (SEPLAN-MG). The State Government sought the assistance of the Bank in preparing and financing the project.

2.03 The Bank preparation and appraisal missions of 1975 scaled down the size of the project. While none of participating agencies (39) could be eliminated, the Bank was able to reduce total costs from US$360 million in the original proposal to US$139 million. Post-appraisal missions continued the efforts of earlier missions in reorienting the credit program towards reaching more sharecroppers and small farmers. It was recognized that more work was needed to develop appropriate technological packages. Refinements in project design were expected to evolve in the course of implementation.

B. Board Approval

2.04 The Board approved the project on January 11, 1977. During the discussion, the Board raised the following concerns: (a) the extent to which the project emphasized regional development and linkages between urban and rural areas and between on- and off-farm employment; and (b) the negative real interest rates at which the credit would be on-lent to subborrowers.

2.05 In general, it was understood that while the project did not focus directly on increasing employment and promoting regional development goals, it was intended to be a first step in achieving them. Regarding the issue of negative real interest rates, the Board was satisfied that the credit would be directed towards small farmers and that it would be closely supervised to reduce dangers of misallocation and slippage.

C. Objectives and Description

2.06 The objectives of the project were to improve living standards and incomes of small farmers in the Zona da Mata through: (a) increasing farm production by expanding the area under cultivation and raising yields; and (b) expanding and improving social services to farmers and the general rural population.

2.07 These objectives were to be achieved by an integrated project, including:

(a) agricultural credit for the production of crops, livestock, reforestation, swamp reclamation and rural electrification;

(b) agricultural support services such as extension, agricultural research and development of cooperatives;

(c) social infrastructure for health and education; and

(d) arrangements to coordinate, monitor and evaluate the project.

D. Project Costs and Financing

2.08 Total project costs at appraisal were estimated at US$139 million. Of this total, the Bank was originally expected to finance US$42 million, or 30%. Because of a delay in the flow of state counterpart resources at the start of the project, the Bank agreed in 1978 to increase its reimbursement percentage from 30 to 35%. Later, as the Borrower continued to experience counterpart funding difficulties, the reimbursement rate was raised in December 1983 to 67.5% for an 18-month period (Special Action Program). Subsequently, this rate was extended through the end of the project. At completion, total project costs were US$137,993,000, and of this total the Bank had financed US$41,052,817 (29.7%). This percentage, below the weighted average of the rates applicable over the period of project implementation, resulted from the inflation rate which increased rapidly during the last years of the project. Because of long delays in processing claims, refunds to the project account from the Central Bank of Brazil represented, in US dollar terms, much less than the value of the expenditures effectively incurred. Project costs by categories are shown in Table 1, and Withdrawal of Loan Proceeds in Table 2.

III. IMPLEMENTATION

3.01 Project implementation started on June 1, 1976 under the State Secretariat of Planning (SEPLAN-MG), with the State Rural Development Agency (RURALMINAS) as the policy planner and coordinator of the 39 individual institutions participating in the project. Following Board approval in January 1977, the Loan Agreement was signed in February and became effective in June 1977. The first supervision mission took place in April 1977. After three extensions of the Closing Date, the project was terminated on December 31, 1984. Estimated targets and actual accomplishments by project component are shown in Table 3.

A. Project Components

Agricultural Credit

3.02 Based on information communicated by the banks on the use of agricultural credit, the lending targets in crop areas were exceeded; financed crop areas in fact doubled over the appraisal estimates. The demand for credit was high until 1982, almost the end of the project implementation period. This high demand coincided with a period of sharply negative real interest rates. In 1983, when a countrywide squeeze on rural credit resources occurred, and interest rates were sharply increased, credit activities in the project were severely curtailed. As a result of inflation, no difficulties in loan repayments were identified. Indeed, inflation sharply reduced the value of outstanding balances with interest rates negative in real terms.

3.03 Most of the credit (78%) went to beneficiaries with less than 50 ha. The bulk of the credit (79%) was used to finance short-term working capital (custeio) allegedly for foodcrops (corn, beans, rice) and dairy operations, but probably much of this credit was diverted to coffee production; the balance was used for investment (rural electrification, reforestation, swamp reclamation). The average loan per beneficiary was around US$400 per year.

3.04 Through the credit component, improvements were evident in decision-making and in organizational and institutional attitudes at local and state levels. Moreover, the rural extension service (EMATER) improved its focus and surpassed its target number of credit beneficiaries (27,760 actual versus 25,000 at appraisal). Installed electrical trunklines and reclaimed swamp (varzeas) also exceeded the appraisal estimates. On the negative side, some difficulties occurred with the credit component, as follows: (a) delays in providing credit because of poor communication between local agencies of participating banks and EMATER, as well as between the headquarters of participating banks and their local agencies; (b) inadequate bank procedures; (c) lack of well-prepared farm plans; and (d) lack of interest by farmers in reforestation.

Agricultural Services

3.05 Although impaired by the State of Minas Gerais' financial difficulties, most of the goals the project set for the agricultural services component were attained:

(a) EPAMIG's research was reoriented towards small farmers. Moreover, the results from the 160 experiments (104 at appraisal) and 221 field trials (33 at appraisal) demonstrated that it was possible, within the limited resources of small farmers, to achieve a real increase in productivity ranging from 80 to 255% for staple crops, primarily through the introduction of superior varieties and better use of modern inputs.

(b) By developing community groups, EMATER reached 9,400 new farmers. It also increased the frequency of farm visits, developed a strategy focused on small farmers, and improved integration with other agencies participating in the project.

(c) SUDECOOP promoted informal group activities, developed 204 small-farmer groups in coordination with EMATER, established a training program for pre-cooperatives, and trained community leaders. Also, SUDECOOP reached 8,700 new cooperative members (5,800 at appraisal) and assisted 24 cooperatives (30 at appraisal); in addition, it built 23 km of feeder roads (134 km at appraisal) and constructed three marketing posts (13 at appraisal).

3.06 The following problems delayed the implementation of the agricultural services component:

(a) General problems that affected two or more components: During the first five years of implementation, coordination was poor between EMATER and RURALMINAS, the state agency responsible for swamp reclamation, as well as between EMATER and EPAMIG. This situation contributed to the lack of promotion of swamp reclamation and reforestation. The cost analysis for electrification, reforestation, cooperatives and swamp reclamation was inadequate, making targets for these components unrealistic. Training for reforestation and cooperatives was inadequate, and monitoring and evaluation activities were insufficient.

(b) Problems specific to EMATER: Lack of resources forced the project to reduce its goals. (EMATER hired 165 extensionists instead of 200, the appraisal target.)

(c) Problems specific to EPAMIG: A significant disparity was evident between the high level of technology used in EPAMIG's applied research program and the rates of adoption of this new technology by small producers. EPAMIG maintained an inappropriate one-crop orientation in its research instead of developing an integrated systems approach (technological package).

(d) Problems specific to SUDECOOP: While SUDECOOP's work to strengthen existing cooperatives was satisfactory, expectations for creation of new cooperatives were not fulfilled. The shortfall reflects the resistance of small farmers to cooperative activities. The original target was unrealistic and did not take into account physical and marketing constraints and the legal and administrative problems in establishing cooperatives. In addition, the feeder roads target was not achieved because SUDECOOP had insufficient technically qualified people to implement the program.

Education

3.07 The implementation of the education component came to a standstill at the end of 1978 for several reasons, including shortages of funds, a change of the State Secretary of Education, and the strains created by significant institutional changes advocated by the project. In addition, other problems delayed the implementation of the component throughout the project. These included: (a) indecision at the administration level; (b) inadequate coordination between local and state officials; (c) poor analysis of training needs and lack of promotion of community centers; and (d) an excessive emphasis on quantifiable targets (construction) rather than on quality goals (training).

3.08 Until 1983 a shortage of funds hampered the education component's implementation. However, because the funding situation improved in 1984 and the project was extended to mid-1985, the revised targets for the component were successfully met by the end of the project (Table 3): (a) well-developed, non-formal education and training programs in the areas of health, credit, agriculture and community development became operational; (b) all 13 community learning centers (CACs) were constructed, remodelled and became fully operational; (c) improvements were made in the curriculum of 375 rural primary schools; (d) school gardens and canteens were established in 320 schools, exceeding the original targets; (e) the number of teachers trained and number of courses for supervision staff also exceeded the revised targets; and (f) good local coordination between EMATER, SUDECOOP and SEE was established.

Health

3.09 The general performance of the project's health component has been satisfactory. The physical targets were met and often exceeded the appraisal targets (Table 3): (a) 113 health posts were constructed, 45 upgraded, and 224 posts are now in full operation; (b) the installation of latrines and distribution of water filters increased, especially during the last two years of the project; (c) selection, training and supervision of health attendants and the supply of drugs improved in the last years of the project; (d) significant improvements occurred in the integration of the health system at the state and local levels; and (e) the communities became more directly involved in the construction of health posts.

3.10 The monitoring of the quality targets was based on changes in the indicators of services provided by the project to the project area beneficiaries as shown: (a) the number of beneficiary families attending health posts increased from 29% in 1979 to 35% in 1984; (b) the number of women delivering their babies in hospitals increased from 42% in 1977 to 72% in 1984 (however, only 25% returned to health posts for post-natal care); (c) the proportion of children under six years attended by the health posts increased from 32% in 1978 to 47% in 1984; and (d) vaccinations increased from 17% in 1977 to 44% in 1984.

3.11 Problems which delayed the implementation of the health component were: (a) at the regional level: (i) lack of clearly defined channels of authority and technical leadership; (ii) poor coordination and teamwork; and (iii) poor and sporadic supervision; and (b) at the state level: (i) lack of monitoring and evaluation as well as training and supervision; (ii) underfinancing and understaffing; (iii) poor planning with unclear objectives, and inadequate coordination between state and local levels; and (iv) lack of supervision on the utilization of the resources destined to the health posts and centers.

Project Administration

3.12 Integration of the project into the State operational structure was reasonably successful, with administration carried out by executing agencies under the coordination of RURALMINAS. The executing agencies, including project coordination, performed well to the extent that some agencies redefined their general institutional priorities towards small farmers. Community development mechanisms were established, and good use was made of consultants in credit, marketing, cooperatives and project administration.

3.13 However, project administration was not without problems. For example, inadequate interagency coordination for the social components (health and education) and between cooperatives and extension caused delays in the implementation of these components. Also, monitoring of the project's progress (and evaluation of its subsequent impact) was difficult because of inadequate data.

3.14 EPAMIG did not receive proper guidance during project implementation. It was initially reluctant to work at the farm level (due to its inexperience in this type of work) and to cooperate closely with EMATER in the design of an adaptive research program.

3.15 Institution building at the local level suffered from excessive concentration of authority at the central level. Government intervention tended to be heavy-handed, not allowing for adequate community participation. Municipalities lacked the necessary staff to deal with the expectations of the rural groups or to develop appropriate plans and services for small farmers. Finally, the community groups showed little self-reliance, being excessively dependent on project funding and EMATER's technical support.

B. Disbursements

3.16 In general, disbursement rates were satisfactory. They were considerably above the rates of the other rural development projects in Brazil. Total disbursements amounted to US$41,052,820, corresponding to 97.7% of the original loan amount (Table 2). The undisbursed balance of US$947,180 was cancelled.

C. Procurement

3.17 There was no evidence of procurement problems. Farm inputs were procured by individual farmers through local trade channels. Other components, such as swamp reclamation, expansion and improvement of education and health infrastructure, and strengthening of productive support services, which involved minor construction works, were contracted on a local competitive bidding basis that was satisfactory to the Bank. Vehicles and other equipment were also procured on the basis of local competitive bidding. Since most of the civil works were small in size and the equipment was produced locally and readily available, foreign contractors were not active participants in the project.

D. Reporting and Auditing

3.18 Project reporting was the responsibility of the coordination unit, while annual evaluation reports were prepared by the Federal University of Vicosa. These were based on an annual update of an initial sample of over 800 producers and provide much quantitative data and qualitative comments on project issues. The project quarterly reports failed to ascertain the end-use of credit on-lent to the producers; these monitoring reports were based on bank records, and the Borrower made no attempt to explain the discrepancies identified by its evaluation reports.

3.19 Audit reports prepared by the Secretariat of Internal Control of the Ministry of Finance reported favorably on the financial performance of the project. However, they failed to comment on the end-use of resources under the credit component, since they were satisfied with the auditing procedures adopted for the banks' internal control.

E. Adherence to Loan Covenants

3.20 Loan compliance by the Borrower was generally satisfactory. However, the Borrower did not fully comply with the loan covenants in areas pertaining to EMATER's staffing, the provision of farm development plans for farmers involved in the credit program, and the funding and hiring of consultants. In recognition of the practical difficulties involved in 1979, the Bank waived the condition concerning the provision of farm development plans. In 1982, the incremental hiring of EMATER staff was changed from 200 to 168. Shortfalls in funding prevented the project from hiring as many consultant services as expected, and many consultants were hired on a monthly basis instead of a longer-term basis as originally envisioned.

IV. ECONOMIC AND AGKICULTURAL IMPACT

A. Production

4.01 Data from field surveys (Table 4) among small assisted producers during the period 1976-1984 indicate an increase in the production of corn and commercial crops (coffee, sugarcane) but a decrease in the production of rice and beans. The same trend is evident for crops produced by small non-assisted producers, with the exception of sugarcane, the production of which, among non-assisted farmers, dropped sharply. For all producers (assisted and non-assisted), areas planted under rice declined, while areas for the other foodcrops remained unchanged. The productivity (yield/ha) of foodcrops showed little change, except for corn, which increased significantly for assisted and non-assisted producers alike.

4.02 For coffee, assisted and non-assisted producers increased their areas at the same rate, but the assisted ones achieved higher increases in productivity than the non-assisted ones. The development of coffee production among all producers was in response to coffee's attractive prices on the world market in the late 1970s, which resulted from the disastrous frosts that destroyed the plantations in southern Brazil. The faster rate of growth in productivity for coffee among assisted producers could probably be attributed to their greater access to credit and technical assistance, though coffee was not among the priority crops financed by the project. A similar case may be made for sugarcane, the area and productivity of which declined among non-assisted producers but rose among assisted ones.

4.03 From the data summarized above, it is extremely difficult to determine the precise productio impact of the project. Such impact as there was, was clearly concentrated on three crops: coffee, sugarcane and corn. Of these three, only corn was specific lly a target crop for the project, and for this crop, productivity rose as fast among non-assisted as among assisted producers. There may be a case to be made that, without the project, the advances in corn technology which were occurring throughout Brazil would not have reached the project area as rapidly as they did. However, any precise quantification of benefits along those lines is virtually impossible.

B. Income Levels

4.04 The conclusions reached above on the impact of the project on physical output are broadly reflected in the survey of income levels in Table 5. The average incomes of all farmers, assisted and non-assisted, rose during the project period, but there was no significant difference in the relative position of assisted and non-assisted at the beginning and end of the project.

4.05 The largest increases in incomes (gross, net and agricultural) occurred in the first years of the project, through 1979; thereafter, incomes decreased to little more than the levels prevailing at the

beginning of the project. Between Year 0 and Year 8, the average net family income of assisted producers increased by 23%; however, a comparison between the average net family income during the two first and last project years shows an increase of 5%. The available data suggests that, although assisted farmers developed their coffee and sugarcane production more than the non-assisted farmers, they did not really benefit significantly in terms of income. This could be explained by the declining net returns available from commercial crops, especially coffee, relative to food crops which occurred after 1980.

4.06 The major problem concerning income levels was the failure of producers with farms in the categories of less than 50 ha to attain a level of net income equal to 2.5 minimum wages that was envisioned for the project. Analysis during project implementation suggested that at least 24 ha were needed to eventually attain this standard. Sharecroppers and landowners with less than 24 ha were therefore unable to attain this level through agricultural activities alone. Perhaps, with better applied research and higher rates of technology adoption, the number of hectares needed to achieve the minimum income level could have been reduced.

C. Economic Rate of Return

4.07 In view of the difficulties described above in attributing production benefits to the project, no meaningful rate of return can be calculated. The project permitted a flow of subsidized credit and technical assistance towards the assisted producers, and those resources were to a significant extent invested in coffee and sugarcane production. To the extent that these assets are maintained in future, they may represent a long-term benefit, though this will depend on a reversal of the adverse price trends which have affected these crops in recent years. In the case of food crops, the advances in corn production were made through the application of technical assistance. The project probably, therefore, provided for a more rapid transfer of new varieties into the project areas than would otherwise have occurred and this produced some short-term economic benefits. The application of short-term production credit, however, seems to have had no direct impact on food crop production. This represented about 80% of all the credit resources applied to the project; because of the application of negative real interest rates, the original resources applied to the short-term credit component have by now ceased to exist as an asset for future application.

V. QUALITY OF LIFE AND SOCIAL IMPACT

5.01 The project had a positive impact on the quality of life, especially in the areas of health, nutrition and farmer training. However, in education, the impact was more limited.

5.02 Because the institutions developed their focus on small producers and their families, the project led to a considerable increase in the number of families participating in the activities of the training centers (CAC) (from 6% in 1982 to 10% in 1984). In 1984, 21% of husbands and 14% of wives participated in at least one professional training course. Moreover, 32% of the families with children aged 14 to 25 had at least one child participating in a course.

5.03 The evaluation of the effect of the education component in the project area shows that there was no change in the growth rate of school registrations. About 20% of the children still remain out of school because of the absence of schools beyond the fifth grade, the necessity to work, and the lack of incentives for a better education. Although this average is relatively lower than the national average (34%), the stagnation in the registration growth rate reflects the magnitude and complexity of this problem and the limitations of the project in this sector.

5.04 While the indicators of infant mortality did not show improvements in most of the project area (a consequence of the slow start in improving the health posts and centers), the data collected in the well developed health center of Lima Duarte show that the infant mortality rate declined from 100 per thousand in 1975 to 40 per thousand in 1983. This suggests that, with the improvements occurring in the health services of the project area, the health situation will improve significantly in the near future.

5.05 In the region, the data on food consumption and diet composition show a general deterioration during the years 1977-83, with a small recovery in 1984. However, levels of nutrition calculated for the project beneficiaries showed that caloric intake increased. Food consumption among project beneficiaries appeared higher than among non-beneficiaries, probably because their per capita incomes were higher from the start.

VI. BANK PERFORMANCE

6.01 Overall, Bank performance was satisfactory. During identification and preparation, the Bank managed to identify and match State Government goals with the agricultural potential and demographic structure of the project area. The Bank also succeeded in convincing the State Government to reorient extension and research away from large farmers and to develop a better monitoring and evaluation system. More than expected, or to the credit of Bank persistence, state agencies and banks did a good job in directing their efforts towards small farmers.

6.02 The appraisal mission, however, underestimated the extent to which the macroeconomic environment (commodity prices, input prices, marketing) could deteriorate, and thus the impact on project performance.

During appraisal, the Bank did not fully assess the institutional/ organizational problems associated with reforestation, swamp reclamation and social infrastructure development.

6.03 The Bank also failed to identify the extent of the diversion of credit resources to coffee and (possibly) to non-agricultural uses, especially in the early stages of the project. It belatedly recognized the negative impact of this diversion on the attainment of project objectives, but it was too late to correct past implementation weaknesses.

6.04 Otherwise, Bank supervision reports satisfactorily identified and provided solutions for most project implementation problems. Early on, the Bank concentrated on achieving quantifiable targets (health posts/centers, school centers) and gaining the necessary State support. By mid-1980, the Bank missions had correctly focused on developing the qualitative aspects of institution building. Throughout, the Bank acknowledged the importance of including consultants and specialists in components such as project administration, extension and cooperatives. The Bank also showed flexibility in introducing new components such as non-formal education. One area where there should have been more emphasis was in the financial analysis and design of technical packages. Even though increasing productivity and technology adoption was a major goal, the project never fully succeeded in ensuring a high adoption rate, partly because economic policies did not provide sufficient incentives for farmers to undertake the additional investment.

VII. CONCLUSIONS AND LESSONS LEARNED

7.01 The project started in a climate of optimism with all the indicators suggesting eventual success. However, basic economic conditions changed in such a way that, overall, the success of the project was jeopardized. During its eight-year implementation period, the country underwent a considerable number of changes which affected the continuity of policy and public support. The country also experienced severe economic difficulties. Despite all this, the project closely adhered to its initial objectives. In the project's last years, because of a reduction in both the supply and demand for credit resources, decreases in prices of agricultural products and a reduction in the supply of counterpart funds, the level of operations was reduced, and the implementation period had to be extended to attain appraisal targets. Representatives of State and local institutions, as well as Bank supervision missions, worked hard to resolve problems throughout project implementation.

7.02 The total project cost was approximately US$140 million equivalent. Project implementation lasted eight years, exceeding the appraisal estimate by three years. During these last three years, the project benefited from the Special Action Program (SAP), which increased the rate of Bank disbursements. While this program had a positive effect on implementation of the social infrastructure, it had little impact on

credit availability, which by then was minimal. Overall, loan disbursement was satisfactory; by the end of the project, 97% of the loan had been disbursed.

7.03 All quantitative targets for the social components of the project (education, health and sanitation, community centers) were met. Credit resources were entirely disbursed, mostly for short-term investment and seasonal lending; crop areas financed under the project exceeded original targets. However, there is some evidence that the credit resources intended for food crops under the project were in fact used for coffee and sugarcane. Government counterpart funding channeled from the State budgetary resources was normally available, although in the last years of the project, only recurrent costs could still be funded, and investments became severely constrained by lack of funds.

7.04 The project had a limited economic impact on its beneficiaries and on the Zona da Mata as a whole. With the exception of corn, no general increase in foodcrop production, or productivity--one of the basic objectives of the project--could be identified. Corn production did rise significantly, among assisted and non-assisted producers alike. The availability of credit and technical assistance in the area probably contributed to the adoption of new high-yielding corn varieties which were becoming available throughout Brazil during the project period. However, it is difficult to be precise in attributing this benefit to the project as such. In contrast, there does seem to have been a real difference in the productive impact of the project between assisted and non-assisted farmers in the production of both coffee and sugarcane. This suggests that short-term and heavily subsidized credit provided under the project for food crop production was to a considerable extent diverted to the development of permanent crops.

7.05 Incomes of assisted producers did not increase at a higher rate than those of non-assisted producers. There is even an indication that non-assisted producers were somewhat more resilient to adverse economic conditions than the assisted ones, because they rely more on family labor. Many sharecroppers and producers in the size category of less than 50 ha did not attain a net income equivalent to two and one-half minimum wages, which was necessary for inclusion in the project.

7.06 The project implemented an ambitious program of health posts/centers construction and reform, and built a large number of community learning centers. In the field of staff training, recruitment of technical personnel and non-formal education, the project also reached its objectives. Despite its budgetary constraints, the State of Minas Gerais managed to keep the new social infrastructure reasonably well staffed and supplied.

7.07 Throughout the project, the State maintained its stated policy of assisting small producers and improving their social conditions. Being the first project of this nature, the project experienced many institutional

difficulties. Coordination between the numerous institutions involved had to be slowly developed. Excessive centralization of the executing agencies, repeated changes in policy and staffing, and insufficient commitment to project objectives were problems which the project had to overcome.

7.08 Some lessons can be drawn from this experience:

(a) a serious mistake was made in focusing a high proportion of loan resources on short-term credit at a time of sharply negative real interest rates. The incremental credit base provided by the project was rapidly eroded in real terms; therefore, such benefits as may have been attributable to them were at best only short-term. Some long-term impact from these resources seems to have been made in the planting and production of coffee. Though coffee was not officially assisted by the project, farmers receiving subsidized credit probably wisely managed to divert its use into the development of this more permanent asset;

(b) projects of this nature should draw more on community participation and rely less on the role played by the centralized bureaucracies which tended to be heavy-handed and unresponsive to small producers' priorities;

(c) in projects of this nature, it is very difficult to differentiate, ex-ante or ex-post, between the benefits accruing directly from project intervention from those accruing from general technological change; and

(d) a quick pace of loan disbursements is not necessarily a reliable indicator of good project performance or impact. In this project, disbursement on subsidized credit was not matched with commensurate increases in output, while investments in physical and social infrastructure were not fully supported by current expenditures to maintain the quality of services for which they were intended.

TABLE 1

BRAZIL

MINAS GERAIS RURAL DEVELOPMENT PROJECT

(LOAN 1362-BR)

PROJECT COMPLETION REPORT

Total Costs of the Project
US$ million

Category	Appraisal Target a/	Reappraisal Target b/	Actual Costs 3/31/85	% of Appraisal Target	% of Re-Appraisal Target
1. Agricultural Credit	86,500	86,985	91,852	106	106
2. Swamp Reclamation	9,000	4,397	4,012	46	91
3. Production Support					
3.1 Agricultural Research	1,700	2,459	1,606	94	65
3.2 Agricultural Extension	13,400	16,266	15,225	114	83
3.3 Cooperative Development	2,400	2,147	1,596	67	74
3.4 Reforestationn	2,200	3,711	3,510	160	95
4. Social Infrastructure					
4.1 Health	8,200	8,744	10,588	129	121
4.2 Education	12,000	7,202	5,487	46	76
5. Feeder Roads	—	700	117	—	17
6. Organizational Support					
6.1 Project Administration	2,300	2,073	1,855	81	89
6.2 Monitoring, Evaluation	1,300	2,063	2,145	165	104
7. Unallocated	--	1,253	1,253	—	100
TOTAL	139,000	140,000	137,993	99.0	98.5

a/ With completion date estimated on June 30, 1981.

b/ With completion date extended to June 30, 1984.

TABLE 2

BRAZIL

MINAS GERAIS RURAL DEVELOPMENT PROJECT

LOAN 1362-BR

PROJECT COMPLETION REPORT

Withdrawal of the Loan Proceeds
(US$ equivalent)

Categories	Amount of the Loan Allocated	Amount Actually Disbursed	Percentage of Appraisal Target
Loan to Farmers	27,200,000	27,311,988.22	100.4
Equipment of Civil Works a/	670,000	1,219,086.73	182.0
Technical Services b/	4,700,000	7,533,958.11	160.3
Health Services c/	2,400,000	3,071,546.84	128.0
Education Services d/	1, 1,600,000	1,341,051.83	83.7
Monitoring and Evaluation e/	760,000	560,858.31	74.0
Unallocated	4,670,000	14,327.24	.3
TOTAL	42,000,000	41,052,817.28	97.7

a/ Equipment and civil works for swamp reclamation.

b/ Technical Services: project administration, vehicles, equipment and field trials

c/ Health Services: civil works, equipment, salaries, medical and food supplies.

d/ Education services: civil works, office equipment, training, salaries and consulting services.

e/ Monitoring and Evaluation: salaries and consulting services.

BRAZIL

Table 3
Page 1

MINAS GERAIS RURAL DEVELOPMENT PROJECT

LOAN 1362-BR

PROJECT COMPLETION REPORT

Project Targets and Accomplishments

Components	Unit	Appraisal Target a/	Revised Target b/	Achieved 03/03/85	% of Appraisal	% of Revised
A. AGRICULTURAL CREDIT						
Sharecroppers	No.	9,000	7,720	8,065	90	104
Farm Owners	No.					
0 - 10 ha		3,400	11,913	11,218	332	95
10 - 50 ha		10,500	8,055	6,662	63	83
50 - 100 ha		2,100	2,759	1,704	81	62
100 - 200 ha		500	253	52	10	21
Total		25,500	30,700	27,764	109	90
1. Credit Distribution						
Corn	US$1.000	9,667	25,243	261		
Beans	US$1.000	4,326	7,694	178		
Rice	US$1.000	6,995	10,648	152		
Tobacco	US$1.000	2,566	305	12		
Pasture	US$1.000	553	42	8		
Sugarcane	US$1.000	9,804	4,661	48		
Fruits	US$1.000	7,884	1,302	17		
Dairy Farms	US$1.000	29,890	39,617	133		
Pig Farms	US$1.000	3,563	3,428	96		
Vegetables	US$1.000	2,668	5,320	199		
Electrification	US$1.000	7,888	5,534	70		
Swamp Reclamation	US$1.000	409	450	110		
Reforestation	US$1.000	772	555	72		
Total	US$1.000	86,985	104,799	120		
2. Crop						
Corn	ha	30,000	105,150	89,965	300	86
Beans	ha	18,500	60,000	39,673	214	66
Rice	ha	15,700	45,364	24,166	154	52
Sugarcane	ha	12,400	20,050	15,045	121	75
Tobacco	ha	3,000	162	162	5	100
Fruits	ha	4,700	2,795	1,098	23	39
Vegetables	ha	500	7,005	3,059	612	44
Pasture	ha	2,000	187	187	9	100
Sub-Total	ha	86,800	241,713	173,355	188	72
3. Livestock						
Dairy Farms	No.	3,300	7,002	7,998	239	113
Pig Farms	No.	200	684	675	338	99
4. Reforestation						
Area Reforested	ha	40,000	22,998	21,963	55	95
Beneficiaries	No.	7,900	12,823	12,934	164	101
5. Rural Electrification						
Trunkline Constructed	km	400	475	605	151	127
Distribution Line	km	396	494	646	163	131
No. of Connections	No.	1,900	2,455	2,707	142	110
6. Swamp Reclamation						
Area Reclaimed	ha	8,000	12,500	10,771	135	86
B. PRODUCTION SUPPORT SERVICES						
1. Adaptive Research						
Experiments	No.	104	161	160	154	99
Demonstration Plots c/	No.	33	263	221	670	84
2. Extension						
Incremental Extension Officer	No.	200	168	165	83	98
3. Cooperative Association						
Associate Members	No.	-	3,000	3,436	-	114
New Coop Members	No.	16,500	5,800	8,703	53	150
New Cooperatives	No.	30	25	24	80	96
Marketing Posts	No.	-	13	3	-	23
Feed Roads	km	-	134	23	-	17

TABLE 3
Page 2

	Unit	Appraisal Target a/	Revised Target b/	Achieved 03/03/85	% of Appraisal	% of Revised
C. SOCIAL SERVICES						
1. Health						
Infastructure						
Health Posts Constructed	No.	77	139	113	147	81
Health Posts Reformed	No.	77	45	45	58	100
Health Posts Equipped	No.	275	249	247	90	99
Health Posts Functioning	No.	275	275	224	81	81
Health Centers Constructed	No.	36	45	26	72	58
Health Centers Reformed	No.	63	45	40	63	89
Health Centers Equipped	No.	36	45	26	72	58
Health Centers Re-Equipped	No.	—	119	155	—	130
Latrines Constructed	No.	14,800	12,828	9,884	67	78
Water Filters Provided	No.	18,100	24,075	24,097	133	93
Installation of water system	No.	—	7	5	-	71
Training						
Doctors Recruited	No.	—	25	0	—	—
Attendants Recruited d/	No.	—	92	76	—	83
Doctors Trained	No.	95	526	390	41	64
Attendants Trained d/	No.	1,015	1,518	1,598	158	101
Supervisors Trained	No.	—	83	11		12
Attendance by Health Posts and Centers						
Doctors	Attend.	—	2,689,256	2,276,919	—	85
Pregnant Women						
1st	Attend.	—	109,103	77,005	—	71
2 or more	Attend.	—	122,671	109,938	—	90
Children less than 5 yrs						
1st	Attend.	—	574,646	753,711	—	131
2 or more	Attend.	—	589,141	559,884	—	95
Children 5-14 years	Attend.	—	643,930	717,585	—	111
Adult	Attend.	—	1,257,164	1,839,239	—	146
Vaccination e/	No.	—	615,491	1,116,155	—	181
2. Education						
Rural Education Improvements						
Schools with improved Curriculum	No.	316	316	375	119	119
School Garden Established	No.	220	320	320	145	100
School Kitchen Improved	No.	220	320	320	145	145
Training						
Teachers Trained	No.	600	864	1,374 f/	229	159
Courses for Supervisory Staff	No.	8	26	71	888	273
Courses for CACs Staff	No.	8	40	41	512	128
Non Formal Courses						
Farmer (Coop. Training)	No.	21,000	21,000	23,287	111	111
Farmers (Agric. Training)	No.	21,000	21,000	29,714	142	142
Farmer's Wives	No.	21,000	15,000	18,211	87	121
Rural Youth	No.	15,000	16,000	14,973	100	94
Community Learning Centers						
CACs Constructed	No.	27	21	17	63	81
CACs Equipped	No.	27	21	16	59	76

a/ With completion date estimated on June, 1981.
b/ With Completion date extended to June 30, 1984.
c/ Excluding those carried out by EMATER-MG.
d/ For both Health Posts and Health Centers.
e/ Includes DPT, Sabin, Chicken Pox, DP, Anti-Tetanus for pregnant women and BCC (ID).
f/ This is the number of participants to the courses, but the number of teachers is unknown.

BRAZIL
MINAS GERAIS RURAL DEVELOPMENT PROJECT
(LOAN 1362-BR)

PROJECT COMPLETION REPORT

Average Area, Production and Productivity of Small Producers

YEAR	RICE		BEANS		CORN		COFFEE		SUGARCANE	
	NA	A	NA	A	NA	A	NA	A	NA	A
AREA (ha)										
1976/77	1.86	2.88	1.83	2.98	3.20	4.50	3.11	5.97	1.07	2.28
1977/78	2.04	3.06	2.35	4.08	2.87	5.20	3.50	6.78	1.34	2.93
1978/79	2.15	3.26	2.39	4.39	3.51	5.30	4.74	8.15	2.54	3.13
1979/80	2.04	3.38	2.44	4.06	2.81	5.17	3.46	7.50	1.40	1.66
1980/81	2.07	2.42	2.53	4.95	3.18	5.56	3.61	7.61	1.26	2.04
1981/82	1.63	2.76	2.13	4.16	2.77	5.34	3.95	8.09	1.23	2.09
1982/83	1.57	2.54	2.15	4.48	2.68	5.39	4.37	7.91	1.32	3.45
1983/84	1.59	2.78	2.41	3.65	3.26	5.36	4.45	8.44	0.94	3.85
PRODUCTION (tons)										
1976/77	1.81	2.98	0.41	0.67	2.58	5.04	1.64	2.56	24.29	53.86
1977/78	2.68	4.10	0.42	0.76	1.51	3.26	2.03	5.60	23.99	54.52
1978/79	2.07	3.66	0.27	0.44	3.21	7.06	2.50	10.00	72.82	82.58
1979/80	1.40	2.89	0.29	0.44	2.33	4.78	1.76	6.01	51.79	41.22
1980/81	2.30	2.60	0.32	0.74	3.83	7.19	3.79	8.64	32.31	51.92
1981/82	1.94	3.29	0.28	0.63	3.63	5.60	3.07	6.10	22.48	72.19
1982/83	1.77	3.41	0.26	0.48	3.15	6.71	4.24	11.48	17.96	73.29
1983/84	1.98	3.22	0.36	0.62	4.01	7.52	4.35	9.98	17.89	102.04
PRODUCTIVITY (tons/ha)										
1976/77	0.97	1.03	0.22	0.22	0.47	0.70	0.53	0.43	22.70	23.62
1977/78	1.40	1.34	0.18	0.19	0.53	0.63	0.58	0.83	17.90	18.60
1978/79	0.96	1.12	0.11	0.10	0.91	1.33	0.53	1.23	28.66	26.38
1979/80	0.69	0.86	0.12	0.11	0.85	0.92	0.51	0.80	36.99	24.83
1980/81	1.11	1.07	0.13	0.15	1.20	1.29	1.05	1.14	25.64	25.45
1981/82	1.19	1.19	0.13	0.15	1.31	1.05	0.78	0.75	18.27	34.54
1982/83	1.13	1.34	0.12	0.11	1.18	1.24	0.97	1.45	13.60	21.24
1983/84	1.25	1.16	0.15	0.17	1.23	1.40	0.98	1.18	19.03	26.50

Source: Data from 851 farmers surveyed by UFV, Final Evaluation Report, 1985.
NA = Non-assisted by project.
A = Assisted by project.

TABLE 4
Page 2

% Increases in Average Area, Production and Productivity of Small Producers
Comparison of Periods: 1976/1979 - 1981/1984

	RICE		BEANS		CORN		COFFEE		SUGAR	
	NA	A	NA	A	NA	A	NA	A	NA	A
Area	-21	-12	2	7	-9	7	13	16	-31	13
Production	-14	-8	-19	-8	47	29	50	51	-52	30
Productivity	7	7	-24	-18	94	38	65	96	-27	20

NA = Non-assisted
A = Assisted

Source: Data from 851 farmers surveyed by UFV, Final Evaluation Report, 1985.

TABLE 5

BRAZIL

MINAS GERAIS RURAL DEVELOPMENT PROJECT

LOAN 1362-BR

PROJECT COMPLETION REPORT

Average Gross, Net and Agriculture Income per Family

(Cr$ 1,000 - Constant 1985 prices)[a]/

Years	Average Gross Income		Average Net Income		Average Gross Income of Agriculture only	
	NA	A	NA	A	NA	A
1976/77	22,408	60,061	11,033	38,309	18,119	52,597
1977/78	24,325	70,425	15,141	43,873	18,665	64,634
1978/79	34,598	114,361	19,418	75,578	34,598	114,361
1979/80	29,508	73,496	17,379	35,978	23,583	65,840
1980/81	31,974	63,250	12,211	38,029	26,895	58,053
1981/82	29,430	57,703	17,891	27,278	21,777	52,181
1982/83	27,696	68,963	22,179	39,369	22,034	64,120
1983/84	30,140	69,859	22,518	47,019	25,361	64,450

NA = Non-assisted by project
A = Assisted by project

a/ General price Index by Fundacao Getulio Vargas, 1985 = 100

Source: Survey among small producers of the area executed by the University o Vicosa, MG, Brazil.

PROJECT COMPLETION REPORT

BRAZIL

AGRICULTURAL EXTENSION I PROJECT

LOAN 1568-BR

March 30, 1987

Projects Department
Latin America and the Caribbean Regional Office

I. INTRODUCTION

1.01 Although early efforts to provide technical assistance to farmers began in isolated and sporadic fashion much earlier in Brazil, it was not until the decade of the sixties that these efforts were coordinated on a national scale. In 1961 several agencies were organized to collaborate with the federal Ministry of Agriculture to provide such services; by 1964 these extension services were formed under a loose association called the "Associacao Brasileiro de Credito e Assistencia Rural" (ABCAR). This association of state agencies provided services to 15 states, had some 370 field units, and 794 technicians were providing technical assistance to some 466 municipalities. By 1966 all such federally-sponsored functions were officially integrated under the ABCAR system, under the coordination of the Ministry of Agriculture (MINAGRI) by Decree No. 58.382.

1.02 Some ten years later (1975), the ABCAR system was again legally transformed (Law 6.126) into the National System for Technical Assistance and Rural Extension (SIBRATER) and a new entity, the Brazilian Technical Assistance and Rural Extension Company (EMBRATER) was formed to stimulate, promote and coordinate agricultural extension efforts at the federal level. State level companies (EMATERs) were formed to actually carry out the functions in the 22 individual states and in the Federal District. Extension duties in the two territories were incorporated under territorial ASTERs. These 25 associate companies were authorized to function within the overall coordination of EMBRATER. However, the agricultural extension services in Sao Paulo state, are executed by the Office of Coordination for Integrated Technical Assistance (CATI), and CATI is not a part of the national (SIBRATER) system of associate companies.

II. PROJECT FORMULATION

A. Identification, Preparation and Appraisal

2.01 Close collaboration between the newly formed research and extension entities (EMBRAPA and EMBRATER) during the period 1972-76 had created an awareness of the need to strengthen the extension services so that they might be entirely compatible with a similar development of the agricultural research services, which was occurring as a result of the Agricultural Research I Project (Loan 1249-BR). A formal request for such assistance was received from Brazil's Minister of Agriculture (January 21, 1976), and a Bank mission identified the project in June of that year. The project was essentially prepared by EMBRATER, with assistance from two Bank missions. Appraisal took place during June-July 1977 and was followed by a post-appraisal mission in November of that year in order to accommodate the revised development plans being proposed by the new government.

2.02 During project preparation and appraisal, the Bank encouraged EMBRATER to include greater emphasis in the project for: (a) staff training; (b) methodology studies; and (c) audio-visual aids. EMBRATER requested greater emphasis on social extension (home economics, community development and nutrition), but the Bank believed that there should be exclusive emphasis on improving agricultural production through technology

transfer by field extensionists. The EMBRATER plan for a four-year implementation period was not questioned and the Bank assumed that the SIBRATER system could absorb funding at the rate of about US$25.0 million per annum. For the first four years of project implementation, this goal proved to be highly optimistic (Annex 1, Table 1).

B. Board Approval

2.03 No serious issues were raised during negotiations. However, the Board, in approving the project expressed concern in two areas. One was the possible effect the project might have on native Indian tribes. Staff replied that these matters were the responsibility of the Indian Foundation (FUNAI) but that close collaboration with EMBRATER and the EMATERs/ASTERs would be maintained to permit technical assistance, as and when requested, for the more broadly acculturated tribes. The other concern expressed by the Board was regarding the high cost of providing extension services, economically, in sparsely populated remote areas. The staff responded that this was indeed seen as an acceptable risk and that the per unit cost of extension services would be monitored in order to encompass the advantages of scale and population density.

C. Objectives and Description

2.04 The main objective of the project was to strengthen the extension system in Brazil by providing: (a) capital investments for basic infrastructure; (b) technical assistance; (c) extension methodology studies; (d) equipment to improve communications; (e) the organization of producer groups and cooperatives; and (f) incremental staffing. Specifically, these means would permit EMBRATER to:

(a) provide the SIBRATER system with the financial strength and long-term security necessary to improve and expand the coverage of extension services to farmers;

(b) improve the efficiency of these services; thus helping to raise farm incomes, particularly for small farmers; and

(c) strengthen the administrative, planning, monitoring and evaluation capabilities of EMBRATER and EMATER/ASTER staffs.

2.05 Project administration and coordination was to be the sole responsibility of EMBRATER. Responsibility for civil works and field extension operations at the state/territorial level would be assumed by the EMATERs/ASTERs under the guidance and coordination of EMBRATER, which would set up a special unit in Brasilia to handle such functions. This unit was eventually called the Nucleus for International Projects (NUPIN).

D. Project Costs and Financing

2.06 It was agreed that the Bank would finance 35% of total project costs of US$284.9 million. The loan, therefore, amounted to US$100.0 million, of which $40.4 million comprised the foreign exchange component. Local cost financing, therefore, amounted to $59.6 million. In 1983 the project was included under the Special Action Program (SAP). This program,

which became effective on October 14, 1983, was made retroactive to March 1, 1983; under SAP, Bank participation was raised to 67.5% of project costs. This higher disbursement percentage remained in effect until December 31, 1984, when, at the request of EMBRATER, it reverted to 35%. The higher level of disbursement, for a 21-month period, had the effect of raising overall Bank participation in project costs from 35% to 47%. Total project costs amounted to US$212.7 equivalent, of which the Bank loan of US$100.0 million was fully disbursed as of July 30, 1986 (Annex 1, Tables 2 and 3).

III. IMPLEMENTATION

3.01 The loan was approved May 16, signed May 22, and became effective September 22, 1978. The project was completed by December 31, 1985. Although a four-year project had been visualized at appraisal (para. 2.02) the project was actually completed about 7.5 years after the date of Board Approval. Estimated targets and accomplishments by component are shown in Annex 1, Table 4.

A. Project Components

Capital Investments - Basic Infrastructure

3.02 At appraisal, ten state headquarters offices were scheduled for construction. This was amended to 23 (December 18, 1981), and all were finished at project completion. In addition, 336 local offices, 95% of the revised (December 18, 1981) target, were built under the project. Originally, eight training centers were planned. This was subsequently amended to 16 and 100% of the revised target was constructed and fully equipped under the project. Twenty-five libraries were completed, or 104% of the original target. The amended program for civil works reflected an overall increase in costs for this item of 65% above the total estimated cost.

3.03 In addition to civil works, the project provided capital investments for equipment. Vehicle purchases (4,036 units) represented 77% of the revised target. Practical training units numbered 102, or equal to 100% of the revised target. Nineteen fisheries colonies were established (100% of target) and the farm and fisheries equipment required to equip the training units (102) and fisheries colonies (19) was fully provided.

Training and Technical Assistance

3.04 The project provided pre-service and in-service training for 3,887 incremental staff. In-service training for all technical staff averaged 1.4 courses per year, as compared to the one course per year estimated at appraisal. In contrast the original targets for post-graduate training were amended downwards from 174 MSc and 36 PhD to 100 MSc and 10 PhD graduates; the final result was only 97 MSc and 1 PhD graduate. All post-graduate training was provided by Brazilian universities. The decision to reduce the scope of post-graduate training reflects a much different EMBRATER philosophy concerning the specific need for post-

graduate training for extension staff. The project was prepared, and appraised at a time when EMBRATER's management considered advanced degree training necessary for subject-matter specialists. The new administration, which took office on March 16, 1979, did not share this view. Instead, the training of farm monitors, i.e., selected farmers with the capacity to influence their neighboring farmers and to assist the field extensionist to reach a larger number of farmers, was judged as having more immediate impact and was introduced during project implementation. Nevertheless, monitor training was actually provided to only 14,175, or 68% of the estimated target of 20,750. The use of consultants, originally estimated at 75 staff-years was also given much greater emphasis under the new EMBRATER administration, and actually 84 staff-years were utilized. However, as most of these services comprised short-term consultancies with Brazilian nationals, the overall average cost (US$9,726 per annum) was well below the original estimate of US$75,000 per annum.

Extension Methodology Studies

3.05 One of the premises of the project was that EMBRATER would seek new ways to improve the ratio of field extensionists to farmers (para. 2.04). This was to be done by adopting the group approach to extension, wherever possible, and by conducting a series of studies to determine how this group approach could be adapted to the northeast, north and center-west regions which had extension services severely lacking in scope. These studies were designed to test methods of greater efficiency and effectiveness in technology transfer. Three states: Rio Grande do Norte, Paraiba and Sergipe participated in these studies. By 1985 requests had been received from several more states which wanted to test out the group or "convivencia" method of field extension.[1/] As part of this system the use of field demonstration plots was emphasized and almost 8,000 of such plots were prepared during the seven-year project period, or some 56% above the original estimate. Field days and group visits by farmers were more difficult to organize, however, and only reached 16% of target.

3.06 Other results of these studies were the beneficial changes in the system of field supervision, in five states, i.e., Sergipe, Alagoas, Paraiba, Rio Grande do Norte and Ceara. The organization of groups in rural communities and a system of evaluation to measure the effects of alternative methods of field extension practice were also among the significant results from these methodology studies.

Equipment to Improve Communication Methods

3.07 With the possible exception of more widespread and innovative use of audio-visual aids (particularly video-taped programs for use with TV monitors) the major contribution of the project in this area was an upgrading of the more traditional methods. These improvements comprised provision of 2 large printing presses and the upgrading of 14 smaller

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1/ Under the Agricultural Extension II Project, the method is to be gradually introduced to all states/ territories within the SIBRATER system. However, its application will be modified or adapted to suit local needs within the states.

(off-set) plants; the provision of 12 production units for radio programs and 7 cameras for video cassette production; and improvements to EMATER print-shops. The output from these units was as follows: over 550,000 posters; 1,700 technical albums; over 6 million leaflets and folders; 354 video cassette programs; 8,000 (taped) radio programs and about 45,000 color slides. In general, the amount of printed and photographic materials produced, however, was substantially below the ambitious estimates made at appraisal.

3.08 In the area of communications, the project also completed the telephone network within the system (400 telephones and 24 automated exchanges), incorporating 15 radio or radio-telephone networks as necessary in remote areas. The use of computers for standard administrative tasks (payroll, inventory, statistical data presentation) was also enhanced by the project. Pre-project computer use had been limited to two states in the southeast, Rio Grande do Sul and Santa Catarina. Under the project, the availability of computer terminals in an additional 13 EMATERs/ASTERs and at EMBRATER headquarters has led to standard administrative practices and quick access to statistical data generated by the SIBRATER system. Similarly, the use of telex terminals in most states has improved communications between the EMATERs/ASTERs and EMBRATER headquarters. Currently, there are 40 telex terminals in the SIBRATER system.

Organization of Cooperatives

3.09 There were delays in making this component effective because there was a lack of specialized staff and interest on the part of the EMATERs/ASTERs to participate. In 1980, following initial delays, a strong program was built up based on intensified activities to form producer, women's and youth groups. By the final year of project implmentation (1985), a total of 680 pilot agricultural cooperatives were being directly assisted by their participation in project-related activities including the training of social and field extensionists in community development activities. This compares with the estimate of 220 cooperatives to be assisted under the original project description. The use of consultants to provide technical assistance for this component exceeded, by 9 man-years, the original estimate of 75 man-years. Consultant use was particularly heavy in the later years (1982-85).

Incremental Staffing

3.10 The project proposal was that, to achieve a rapid expansion of the extension coverage (from 565,000 farmers in 1977 to 1.3 million farmers by project completion) an additional 3,734 extension staff would be required. Despite an extremely slow start in this area, i.e., a two-year time lag, by December 1984 1.2 million (92%) farmers were being assisted and 3,887 (104%) incremental staff were hired. The increase in staffing reflects the greater emphasis now being placed on social extension. Originally, the project did not support the field work in this area (para. 2.02). However, at the request of EMBRATER, the Bank authorized an amendment to the loan documents (December 19, 1981) to permit entry of 500 social extension workers under the project. In 1977, the total number of agents working in this area of social extension, in SIBRATER was 1,210; by December 1985 this number had increased to 2,253. Details of pre- and post-project staffing levels are provided in Annex 1, Table 5 and 6.

3.11 As a result of the project, overall SIBRATER staffing was expected to increase from 14,760 (1977) to 18,494 (1981); the actual 1981 data are comparable to that estimate. By 1985 total staffing had grown to 22,768. The significant increase during the years 1981-1985 is almost entirely due to increased tasks being allotted to the system under specific projects, such as: (a) the Assistance Program to Small Producers (PAPP) in the northeast; (b) Rural Development Programs in the Northwest under Superintendency for the Development of the Center-West (SUDECO); (c) Land Distribution and Settlement Programs under INCRA; (d) Enlargement of the Program to Recover Riverine Flood Plains (PROVARZEAS); (e) Development of Cocoa Production (PROCACAO); and (f) Development of Rubber Production in the north and northwest and east under PROBOR. This rapidly expanding SIBRATER staff also reflects the need to improve, i.e., lower, extensionist to farmer ratios as quickly as possible. This pattern of higher extensionist to farmer ratios is not uncommon during periods of rapid agricultural development where sudden high demand for extension services in remote areas, with widely scattered holdings and poor infrastructure, tends to lead to higher staffing at least in the short-run. Much can be learned from more efficient use of mass media and group extension methods currently in use in the south and south-east. By adopting these methods to the developing regions of the north, northeast and center-west, these ratios can be lowered to provide greater efficiency within the system. The follow-up project also seeks to encourage such efficiency in these less developed regions.

3.12 During the period of project implementation, the additional field staff made possible increased extension services from a total 2,973 municipalities in 1977 to 3,177 in 1985, or 90% of all municipalities. Small and medium farmers account for 98% of this coverage and large farmers essentially provide their own technical assistance or seek help directly from the private sector, research stations of EMBRAPA and/or faculties of agronomy at the universities, as the case may be. Details of the staff distribution and extension coverage under the SIBRATER system, with a comparison of pre- and post-project data, is provided in Annex 1, Table 7.

B. Disbursements

3.13 When compared to the original estimates at project appraisal, disbursement performance was initially poor. During FY79 to FY81, it was lower than 21% of the estimate. By end of FY83 it had reached only 43%. However, from that point onwards progress was much more rapid, i.e., from July 1983 to December 1985. As noted in para. 2.06, the better disbursement performance during this period owed much to the higher disbursement percentage (67.5%) under the SAP, which was in force for 21 months during FY84/85. The loan of US$100.0 million was totally disbursed by June 30, 1986 (Annex 1, Table 1). The following were considered to be the major constraints affecting disbursement performance, particularly during the first two years of project implementation:

(a) political uncertainties and policy changes;

(b) shortfalls and delays in counterpart funding, particularly at the state/territory or associate (EMATER/ASTER) level;

(c) high inflation rates combined with slow reimbursement procedures; from EMATER to EMBRATER to Bank, which produced a lower dollar value of the reimbursement request; such erosion of dollar values was estimated to be between 15% and 25% over the period; and

(d) frequent staff changes, particularly at the federal (EMBRATER/NUPIN) and state (EMATER) administrative levels which delayed project implementation and frequently nullified, or seriously modified, the Annual Plans and Budgets (PROATERs) (para. 5.02).

3.14 In addition, because of the constant devaluation of the cruzeiro and some real cost savings, unit costs on many items were much lower in US dollar terms than those estimated at appraisal. This was particularly true of staff and local consultants' salaries which dropped by about 50% in US dollar terms. Also, Bank and Government expectations concerning execution capabilities for some components may have been overly optimistic (para. 3.07). As a result, disbursement took place over a period of seven and one-half years, as opposed to the four years estimated at appraisal.

C. Procurement

3.15 Procurement, in general, was as agreed upon at negotiations and was satisfactory to the Bank. The only comment made by Bank supervision missions was in the area of civil works contracts where rapid inflation required a price adjustment clause in construction contracts. This required careful monitoring as did the review of contract work "add-ons" to amended contracts. These were also influenced by the rapid price adjustments on long-term construction contracts and adequate monitoring of such "add-ons" was difficult to achieve. EMBRATER's civil engineering unit, within NUPIN, was advised of these potential dangers; as a result contract monitoring was tightened.

D. Reports and Audit

Reports

3.16 EMBRATER was required to submit progress reports every six months. In all, 14 such reports were received by the Bank. The final report also served as a completion report and recapitulated the data for the full project implementation period to project completion. The format and presentation of the reports varied, following frequent changes in the project coordinator. However, the factual content of the reports followed an adequate pattern which was useful in comparing the progress of implementation from one year to the next. The due dates for presentation of these reports as specified in the Project Agreement were found to be impractical; i.e., 30 days after the close of the reporting period. EMBRATER/NUPIN, as the project coordinating unit, had first to receive the basic data from the 25 state/territory executing agencies and then compile a composite report. In 1981, it was agreed that submission to the Bank would occur no later than six months after the close of the period under review. This arrangement worked reasonably well during the years 1982-85. On the planning side the Work Program and Budgets (PROATERs) for the coming year, which were presented by each state and then submitted to the Bank by

EMBRATER, were received on time or within acceptable delay limits. These planning documents were instrumental in enhancing the value of the progress reports as they provided a basis for monitoring the expected target against actual accomplishments.

Audit

3.17 The seven audit reports for the years 1978-85 were duly received by the Bank. In most cases, the auditing agency, the Secretaria de Controle Interno (SECIN), provided an unqualified audit report, and no serious discrepancies on procedure or content were noted. Delays in submitting these audits seldom exceeded 30 days.

E. Adherence to Covenants

3.18 In general, adherence to the Loan and Project Agreements was satisfactory, with the exception of the three minor discrepancies outlined below:

(a) Post-Graduate Training. Due to changes in EMBRATER's administration in early 1979 (para. 3.04), the need for post-graduate training, particularly at the PhD level, was de-emphasized. As a result of this change in policy, there was a shift of focus to training at the MSc level, also to specialized short courses, pre-service training and training of monitors (PA Section 2.01).

(b) Project Guidelines. Although the project coordinating unit (NUPIN) did its best to keep up with the frequent staff changes at the state/territory (EMATER/ASTER) level, it was not always possible for these state units to be adequately informed, promptly. Following discussions with the Bank, a series of revised guidelines, concerning the specific purposes and aims of the project, were issued to ameliorate this situation (LA Section 3.02).

(c) Reporting of Adverse Conditions. The EMBRATER administration and its project coordinating agency NUPIN, frequently failed to report conditions which were interfering with execution of the project in some states (PA Section 2.11 (b)). This was brought to their notice (August 6, 1981) and remedial action was taken.

IV. AGRICULTURAL IMPACT

Agricultural Impact

4.01 The major impact of the project was expected to be on total agricultural production, chiefly through the improved efficiency of

production methods.[2]/ In retrospect, and based on EMBRATER records (Annex 1, Tables 8-10), these expectations would appear to have been met. However, changes in the area under production, both increases and decreases, led to significant shifts in the national production figures (Annex 1, Table 11). Based on the eight crops used here as a proxy for the calculation of the agricultural impact due to the project, we find that significant yield increases in rice, cassava and potato were largely offset by even greater downward trends in the area under production. For two export commodities, cotton and soybeans, the higher yields further increased national production well above that attributable to the increased production area. Similarly, maize and tomatoes with area increases of 4% and 0% respectively, show significant overall production increases due to better production systems.

4.02 The impact of incremental production on markets was negligible, with the possible exception of soybeans where exports increased significantly and export controls were imposed sporadically. For the basic food and feed crops (rice, beans, cassava, maize and potato), domestic demand continued to outpace supply and imports of rice, beans and maize were even more frequent during the 1980-1986 period. Processed tomatoes also found increased domestic demand with limited periodic surplusses available for export.

4.03 No attempt has been made to calculate the ERR for the project, in view of recently expressed views of Bank management[3]/ concerning the difficulty of precise analysis of benefits in research and extension projects.

V. INSTITUTIONAL PERFORMANCE

5.01 One federal agency (EMBRATER) and 25 state/territorial (EMATER/ASTER) associate companies were responsible for execution of the project. In addition, EMBRATER was responsible for the overall coordination, monitoring and supervision of project components on a national scale. Project accounts, which originated mainly in the state/territorial companies, were consolidated by EMBRATER's project coordinating unit (NUPIN) and all claims for disbursement and project progress reports, etc., were submitted to the Bank by NUPIN/EMBRATER.

A. Federal Level

5.02 Despite significant delays during the first two years of project implementation, mainly due to political and financial (counterpart funding) constraints (para. 3.13), EMBRATER was always dedicated, energetic and

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2/ Brazil - Agricultural Extension I Project: SAR May 3, 1978.

3/ Reference is made here to OPS/AGRPR memorandum of November 10, 1986 on this subject.

consistent in its efforts to ensure that project objectives were achieved. This required numerous issues of the guidelines to ensure that the other 25 associate companies remained aware of the project's objectives, description and goals. Despite these efforts, lack of continuity at the state level reflected negatively on efforts to execute the project within the original four-year time period. The reporting of project progress, procurement and disbursement matters were all handled well by the project coordinating unit. While continuity of the coordinator position was also difficult to achieve (five coordinators in seven years), the institutional administrative capacity was such as to maintain an adequate level of EMBRATER/Bank coordination. One negative result of these frequent administrative changes was the failure to always report constraints to project implementation in the narrative section of the report and to inform the Bank promptly of such delays (para. 3.18). Given the complexity of project implementation with 25 implementing agencies, it was expected that a high degree of coordination would be difficult to achieve over the entire implementation period. In practice, this proved to be the case, but to a relatively small degree, given these administrative complexities. In general, EMBRATER and its project coordinating unit (NUPIN) maintained a very satisfactory level of communication with the Bank throughout the seven-year implementation period.

B. State Level

5.03 Sporadic, but quite serious, problems arose with about one-third (8) of the 25 state/territory implementing agencies. Most of these occurred in the poorer states of the north and northeast, and generally concerned the flow of counterpart funds to enable these agencies to fully implement their PROATERS at the projected level. Some of these difficulties were also political in nature, and the state level support of the project frequently fluctuated as a result of these political changes. Over time, however, it must be said that performance evened out considerably. Generally, it was a lack of clear institutional leadership and adequate understanding of the project and its objectives that tended to create these inefficiencies.

VI. BANK PERFORMANCE

6.01 Overall, Bank performance was satisfactory. One contributing factor was the high level of project staff continuity. One project officer dealt with the project from project identification until completion. There was also consistency in the monitoring of the large, complex and widely scattered civil works component for which the Bank used the services of only two consultant architects in two distinct periods: 1978-80 and 1981-86. Supervision missions were also carried out at regular six-month intervals, and there was considerable Bank input in the mid-term review (Jan.-June 1982).

6.02 The Bank was also responsive to EMBRATER's requests for adjustments to the project content and design, e.g., although not included in the original design, changes were made to include: (a) social extension workers (home economics, community development, nutrition);

(b) construction of 354 local offices; and conversely (c) reductions in the consultants and post-graduate training budgets.

6.03 Despite close and consistent supervision: (a) the level of effectiveness of some project-related extension services in the northeast did not improve significantly (the PAPP continues to experience difficulties in this area); and (b) some opportunities for further institutional strengthening, particularly at the state level, may have been missed due to the emphasis on technical assistance for civil works. This emphasis, while essential, tended to exclude the provision of further technical assistance to such areas as extension methodology and rural administration.

VII. CONCLUSIONS AND LESSONS LEARNED

7.01 The size, scope and complexity of the project created start-up delays which were greater than anticipated. This was the first such national agricultural extension project in Brazil, and it dealt with a newly formed corporation (EMBRATER), as were the coordinating agencies or associate companies (EMATERs/ASTERs) or 25 implementing agencies in all. This problem was exacerbated by political changes during the 1978-79 period. Such changes invariably brought about significant upper-level staff changes and the early project delays were partly due to the executing agencies' lack of administrative experience with such a large enterprise. The original four years designated for project implementation was also optimistic, but, had the initial start-up delays been avoided, it would still have been a fair estimate of the time required, i.e., five years at most.

7.02 In retrospect, and despite these delays, the project was successful and largely achieved the physical and numerical goals initially set at appraisal. Many of the targets were adjusted upwards in light of the longer implementation period (Annex 1, Table 4). More intangible, but nevertheless important, has been the development of relatively strong federal and state agencies. Here,infrastructure, staff training, improvements in extension methodology and facilities to assist in the transfer of new technology to the farmer, have all had a marked, positive impact on the national extension system (SIBRATER) as a whole. As part of the project preparation exercise for the second phase project (Agricultural Extension II - Loan 2679-BR approved in FY86), five regional meetings were held with representation from all the associate companies (EMATERs/ ASTERs). At these meetings, extension staff were also asked to evaluate the positive and negative aspects of the first project and their views are summarized below:

7.03 Positive aspects of the project were: (a) improved infrastructure; (b) better staff training, especially pre-service courses; (c) improved communications methods and equipment, specifically audio-visual aids and reference library services; (d) increased level of available technology; (e) opportunity to test new methodology; and (f) greater stability due to more assured financing over the extended period of the project (seven years).

7.04 Negative aspects of the project were: (a) lack of consistent knowledge of project goals at the state level due to frequent administrative changes; (b) restrictions as imposed by EMBRATER on free use by the state (EMATERs) of some components, i.e., pre-service and post-graduate training and the use of consultants; (c) state-level preferences for infrastructure (bricks and mortar) components as opposed to institutional improvements when counterpart funding was inadequate; (d) a few components were only marginally effective and should not be repeated, i.e., (i) cooperatives; and (ii) artisanal fisheries; (e) project coordination/planning meetings between EMBRATER and state EMATERs were too infrequent; (f) little or no priority given to research/extension linkages; and (g) social extension (para. 2.02) was only included in the last three years of the project, following the specific request of EMBRATER.

7.05 Lessons learned are basically those derived from the two previous paragraphs, i.e.:

(a) EMATERs should be kept fully aware of project components and ample opportunities provided for their participation in all of them;

(b) the communications system of EMBRATER/EMATER for project-related matters should be further improved;

(c) closer collaboration between research and extension services through short courses for technical matters is essential and specific funding should be provided as needed;

(f) more attention should be paid to the administrative and staff development aspects of institution building, i.e., in comparison to investments in buildings.

7.06 In large measure, these concerns were addressed during preparation and appraisal of the second (follow-on) project.

ANNEX 1
Table 1

BRAZIL

AGRICULTURAL EXTENSION I PROJECT
(Loan 1568-BR)

PROJECT COMPLETION REPORT

Disbursement Schedule
(US$'000)

BASIC FISCAL YEAR	APPRAISAL ESTIMATE IN FY	APPRAISAL ESTIMATE ACCUMULATED	ACTUAL IN FY	ACTUAL ACCUMULATED
1979	18.5	18.5	-	-
1980	26.2	44.7	5.0	5.0
1981	31.8	76.5	10.7	15.7
1982	23.5	100.0	11.3	27.0
1983	-	-	15.6	42.6
1984			20.9	63.5
1985			31.0	94.5
1986 (1st Semester) 1/			5.5	100.0

1/ Loan was closed on 6/30/86.

Source: Bank Disbursements Data (LOALE)
October, 1986

BRAZIL

AGRICULTURAL EXTENSION I PROJECT
(Loan 1568-BR)

PROJECT COMPLETION REPORT

Total Project Costs By Category and Source of Funds
(US$'000)

CATEGORY/SOURCE OF FUNDS	EMBRATER EMATERs/ASTERs	BANK LOAN	TOTAL FOR PROJECT	BASELINE COST COMPARISON AT APPRAISAL	BASELINE COST COMPARISON OVERRUN (-UNDER) PERCENT
1. Incremental Staff Salaries	66,329	57,247	123,576	124,720	(1.0)
2. Training	5,646	4,980	10,626	10,680	(-0.5%)
3. Technical Assistance Consultants	252	565	817	5,630	(-85.5%)
4. Vehicles	7,819	6,041	13,860	18,650	(-25.7%)
5. Farm & Office Equipment	8,304	11,234	19,538	21,540	(-9.3%)
6. Civil Works	22,865	18,472	41,337	21,160	95.4% 1/
7. Field Demonstration Plot Inputs	1,457	1,461	2,918	2,710	(7.7%)
8. Other Establishment Costs	-	-	-	26,640	-
Totals	112,672	100,000	212,672	231,550	(-8.2%)
Percent Participation	53%	47%	100%	-	-

1/ Actually 56% above cost estimates when 25% contingencies are included.

Source: EMBRATER and Bank Data
October 1986

ANNEX 1
Table 3

BRAZIL

AGRICULTURAL EXTENSION I PROJECT
(Loan 1568-BR)

PROJECT COMPLETION REPORT

Actual Disbursements by Loan Category and Comparisons with Revised Schedule 1
(US dollar equivalents)

CATEGORY	DISBURSEMENT	CHARGE FROM SPECIAL ACCOUNT 1/	TOTAL	APPRAISAL ESTIMATES AS REVISED (SCHEDULE 1)	DIFFERENCE 2/
1. Incremental Salaries	57,199,765	47,509	57,247,274	57,500,000	(-)
2. Fellowships and Training	4,975,352	4,132	4,979,484	6,000,000	(-)
3. Consultants	564,113	468	564,581	500,000	(+)
4. Vehicles	6,036,365	5,013	6,041,378	6,500,000	(-)
5. Equipment/Farm and Office	11,224,677	9,319	11,233,996	11,000,000	(+)
6. Civil Works	18,457,082	15,330	18,472,412	17,000,000	(+)
7. Demonstration Plot Inputs	1,459,773	1,102	1,460,875	1,500,000	(-)
Totals	99,917,127	82,873	100,000,000	100,000,000	

1/ Total Charges of US$82,872.93 were prorated among the seven operational categories.
2/ (-) = no more than 17% under revised estimate; (+) = no more than 13% over revised estimate.

Source: EMBRATER and Bank Data
October 1986

BRAZIL

AGRICULTURAL EXTENSION I PROJECT
(Loan 1568-BR)

PROJECT COMPLETION REPORT

Key Indicators

ITEM	UNIT	ESTIMATES AT APPRAISAL 06/30/77	ESTIMATES REVISED 06/30/85	ACTUAL AT PROJECT COMPLETION (at 12/31/85)
A. Infrastructure				
State Offices	ea	16	24	23
Regional Offices	ea	8	18	-
Local Offices	ea	NA	354	336
State Training Centers	ea	NA	19	12
Regional Training Centers	ea	NA	6	4
Libraries	ea	24	25	25
Farm Training Units	ea	NA	2	102
Fisheries: Service Posts	ea	20	19	10
B. Equipment				
Vehicles	ea	4,260	5,224	4,036
Printing Presses	ea		25	16
C. Staffing & Technical Assistance				
Field Staff	tech.	3,734	4,754	3,887
Consultants	man/yr	75	57	84
Studies	ea	6		
D. Staff Training Program				
Pre-Service	ind.	4,725	6,900	8,919
In-Service	ind.	13,500	30,000	129,069
Short-Courses	ea	381	216	163
1. Ph.D.	ind.	36	10	1
2. MSc.	ind.	174	100	97
Training of Monitors	ind.	NA	NA	14,157
E. Information Services				
Current Data Systems	ea	24	25	25
Technical Bulletins (Titles)	ea	NA	200	47
Technical Manuals (Titles)	ea	NA	58	40

ITEM	UNIT	ESTIMATES AT APPRAISAL 06/30/77	ESTIMATES REVISED 06/30/85	ACTUAL AT PROJECT COMPLETION (at 12/31/85)
F. Technology Transfer Systems				
Production Systems	ea	285		268
Demonstration Plots	ea		5,075	7,903
Field Days	ea	NA	3,600	572
G. Communications Materials and Methods				
Posters	'000	500	1,000	558
Albums-Desc. Methods	ea	NA	30,000	1,712
Leaflets	'000	1,500	6,000	2,670
Folders	'000	NA	31,000	3,433
Colored Slides	ea	NA	12,000	44,787
Video Cassette Prog.	ea	NA	60	354
Video Cassette (copies)	ea	NA	250	243
Radio Prod. Units	ea	NA	12	12
Film Units for Video Cassette	ea	NA	25	7
Taped programs	ea	NA	23,000	7,949
H. Methodology Studies	ea	6	6	7
I. Cooperatives (Formation)				
Agric. Producers	units	200	220	680
Artisan Fishery	units	20	10	10
Fisheries Colonies	units	10	19	19
J. Number of Farmers Assisted	'000	1,300	1,300	1,218

Source: EMBRATER
October 1986

ANNEX 1
Table 5

BRAZIL

AGRICULTURAL EXTENSION I PROJECT
(Loan 1568-BR)

PROJECT COMPLETION REPORT

Incremental Staff Distribution by Category
Estimates at Appraisal and Actual (1985)

PROGRAMS	STAFF ALLOCATIONS	
	STAFF NUMBERS	
PROGRAM/CATEGORY	ESTIMATED (AT APPRAISAL)	ACTUAL (12/31/85)
1. Field Extensionists (EMATERs and ASTERs)	4,105	3,391 *
2. Training Program	71	47
3. Library and Documentation	25	46
4. Current Data Systems	19	35
5. Methodology Trials and Studies	9	23
6. Audio Visual Aids	137	237
7. Production Systems	24	- *
8. Field Demonstration Plots	201	- *
9. Crop Production Cooperatives	38	42
10. Fisheries: Colonies and Cooperatives	50	45
Program Administration and Advisory Staff		
1. EMATER State Headquarters	21	21
2. EMBRATER Headquarters	54	- **
	4,754	3,887

* Staff assigned to Field Demonstration Plots and Production Systems are part-time only and are included in Category One.
** None were financed by the project.

Source: EMBRATER
December 15, 1977; Revised June 30, 1986

BRAZIL

AGRICULTURAL EXTENSION I PROJECT
(Loan 1568-BR)

PROJECT COMPLETION REPORT

SIBRATER: Technical Field Staff Distribution by State and Region 1978-1985

REGIONS/STATES	LOCAL OFFICES SENIOR LEVEL 1978	LOCAL OFFICES SENIOR LEVEL 1985	LOCAL OFFICES MID-LEVEL 1978	LOCAL OFFICES MID-LEVEL 1985	LOCAL OFFICES 1978	LOCAL OFFICES 1985	REGIONAL OFFICES AND HEADQUARTERS 1978	REGIONAL OFFICES AND HEADQUARTERS 1985	TOTAL LOCAL + REGIONAL + HEADQUARTERS 1978	TOTAL LOCAL + REGIONAL + HEADQUARTERS 1985
NORTH	164	275	418	670	582	945	170	264	752	1,209
Rondonia	18	55	101	169	119	224	38	45	157	269
Acre	11	23	48	84	59	107	20	45	79	152
Amazonas	26	65	75	145	101	210	46	59	147	269
Roraima	12	15	13	60	25	75	7	25	32	100
Para	89	101	157	166	246	267	40	78	286	345
Amapa	8	16	24	46	32	62	19	12	51	74
NORTHEAST	1,076	1,353	1,559	2,681	2,744	4,114	616	1,052	3,251	5,116
Maranhao	76	68	136	180	212	248	82	88	294	336
Paiui	82	136	135	260	217	396	58	70	275	466
Ceara	274	280	276	453	550	733	101	245	651	978
Rio Grande Norte	51	86	130	281	181	367	63	102	244	469
Paraiba	81	112	192	233	382	425	69	88	342	463
Pernambuco	218	192	164	233	382	425	71	122	453	547
Alagoas	36	79	73	153	109	232	36	83	145	315
Sergipe	61	33	126	169	187	202	28	60	215	262
Bahia	197	367	327	71º	524	1,086	108	194	632	1,280
SOUTHEAST	821	875	848	1,008	1,669	1,883	300	368	1,969	2,251
Minas Gerais	524	599	622	763	1,146	1,362	227	263	1,373	1,625
Rio de Janeiro	221	184	154	129	375	313	27	53	402	366
Espirito Santo	76	92	72	116	148	208	46	52	194	260
Sao Paulo	-	-	-	-	-	-	-	-	-	-
SOUTH	604	1,193	590	1,197	1,194	1,790	356	610	1,550	3,000
Parana	264	495	212	407	476	902	216	244	692	1,146
Santa Catarina	130	222	225	342	355	564	76	166	431	730
Rio Grande Sul	210	476	153	448	363	324	64	200	427	1,124
CENTER-WEST	285	385	280	536	565	921	188	352	753	1,273
Mato Grosso	120	91	101	138	221	229	59	87	280	316
Mato Grosso do Sul	-	86	-	179	-	265	-	82	-	347
Distrito Federal	-	38	-	40	-	78	-	32	-	110
Goias	165	170	179	179	344	349	129	151	473	500
Associate Companies	2,950	4,081	3,695	6,092	6,754	9,653	1,630	2,646	8,275	12,849
TOTAL EMBRATER	-	-	-	—	-	-	220	322	220	322
TOTAL SIBRATER	2,950	4,081	3,695	6,122	6,645	10,203	1,850	2,968	8,495	13,171

Source: 1977 - Memoria do SIBRATER
September 20, 1986 (Completion)

BRAZIL

AGRICULTURAL EXTENSION I PROJECT
(Loan 1568-BR)

PROJECT COMPLETION REPORT

Distribution of Staff and Extension Coverage Provided by SIBRATER
1978-1985

DESCRIPTION OF INDICATORS/REGION (UNITS)	NORTH		NORTHEAST		CENTER WEST		SOUTHEAST		SOUTH		TOTAL: BRAZIL-SIBRATER	
	1978	1985	1978	1985	1978	1985	1978	1985	1978	1985	1978	1985
Operational Units												
Associate Companies	6	6	9	9	2	4	3	3	3	3	23	25
Regional Offices	11	18	81	106	19	26	24	27	37	38	172	215
Local Offices	130	171	671	1,009	168	252	398	515	444	672	1,811	2,619
District Offices	-	60	-	82	-	30	-	34	-	46	-	252
Field Technicians												
At Local Offices	582	965	2,635	4,064	565	921	1,669	1,194	1,194	2,390	6,645	10,203
At Regional Offices	17	35	232	378	77	94	168	157	185	298	679	962
At Central Offices	153	229	384	674	111	258	132	211	171	312	951	1,684
Total Number of Technicians	752	1,209	3,251	5,116	753	1,273	1,969	1,562	1,550	3,000	8,275	12,849
Higher Level	-	514	-	2,346	-	700	-	1,215	-	1,548	-	6,323
Medium Level	-	695	-	2,770	-	573	-	1,036	-	1,452	-	6,526
Total Number of Administrative Staff	902	1,225	2,713	4,061	587	955	1,125	1,462	1,143	1,894	6,470	9,597
Municipalities Assisted	129	179	1,169	1,266	293	321	791	706	591	705	2,973	3,177
Producers/Farmers Assisted	32,249	57,349	182,908	391,423	33,283	70,198	179,253	213,610	137,773	523,919	565,466	1,156,499
Cooperatives Assisted	24	33	96	175	27	183	96	717	96	344	339	1,452
Families Assisted	7,847	18,189	61,584	153,102	10,268	18,706	37,764	97,395	82,257	187,003	199,720	474,595
No. of Health Posts	6		323		18		305		25			
No. of 4-S Clubs	61	292	213	2,345	174	558	866	5,751	639	2,858	1,953	11,804
No. of 4-S Club Members	1,079	6,900	3,740	39,314	5,958	9,691	23,984	87,854	15,789	80,363	50,550	224,122
Rural Credit												
No. of Contracts	7,299	519	28,519	34,080	5,620	5,411	33,117	13,252	22,679	12,760	97,234	66,022
Value of Contracts (Cz$ 1,000)	717,517	16,136,000	2,519,487	431,117,000	1,897,733	160,046,000	2,713,831	26,341,000	1,773,378	199,335,000	9,621,946	915,929,000

Source: EMBRATER/CPLAN-NCAE 1977 - revised by NUPIN/EMBRATER, April/86

*Including Youth Groups

ANNEX 1
Table 8

BRAZIL

AGRICULTURAL EXTENSION I PROJECT
(Loan 1568-BR)

PROJECT COMPLETION REPORT

Yield Potential
Results Obtained at the Field Level with Technical Assistance
(Percentage Increment)

CROP/PROJECT YEAR	1980	1981	1982	1983	1984	1985	1986 1/	AVERAGE (%)
Cotton	9	17	29	43	12	67	24	28.7
Rice	2	3	24	98	15	2	18	23.0
Beans	55	43	36	31	20	42	35	37.4
Cassava	6	61	28	25	20	29	24	27.6
Maize	20	17	21	23	41	18	25	23.6
Soybeans	14	6	11	10	14	12	10	11.0
Tomato	36	36	33	37	29	32	35	34.0
Potato	60	37	46	50	60	33	42	46.9

1/ Estimated.

Source: EMBRATER & Bank Mission Data, July 1986

BRAZIL

AGRICULTURAL EXTENSION I PROJECT
(Loan 1568-BR)

PROJECT COMPLETION REPORT

Area Under Selected Crops (8) Receiving Extension Coverage
('000 ha)

PROJECT CROP/ YEAR	1979	1980	1981	1982	1983	1984	1985	1986	TOTAL	AVERAGE AREA PER/YEAR	AS PERCENTAGE OF NATIONAL PRODUCTION AREA (%)
									——000 ha——		
Cotton	314.5	507.2	585.4	553.5	576.6	545.2	532.3	638.8 1/	4,253.5	532	18
Rice	1,291.4	1,721.9	2,088.7	1,950.4	1,348.8	1,031.1	963.4	608.7	11,004.4	1,376	21
Beans	700.6	824.2	1,218.7	1,165.3	800.5	756.2	871.4	623.1	6,960.0	870	20
Cassava	275.0	416.6	365.1	398.2	282.1	245.7	193.1	121.7	2,297.5	287	12
Maize	1,635.5	1,765.3	2,430.1	2,153.6	2,088.6	2,048.0	1,777.1	1,155.2	15,053.4	1,881	19
Soybeans	547.5	693.1	1,161.3	1,245.2	1,641.9	1,631.6	1,829.5	1,317.2	10,067.3	1,258	20
Tomato	7.4	13.2	10.5	10.3	11.4	10.1	5.9	7.3	76.1	10	34
Potato	16.3	24.1	23.0	24.3	25.7	21.1	25.1	20.2	179.8	22	22
TOTALS	4,788.2	5,965.6	7,882.8	7,500.8	6,775.6	6,289.0	6,197.8	4,492.2	49,892.0	6,236	

1/ Estimates.

Source: EMBRATER, July 1986

ANNEX 1
Table 10

BRAZIL

AGRICULTURAL EXTENSION I PROJECT
(Loan 1568-BR)

PROJECT COMPLETION REPORT

Estimated Incremental Production Due to Extension Services
(Amount '000 tons)

PROJECT CROP/ YEAR	1979	1980	1981	1982	1983	1984	1985	1986 1/
Cotton	10.1	16.7	48.0	50.0	23.4	21.3	22.5	23.6
Rice	8.6	12.0	15.6	27.7	48.6	35.3	27.3	33.5
Beans	156.7	184.6	241.2	230.5	90.5	68.1	148.1	132.6
Cassava	195.3	297.5	592.0	850.7	705.2	540.6	656.7	754.3
Maize	213.6	586.6	729.0	750.3	799.9	1,380.4	627.3	945.1
Soybeans	125.4	158.0	108.0	156.3	279.1	354.1	398.8	336.4
Tomato	75.8	126.3	110.1	115.3	122.8	95.7	63.7	78.1
Potato	87.1	133.9	95.0	131.6	127.2	131.6	98.3	94.3

1/ Estimated.

Source: EMBRATER & Bank Mission Data, July 1986

ANNEX 1
Table 11

BRAZIL

AGRICULTURAL EXTENSION I PROJECT
(Loan 1568-BR)

PROJECT COMPLETION REPORT

Movements in Crop Production During 1980-85 Period

CROP	PERCENT CHANGE OVER PERIOD	
	AREA	PRODUCTION
Cotton	13	112
Rice	(-24)	(-7)
Beans	17	48
Cassava	-7	Stable
Maize	4	10
Soybeans	16	21
Tomato	Stable	18
Potato	-17	Stable

PROJECT COMPLETION REPORT

BRAZIL

BAHIA RURAL DEVELOPMENT PROJECT - PARAGUACU

(LOAN 1589-BR)

June 2, 1987

Projects Department
Latin America and the Caribbean Regional Office

I. INTRODUCTION

1.01 Since the late 1800s, the Northeast has been viewed as Brazil's foremost "problem area." The country's wealthiest region during the sugar boom of the colonial period, the Northeast subsequently lagged behind as industrial, agricultural and commercial activity shifted to the South. The severe droughts periodically affecting the region (which have been registered as far back as the sixteenth century), combined with persistent widespread poverty have been responsible for the creation of numerous government programs. Until the 1950s most federal interventions were limited to drought relief works, short-term drought emergency programs and crop-specific policies aimed at supporting export crops grown on large farms. A severe drought in 1970 and its devastating impact on the rural population demonstrated that little had changed despite past development activities, and a major reformulation of regional development policy was undertaken. In 1973, the Bank and the Government initiated a dialogue on rural development issues and strategies for the Northeast. In October 1974, the Program for Development of Integrated Areas of the Northeast (POLONORDESTE) was created. It sought to increase the production, productivity, incomes, and standards of living of small farmers and their families in selected micro-regions. The Bank, over the next decade, cofinanced ten POLONORDESTE projects in eight Northeast states.

1.02 The POLONORDESTE projects represent the first generation of rural development projects in Northeast Brazil. Reviews of POLONORDESTE and other Northeast rural programs were carried out by the Government and the Bank during the 1980s. Drawing on these interim assessments, a second generation of projects began in April 1985 with the signing of the first two loans for the new Northeast Rural Development Program (NRDP) in the states of Rio Grande do Norte and Sergipe. Subsequently, additional loans to the states of Bahia, Ceara, Piaui and Pernambuco states were approved and loans for the remaining States are expected to be approved shortly. In October 1986, a regional land tenure improvement project was signed aimed at providing secure land tenure to a large number of small farmers and improve the Government's ability to administer land resources and formulate land sector policies.

1.03 The Bahia Rural Development Project - Paraguacu (Loan 1589-BR) was the fourth Bank-assisted integrated rural development project in the POLONORDESTE series. Basic completion information is given in Annex 1, Table 1.

II. PROJECT FORMULATION

Identification, Preparation and Appraisal

2.01 The Paraguacu project originated in 1973/74 when the State and SUDENE (Superintendency for the Development of the Northeast), with the assistance of consultants, prepared a general plan for improved utilization of the region's water resources. This study, together with the seriousness of the economic conditions in the area and the creation of the POLONORDESTE program in late 1974, encouraged the state to proceed with the preparation of a special program of investments to help increase productivity in the

region's agricultural sector. The state contacted the Bank office in Recife in 1975, requesting Bank collaboration in project preparation and financing. Several Bank preparation missions followed. The initial state proposals focussed on a few irrigation schemes, livestock and fruit plantation programs and a small program for small-scale producers in isolated areas all or partly in the Paraguacu Basin. With further study, and state interest in broadening project impact and in sharpening its focus on small-scale farmers, as well as Bank assistance in preparation, the project area became the core of 49 municipalities of the Paraguacu Basin covering an area of 60,764 km2. Original state proposals for project interventions in cooperative societies, mechanization, marketing and storage services were later tailored to small farmer targets and farmer traditions, and included the construction and staffing of some schools and health mini-posts, some road work, and improvements to agricultural services and cooperative societies begun with POLONORDESTE funding in late 1976.

2.02 A relatively high level of Bank staff input was necessary in the preparation and appraisal stages. This can be partially attributed to the multi-sectoral nature of the project and the need for a variety of specialists. The first identification/preparation mission was carried out in January 1976 and appraisal in October 1977. The proposed project was scaled down substantially during appraisal. Nonetheless, during the appraisal review process several observations were made concerning the over-optimistic targets of each component and especially the anticipated yield increases and uptake of agricultural practices in the agricultural extension component. In addition, it was expected that the credit aspects of the project would draw criticism from the Board as they amounted to 34.9% of project base costs and carried heavily subsidized interest rates. During the Loan Committee's review of the project, similar reservations were registered.

Board Approval

2.03 As expected, the Board strongly criticized the highly negative interest rates prevailing in the credit system for agriculture. Interest rates for rural credit continued to be negative (to a greater or lesser degree) throughout the life of the project.

Objectives and Description

2.04 The project aimed to (a) increase productivity and incomes; (b) broaden economic opportunities; (c) improve the standard of living of 17,000 small farmers in 49 municipalities; (d) raise the contribution of the Paraguacu Basin agricultural sector to meeting local and state food demands; and (e) develop further the technical and administrative capacity of institutions involved in agriculture and rural development in Bahia (specifically in the Paraguacu Basin). The project, which was to be implemented over a period of five years, consisted of fifteen components and sub-components to be implemented by fifteen federal, state and private agencies. These included agricultural extension and research, land titling services, assistance to cooperatives, irrigation, mechanization and input supply, multipurpose dams, storage, rural credit, feeder roads, health, water supply, education and project administration.

2.05 In 1982, after an implementation period of about four years the State Government carried out an evaluation of project performance and impact and in 1983 requested a two-year extension with some modifications to the project. The changes introduced, at that time and in subsequent amendments, included the following:

(a) a reduction from 15,000 to 7,500 land titles for small-scale farmers, discrimination of about 100,000 ha and acquisition and distribution of about 44,000 ha to 1,900 small-scale farmers;

(b) the cancellation of funds for the construction of twelve multi-purpose dams, and the construction and equipment of six storage units of about 700 tons each and 150 community storage sheds of about 20-200 tons each;

(c) the construction of about five small-scale irrigation schemes;

(d) an increase of water supply systems from 70 to 100 villages;

(e) the introduction of a non-formal primary education program for about 1,700 youths and adults, including the training of staff and provision of equipment and materials;

(f) a program to provide technical assistance to the POLONORDESTE administration group within the Superintendency for the Development of the Northeast;

(g) establishment and operation of a special land fund by CAR (Company for Development and Regional Action) for purposes of financing land acquisition (the fund itself was financed by Government sources) and;

(h) the introduction of a small social forestry component in August 1984.

2.06 During appraisal, there were four POLONORDESTE projects in preparation or implementation in the state. Day-to-day management and supervision of the projects was shared by the Secretariats of Planning and Agriculture through Technical Units. However, with a change of the state governor in 1979, CAR (Development Company for Regional Action), was established within the Secretariat of Planning and eventually given responsibility to coordinate all POLONORDESTE and other rural development projects in the state. Execution of the project continued to be with federal and state agencies and subject to regional and federal norms and procedures for POLONORDESTE.

Project Costs and Financing

2.07 Initially, the Bank was expected to finance 36% (net of taxes) of project costs. In 1983, the project was included in the Special Action Program (SAP) for agricultural projects in Brazil. Under the SAP, the disbursement percentage for the project was increased to about 67% of project costs. At the close of the project, project costs amounted to US$70.52 million, or about 66% of total costs estimated at appraisal. Overall Bank financing amounted to 37.4% of total costs.

III. IMPLEMENTATION

3.01 The project was approved in July 1978, and became effective in December 1978. After a five-year implementation period, the project was extended for a two-year period and closed on August 15, 1986, about eight years after Board Approval. Estimated targets and actual accomplishments by component are given in Annex 1, Table 1.

Issues

3.02 There were three main issues which affected the implementation of all project components. These included: shortage and late arrival of counterpart funds, shortage of rural credit and poor achievement of land titling services. In order to avoid repetition of the above issues throughout this chapter, a summary of their influence on project implementation is given below.

(a) Counterpart Funding. From the start, and throughout project implementation, the project suffered occasional budget cuts by the federal government, and late arrival of funds. This not only disrupted the work of agricultural extension and research (where investments are seasonal and therefore funds are required on time), but also disrupted the implementation of other project activities which relied on a planned schedule for the use of equipment, materials and staff. In addition, the late arrival of counterpart funds often resulted in the late payment of salaries (often two to four months late), which did not improve morale among field staff. This was one of the main factors which triggered a general paralysis of the extension service during the seventh and eighth years of project implementation.

(b) Agricultural Credit. A shortage of agricultural credit to small farmers, especially during the last four years of project implementation, caused a certain amount of frustration among the extension agents and farmers. Farmers who had delayed planting, pending receipt of credit funds, then had to go ahead with traditional means of land preparation and inputs, lost confidence in the extension service and the project. There was little the farmer could do to increase crop production or productivity on their small holdings without credit. Moreover, the prolonged drought (from 1979-1983) and later shortage of agricultural credit dampened much of the enthusiasm of extension agents who witnessed the gradual decline of agricultural yields in their project area. After 1983, little progress was achieved in project implementation (para. 5.01).

(c) Land Titling Services. A high priority was placed on land titling since 60% of project beneficiaries were not legal holders, including 25% who were landless. The failure to acquire sufficient land for distribution, the continued annexation of small farmers' land by large landowners, and the slow pace in the

issuing of titles had a detrimental effect on the remaining components and reduced the impact of the project.

Project Components

3.03 Agricultural Extension. The extension service succeeded in reorienting its strategy by working with small farmer groups, rather than the principally credit-supervision approach exercised prior to the project, aimed predominantly at individual medium and large farmers. During the first five years of project implementation extensionists periodically provided technical advice to small groups of farmers organized around contact farmers and demonstration plots. Through visits and demonstrations, extensionists promoted improved cultural practices and use of inputs. Extensionists also assisted farmers in preparing and processing credit proposals and helped banks supervise execution of financed farm development. Social extensionists were involved in the promotion of home economics, health, and nutrition education through women and youth groups.

3.04 In 1981, a farm survey was carried out by the state to evaluate progress in project execution and to justify an extension of the Loan Closing Date. The survey showed that some 20,000 farmers (3,000 more than targeted at appraisal) had been assisted. Until 1983, about 47% of farmers had received credit. After 1983, the number of farmers receiving credit dropped dramatically to 14% and farmers assisted, dropped to 22% of the targeted farmers in 1985. In 1986 no credit was available, and the extension service was inoperative for the better part of 1985 and 1986 (para. 3.02(a)).

3.05 Overall, the agricultural extension service succeeded in introducing improved cultural practices with varied success. The most widely adopted cultural practices were innovations that required the least cost, such as spacing, weeding techniques and ploughing. The application of fertilizer was used principally by farmers who irrigated and tobacco farmers who received credit independently from the banking system.

3.06 The effects of the above innovations on production were difficult to assess since the prolonged drought and shortage of credit affected yields especially for rainfed crops. The trends in yields were difficult to determine since the yields varied from year to year depending on the availability of water and rainfall, which again varied considerably within the project area. In addition, neither the Extension Service nor the Project Coordination Unit monitored agricultural yields throughout the project period. However, it is generally assumed that average yields decreased for almost every crop compared to those registered in 1977, at the time of appraisal. Nonetheless, within these constraints, farmers assisted by the project generally fared better than those without the project, and those farmers receiving credit and with legal title to their land, had higher yields than those farmers who were not assisted or who did not receive credit. In summary, the agricultural extension service up to 1983 performed reasonably well; however, its agricultural impact would have improved if regional advisory staff could have better responded to agricultural problems faced in the field and if extensionists had been provided with better technical direction by management. In this respect,

training of agricultural extensionists was not geared to serve farmers' needs adequately.

3.07 In general, the social extension program achieved poor results. This was due to the inadequate training of social extensionists, a large turnover of staff and a lack of a clear policy for implementation. The work was carried out in a piece-meal fashion with little or no coordination with health staff. Social extensionists spent most of their time paying house calls (when transport was available) to discuss with women social problems, child care, nutrition and matters related to general health and hygiene. These activities suffered from a lack of concrete action when further discussion became useless and the time for implementation became necessary. No funds were available to social extensionists for demonstration or community-level projects.

3.08 Agricultural Research and Seed Production. Unfortunately, research activities were mainly confined to research stations since EPABA (Bahian Agricultural Research Company) was delinquent in providing the Project Coordination Unit and the Agricultural Extension Service with a listing of useable results. This was a classic example of poor coordination between the execution agencies. However, some useful results were obtained in research stations and field trials such as: (a) testing of crop varieties of beans, tobacco and maize, in drought conditions, intercropping of castor with cowpeas and beans with maize; and (b) in irrigated areas, testing of rice, groundnuts, beans, soya, maize and horticulture crops such as garlic, onions, carrots, tomatoes, cabbage and pepper. In addition, EPABA successfully tested and introduced sorghum for human consumption and hay for animal feed. It also tested new cultural practices, such as spacing and double row planting for manioc, which permitted intercropping with beans. These practices were widely adopted in the region. Although some of the above technical packages were developed in the state's research centers only a few were disseminated in the project area. With reference to seed production, EPABA failed to produce any seed for distribution to farmers.

3.09 Agricultural Credit. Credit was one of the most problematic components after 1983. As long as funds were available, about 47% took credit during the first five years of implementation and only 14% during the remaining three years. The ever-increasing subsidy implicit in the differential between interest rates and inflation rates resulted in the rationing of credit by the Central Bank. The lowest in the priority list to receive credit were the poorer farmers. The number of farmers receiving credit stabilized at about 8,600 farmers in 1980 and 1981, then went down to 6,800 in 1982 and from 1983-86 went further down to an annual average of 2,430 farmers.

3.10 The results of the 1981 farm survey showed that of those farmers who received credit, 74% obtained it for the first time under the project. The items most frequently financed were (a) hired labor; (b) seeds and planting stock; and (c) family consumption. Within investment credit, the items most frequently financed were equipment and tools and construction improvements. The average investment credit loan was US$1,027. This amount was 88% above the average (US$546) for investment credit estimated

at appraisal. However, at appraisal it was estimated that 100% of working capital recipients would also take investment credit. In actual practice only about 25% did so, the reason being that about 63% of the farmers assisted were non-owners. Therefore, the majority could not qualify for credit, and of those, 23% were sharecroppers. The average working capital loan was US$725, 29% higher than appraisal estimates.

3.11 The relative abundance of highly subsidized credit until 1983 and the scarcity of credit thereafter clearly distorted farm investment and influenced farmers' willingness to adopt technical innovations. Throughout the project period there was a lack of systematic monitoring which resulted in poor, untimely allocation of funds within the banking network. Also, given the highly subsidized rates for small farmers and high administrative costs for each loan, local bank managers were reluctant to increase small farmer lending.

3.12 Mechanization and Input Supply. CAMAB (Bahia Fertilizers and Agricultural Equipment Company) achieved the poorest results in the project. CAMAB was required to open and maintain some 20 input supply stores in the project area, and to offer mechanized services to farmers for land clearing, land levelling, drainage works and construction of watering points for livestock. The network of 20 input supply stores was gradually reduced to two. The majority of the stores were never adequately supplied and poorly administered. After 1983, no funds were allocated in the annual operating plans for CAMAB operations. With reference to mechanized services to farmers, 130 farmers were assisted out of 2,595 targeted for 1978, and in 1979 only 29 farmers were assisted. In addition to poor management, CAMAB's agricultural equipment was mostly idle due to lack of spare parts and shortage of funds for operation and maintenance. In retrospect this component should have been cancelled in 1983 during the project review and not extended for an additional two years.

3.13 Irrigation (Technical Assistance) and Multipurpose Dams. Through a combination of factors this component produced poor results. The component was designed to provide technical support for irrigation activities, but not to finance off-farm or communal irrigation works and equipment, which would be financed through the investment credit component. However, when the project was amended in 1983, the Bank agreed to finance five small irrigation schemes. Firstly, in attempting to structure these small irrigation schemes, the project faced difficult political and administrative issues in relation to expropriation and redivision of land holdings so that benefits could be equitably distributed. Secondly, the State Engineering Company (CERB), had little experience in implementing irrigation, and although some feasibility studies were undertaken, none of the irrigation schemes were constructed.

3.14 With reference to multi-purpose dams for human consumption and small irrigation, none were constructed. The dams, which were intended to be of simple design and built with local materials, were overdesigned and much larger than foreseen at appraisal. Construction prices escalated rapidly, and this activity was finally dropped from the project prior to construction.

3.15 Rural Water Supply. The main problem in the execution of this component was the total lack of community participation by beneficiaries in the construction phase and in the operation and maintenance of the water systems. Some 115 rural water supply systems were constructed by CERB in two-thirds of the project municipalities. However, the component failed to establish water users associations or collect charges from their users. Training of system operators was carried out by CERB, a number of whom were paid by the municipality. Currently, the municipalities are covering the costs of operation and maintenance when funds are available. When funds are not available, the water systems remain inoperative.

3.16 Land Titling Services and Land Acquisition. With the exception of the land titling services, the achievements of the land institute were very disappointing. Although targets had been reduced during the project review only 2,200 ha of land were acquired and distributed to 78 farmers. In addition the land institute achieved its land titling target only because it had been reduced to 50% of the original appraisal target. The absence of trained staff, modern equipment, political will and the irreconcilable differences between CAR and the land institute delayed project execution. From 1983 onwards the pace picked up with the introduction of the aerophotogrammetric system, though the new techniques adopted were mainly carried out by outside consultants. Given the importance of land regularization and titling and the need to improve land acquisition and distribution to small and landless farmers, the Bank has financed a regional land project which became effective in March 1986.

3.17 Assistance to Cooperatives. As a result of project activities, the cooperatives became more active and membership increased by some 40%. Seven of the eight cooperatives started to market farmer produce, such as beans, maize and manioc flour. The two main activities of the cooperatives in the region were retailing of agricultural inputs and small marketing operations of farmers' produce. The main constraints to their activities were the non-availability of working capital and good management. When both were available, excellent services were provided to farmers, as was the case with Ipira and Castro de Alves Cooperatives. However, not all cooperatives performed equally well: for instance, the Riachao do Jacuipe went bankrupt and the one in Feira de Santana was reluctant to work with small farmers. Nonetheless, the Department of Cooperatives did a good job in providing training to cooperative managers in management and accounting techniques, cooperative philosophy and in the type of services which cooperatives could provide to its members. During an eight-year period the cooperatives marketed some 11,300 tons of agricultural products for 6,400 of its members.

3.18 Marketing and Storage. Although the Bank did not finance any direct marketing activities, almost all project components had some impact on the marketing system. For instance, the strengthening of cooperatives, construction of roads and warehouses and price information to farmers, all helped to improve the farmers' access to markets. However, the government financeed some marketing activities related to CAP (Advance Production Purchasing Program) and CEP (Surplus Purchasing Program). Both programs achieved only limited success since they both suffered from a lack of working capital.

3.19 With reference to storage, although the initial construction program of six warehouses was completed on time, it was evident that these warehouses proved to be unsuitable to small farmers and uneconomical to the State Warehouse Company operating them. During the project review, an additional 150 smaller community warehouses were planned, though only 25 were constructed. If there is one lesson which the Bank has learned regarding storage activities in the Northeast, it is that storage programs cannot be based only on absolute storage needs, that is, on volume of production versus storage space available. Other issues, such as proximity of the warehouse to farmers, administrative and managerial competence of the operating agency and viability of warehouse services for small farmers, should all be taken into account when planning crop storage programs. In the case of Paraguacu, these issues were not sufficiently considered. Currently, some of the warehouses are used as schools and community centers, others are used for crop and input storage, while others remain empty.

3.20 Education. This component achieved most of its physical targets. Some 12,000 children had, for the first time, access to primary education. In addition, the project successfully introduced a system of education and training supervisors to give guidance and support to teachers. A new curriculum and teaching materials were developed for grades 1-4 and some 88 % of teachers confirmed that the new teaching materials greatly facilitated their work. However, it is difficult to evaluate the quality of education given in schools since no survey was carried out among school leavers or children at school. Nonetheless, drop-out rates were registered and these are quite high. Out of 1,000 children entering Grade I, 278 progressed to Grade II, and only 3 reached grade VIII, compared to 182 who reached Grade VIII in urban areas. Another factor which may reflect the quality of education is the education level of the teachers. The majority had not finished primary school and some not even Grade IV. It is difficult to determine whether teachers' salaries were a reflection of their education level or a deliberate policy to recruit a maximum number of teachers within the limit of financial resources available. Whatever the reason, it is quite evident that teachers were poorly paid compared to the official minimum salary scale fixed by the Government. It is doubtful whether more qualified teachers could be recruited at the average wage of US$10.00-17.00 per month. The Bank is currently focussing attention on these issues, and a regional education project addressing these problems is under preparation.

3.21 Health. Whereas most construction and training targets were achieved, there was little community support generated for the operation of health posts. Most health post attendants were nominated by local politicians rather than selected by the community and found it difficult to work and obtain community cooperation for improvements in health and hygiene practices. In addition without transport facilities and per diems, health visitors found it difficult to carry out their outreach program. The health posts were not functioning at full capacity either because they were badly located or because they lacked vital supplies such as vaccines or medicines. The identification of these issues eventually led to their being addressed in a more comprehensive fashion in the recently approved Northeast Basic Health Services Project (Loan 2699-BR).

3.22 Feeder Roads. This component, which consisted of the design and construction of 1,140 km of feeder roads to facilitate access to markets and transport of goods, achieved some 73% of project targets. Major problems included drastic cuts in budgetary allocations from 1983 onwards and political interference in the selection process of municipalities which were responsible for road improvement and maintenance. Unfortunately little maintenance was carried out due to shortage of funds. On the positive side, some of the roads which were maintained or repaired by the Inter-Municipal Road Consortium of Bahia, did noticeably improve access throughout the project area.

3.23 Social Forestry. This component introduced in August 1984, was not implemented due to a shortage of funds.

Disbursements

3.24 The total amount disbursed amounted to US$26.37 million, or 71% of the loan amount (Annex 1, Table 4). Although most physical targets have been achieved, unit costs on many items were lower in US dollar terms than those estimated at appraisal because of the constant devaluation of the cruzeiro and some real cost savings. Also, Bank and Government expectations concerning execution capabilities for some components were overly optimistic. After 1983, disbursements improved with the establishment of the Special Account and a Central Bank advance system to pre-finance the Bank's share of project costs, improvements in funding channels, and an increase in the disbursement rate to about 67%.

Procurement

3.25 There were no procurement problems. International competitive bidding was not used because investments were generally too small, too diverse, and too dispersed. Nearly all goods and services were procured in accordance with local competitive bidding procedures, reviewed and found generally acceptable to Bank staff. Civil works were carried out through a combination of self-help and force account.

Reports and Auditing

3.26 Reporting. This was generally carried out quarterly, though at times on a six monthly basis. The reports were generally too long and contained mostly physical and financial data and little information on quality of services or inputs delivered to farmers (para. 5.06 below).

3.27 Accounts and Auditing. Separate project accounts were maintained by each executing agency. the audits were performed by the Secretaria de Controle Interno (SECIN), the Federal Government's internal auditors. Although audit reports were generally found to be satisfactory, the Bank sought to improve auditing procedures. In this respect, a Bank review of Brazilian auditing procedures has taken place, and the Government and the Bank have discussed ways of improving the quality, independence, and timeliness of the audits.

Adherence to Covenants

3.28 In general, adherence to the Loan and Project Agreements was satisfactory, with the exception of the following major areas related to (a) provision of counterpart funds; (b) availability, lending policies and procedures for rural credit; (c) the establishment of water users associations; (d) allocation of sufficient funds to municipalities for road maintenance and; (e) payment of salaries to teachers appropriate to the teacher salary scale of the state. In addition to these major areas of non-compliance, a number of specific covenants lost their initial relevance due to changed circumstances during project implementation.

IV. ECONOMIC AND AGRICULTURAL IMPACT

On-Farm Benefits

4.01 The lack of an efficient monitoring and evaluation system throughout the project period, has made it difficult to estimate farmers' benefits. However, it is well known that the prolonged drought from 1979 to 1983 resulted in sharp area and production declines for all crops. The only yield estimates available are those based on a farm survey carried out in 1981 and therefore, the conclusions regarding project impact are drawn from that survey.

4.02 The weighted average income from on-farm agricultural activities at full development of rainfed farmers who received project services was about US$719 per annum, about half the income estimated at appraisal. However, the overall weighted average income including off-farmer income, was about US$1,300 per annum, almost equivalent to the appraisal estimate. Income from on-farm agricultural activities for farmers without project services was only US$144 per annum. Total income for farmers without project services was estimated at US$720 per annum, 71% of which was off-farm earnings. The proportion of farmer's income obtained from off-farm sources decreased rapidly to 19% for farmers who received credit and technical assistance, dropping still further to 4% for those who received title.

Rate of Return

4.03 The overall rate of return for the project has been estimated at about 11% over a 15-year period, which is lower than the original appraisal estimate of about 15% (Annex 1, Table 5). However, this rate is only indicative since benefits were derived from data obtained during the farm survey carried out in 1981. Incremental benefits were estimated for all farmers assisted by the project on the assumption that they reached average levels of incremental production as shown in the farm survey. Their benefits remain at those levels throughout the project period, since credit availability was severely reduced by government during the last three years of project implementation, and the situation remains uncertain. Actual project costs were included for years 1-8, except for those costs related to social components (19% of total costs) for which benefits cannot be readily estimated. It was also assumed that costs for extension, research and administration would gradually decline over seven years until they reach 10% of year 8 costs.

Other Benefits

4.04 A number of project benefits are not reflected in the economic rate of return analysis. Road transport, basic health and education facilities, and safe drinking water became much more accessible in the project areas, either because they were directly financed by the projects or because the projects attracted complementary investments. In addition, the project was responsible for the development of an institutional framework which should result in the increased efficiency of future rural development efforts.

V. INSTITUTIONAL PERFORMANCE

General

5.01 Overall institutional performance was mixed. Numerous federal, regional and state agencies were involved in the planning, execution, coordination and supervision of the project. The second year of implementation coincided with a change in the administration of the state Governor and this led to a large-scale replacement of state employees, including the project manager and many who worked in the various implementing agencies. Again, in 1985/86 during the seventh and eighth years of implementation, a political crisis developed and the extension service was inoperative for more than one year, which resulted in project management being replaced. These abrupt changes combined with a shortage of agricultural credit and late arrival of counterpart funds contributed to the poor performance in project implementation after 1983. Project coordination and cooperation between the various implementing agencies was never smooth and at times led to periodic paralysis in project implementation. In addition, competition and duplication among the various levels of government and among agencies at each level and the rapid expansion and large turn-over of staff hampered efficiency and continuity in project implementation.

Federal Level

5.02 The project was subject to a number of different coordinating arrangements at the federal level. Responsibility for major program decisions remained diffuse, involving a number of different ministries. The lack of clear institutional leadership at the federal level was at least partially responsible for the persistence of several major project problems, including those related to credit, land acquisition and counterpart funding.

Regional Level

5.03 The POLONORDESTE unit within SUDENE provided regional coordination and supervision for the entire POLONORDESTE program, including the Paraguacu project. Although the unit managed to perform necessary administrative tasks, such as budget consolidation, which allowed program implementation to proceed, it was never able to fulfill its technical assistance and quality control roles. SUDENE's overall institutional difficulties, coupled with the unit's lack of status within SUDENE, created permanent shortages in financial and human resources. In particular, the shortage of trained, motivated personnel was acute. As a result, the POLONORDESTE unit at times was perceived by both federal and state agencies as little more than an additional layer of bureaucracy.

State Level

5.04 Project Organization and Administration. The most glaring deficiencies in project organization and administration were: (a) the heavily centralized structure of the project; and (b) independent nature of line agencies which made coordination extremely difficult. However, within these constraints the project's unit performed satisfactorily.

(a) A centralized structure. It is difficult to see how the project unit could have improved the organization and administration of the project, as long as it was politically impossible to decentralize either the decision making process or transfer some other responsibilities to its regional offices in the project area. This was especially important given that there were 18 different components covering an area of more than 60,000 km^2. The heavily centralized nature of the project often caused delays in project implementation since regional managers could not make any decisions without first obtaining approval from management in Salvador.

(b) Lack of authority. At the same time the independent nature of line agencies meant that some of them were not obliged to cooperate with the project unit especially when their interests did not coincide with the project's philosophy or program of activities. This often undermined the unit's authority particularly in the field, and in turn did not particularly enhance the efforts of regional managers to coordinate project activities in their areas.

5.05 Among line agencies, performance was mixed. For some activities, such as land services, water supply, irrigation, storage, multi-purpose dams, mechanization, agricultural research and input-supply, the executing agencies performed poorly. For others, such as health, education, agricultural extension, assistance to cooperatives and roads, the project succeeded in improving institutional capacity. However, the absence of beneficiary participation in project planning and implementation resulted in poor performance where beneficiary cooperation was required for operation and maintenance of public works.

5.06 Monitoring and Evaluation. he lack of a consistent, well designed monitoring and an on-going evaluation system seriously affected the performance of project implementation and unfortunately, has meant that not enough is known about the impact of project activities on the target population. Monitoring activities were mainly oriented toward financial and physical progress rather than towards measurement of benefits or of services delivered to farmers. Moreover, monitoring was seen as a data collecting system for reporting rather than as a management tool for planning and correcting implementation problems. Occasional visits to the field by staff from the project coordinating unit to investigate issues and problems merely aggravated the situation since field staff from other line agencies considered them as intruders who did not understand their problems and who merely came to visit them for a change from their urban environment. Evaluation was conceptualized in an overly sophisticated

academic way by carrying out one detailed farm survey during the project period; this was of little use either to management or field staff, since many of the problems identified were ignored or had changed several times during the first four years of implementation.

5.07 Under the Northeast Rural Development Program, efforts are being made by SUDENE and the Bank to improve monitoring and evaluation systems throughout the Northeast by providing regional training courses and technical assistance to states.

VI. BANK PERFORMANCE

6.01 Bank performance was mixed. Its main flaw was that it overestimated the institutional capacity of several state agencies and their implementation capabilities. The most notorious were the State Engineering Company which had no expertise in irrigation, the Land Institute, and the State Fertilizer and Agricultural Equipment Company which accomplished little during the life of the project. The Bank also overoptimistically assumed that participation by project beneficiaries would be so easily forthcoming, when social extensionists and other field staff were insufficiently trained to do the job. Hence, the assumption that water users' associations would be established by social extensionists proved to be totally erroneous. In 1983, prior to the extension of the project, and after the state had carried out an evaluation of the project, the Bank could have introduced substantial changes. At that time it could have eliminated some components and reduced targets of others because the mid-term review had revealed the weaknesses in project implementation. However, the Bank did introduce some changes to project design, but this was insufficient (para. 2.05). Indeed, the extension of the project resulted in increasing the number of project components from 15-18 instead of reducing them.

6.02 Many of the project's supervision problems were caused by the excessive number of components. However, many of the problems would have prevailed even with fewer components. For instance, in those cases in the Northeast where the Bank tried to limit components (most notably in Rio Grande do Norte), the Brazilians financed excluded components (e.g., education and roads) with their own resources because they firmly believed that the various interventions were essential to resolve development problems in the microregions concerned. Where the Bank's responsibility lies is in the insufficient allocation of supervision time. The number of manweeks per project allocated to supervision was subdivided among many components. This resulted in less time being devoted to each component and therefore supervision became less effective and, in some instances, a contributing factor to the implementation problems. Therefore, the answer is not only to reduce the number of components, but also to provide adequate time for supervision.

6.03 During the last three years of the project, time allocated to supervision decreased since the Bank devoted much of its time to the preparation and appraisal of Northeast projects. For example, supervision of the Paraguacu project varied from 20-40 staff days per mission up to 1983, and from 1983-86 supervision was reduced from 7-13 staff days per

mission. All this meant that the Bank focussed less attention on concrete technical issues and ways of improving delivery systems. Nonetheless, on the positive side, Bank missions have done a good job in identifying and analyzing some major implementation problems, and although many of these could not be resolved, they helped to focus on some priority issues which formed the basis for the preparation of the Northeast Program.

VII. CONCLUSIONS AND RECOMMENDATIONS

7.01 The POLONORDESTE projects including the Paraguacu project were the first of a series of projects which were based on an integrated development approach for specific target groups of small farmers in the Northeast. Given the paucity of educational, health and agricultural services for small farmers and the lack of infrastructure in rural areas, these projects attempted, for the first time, to provide development packages which included a wide range of infrastructural and technical services to a target population which had, for the most part, been neglected except for the occasional drought relief emergency program and small resettlement scheme.

7.02 Unfortunately, although the Paraguacu project was far too ambitious both in design and scope, other important issues were not given sufficient attention such as: (a) whether there existed a substantial political commitment to the development of small farming families in the Paraguacu area; (b) an over-optimistic view that state agencies had the institutional and technical capacity to implement all project activities; (c) an assumption that farmer participation would be easily forthcoming since project inputs and services were supposed to satisfy farmers' needs; and (d) an over-optimistic view of the willingness of state agencies to cooperate with each other and with project management in the implementation of project activities.

7.03 The issues mentioned above are reflected in one way or another in the non-performance or poor performance of several Federal and State agencies, such as: the shortage and late arrival of counterpart funds; the shortage of rural credit after 1983; and the poor performance of the State Land Institute, the Agricultural Research Company, the State Mechanization and Input Supply Company and State Engineering Company.

7.04 However, the Paraguacu project did generate social and economic benefits for its target population. Some of these benefits are difficult to define, either because they are unquantifiable, or because the project lacked an efficient monitoring and evaluation system and therefore did not register them. Nonetheless, the project succeeded in increasing education and health services were none existed prior to the project, and despite a lower than expected rate of return, farmers assisted increased their incomes substantially. In addition, the experiences of the Paraguacu and other POLONORDESTE projects helped the Government to focus increased attention on small farmer development in the Northeast by approving in April 1985 a new multi-billion dollar 15-year development program which emphasizes investment in agriculture and places priority on increasing small farmer production, productivity and access to land. In this respect, it may also be said that as a result of a change in the political climate in the country, Federal and State agencies have come to realize that small

farmer development is no longer a fad, as it may have been in the mid-seventies, but a major issue in the development of the Northeast which cannot be ignored. This has required a change in institutional policies and strategies to better respond to increased pressures from small farmers and their leaders, who are no longer satisfied to remain mere spectators while others make decisions for them, but will want to participate fully in matters that concern their livelihood and welfare.

7.05 A number of lessons can be drawn from the Paraguacu project. Many of these lessons have been incorporated to the "second generation" of Northeast Rural Development Program which began in 1985, and are summarized as follows:

(a) In rural development projects which aim at poverty alleviation, agricultural investment and increased food crop production, these should also include concrete measures for dealing with insecure land tenure, the development of water resources and farmer participation in the decision making process.

(b) In projects which rely on the creation of water users associations, there is a need to provide a step by step implementation strategy for their gradual establishment and the necessary resources for institution building at the grassroots level.

(c) There must be a political commitment to decentralize organizational, administrative and planning functions to the regional and micro-regional level, if farmer participation in the decision making process and execution of project activities is to become a reality. In this respect, monitoring and evaluation of project activities should be strengthened and decentralized to the regional level since it is an essential tool of the planning and organizational process.

(d) Whereas institutional development is an essential process for ensuring better delivery of inputs and services to project beneficiaries, it should also be recognized that some institutional constraints would be more efficiently addressed in a sectoral project (e.g., education and health), where a more comprehensive and technical approach can be adopted to deal with fundamental issues.

(e) In rural development project design, there is a need for increased "built in" flexibility, through the establishment of indicative targets and explicit recognition of the project as a "time slice" in a long-term investment program; equally, similar flexibility could be maintained in the legal documents through fewer detailed covenants.

(f) Supervision of multi-sectoral projects is complex, since these projects include several different disciplines and therefore require different subject matter specialists. In this respect sufficient supervision time should be provided to focus on common problems of a regional or national scope, as well as those that are project specific.

BRAZIL

BAHIA RURAL DEVELOPMENT PROJECT - PARAGUACU
(Loan 1589-BR)

PROJECT COMPLETION REPORT

PROJECT TARGETS AND ACCOMPLISHMENTS

Component	Unit	Updated Appraisal Estimate (1983)	Accomplishments Actual (1985)	Accomplishments % Actual Appraised
1. Rural Extension				
Farmers Assisted	No.	32,240	21,026	65
Area Covered	Ha.	647,963	317,034	49
Small Farmer Groups	No.	1,612	886	55
Extension Agents				
(i) Agricultural	No.	124	127	102
(ii) Social	No.	74	78	105
Small Farmers Attended/Agent	No.	185	174	94
Demonstrations Units Established	No.	6,255	1,752	28
Livestock Treated	No.	41,380	27,637	67
2. Agricultural Research				
Regional Offices	No.	3	3	100
Farm Trials	No.	400	421	105
Seeds: Rice	Kg.	54,480	-	-
Groundnuts	Kg.	25,020	-	-
Beans	Kg.	2,130,884	-	-
Tobacco	Seedlings	138,000	-	-
Maize	Kg.	659,280	-	-
Soybeans	Kg.	14,640	-	-
3. Titling Services				
Titles Issued	No.	7,500	8,281	110
Land Acquired/Distributed	Ha.	44,000	2,208	5.0
Area Discriminated	Ha.	100,000	-	-
Small Farmers Settled	No.	1,900	78	4.0
4. Assistance to Cooperatives				
Assistance to Cooperatives	No.	8	8	100
Farmers Assisted	No.	-	6,400	-
Crops Marketed	Tons	-	11,300	-
5. Irrigation				
Studies	No.	5	5	100
Training of Agents	No.	29	29	100
Construction of Training Center	No.	1	1	100
Improvement of Small Systems	No.	1,500	680	46
Farmers Assisted	No.	500	243	49

Component	Unit	Updated Appraisal Estimate (1983)	Accomplishments Actual (1985)		% Actual Appraised
6. Mechanization/Input Supply					
Construction of Workshop	No.	1	1		100
Farmers Assisted until 1979	No.	6,890	159		2
Input Supply Stores Established	No.	20	11		55
7. Multipurpose Dams					
Dams Constructed	No.	12	-		-
Feasibility Studies	No.	12	13		108
8. Storage					
Warehouses (700 t)	No.	6	6		100
Warehouses (50-200 t)	No.	150	25		170
9. Rural Credit					
Number of Farmers (Seasonal and Investment)	Average/1980/82 No./Year		17,000	8,000	47
	Average/1983/85 No./Year		17,000	2,433	14
10. Rural Roads					
Constructed	Km.		1,263	924	73
11. Health					
Construction of Miniposts	No.	50	104		208
Construction of Health Centers	No.	27	11		11
Immunization	No.	110,000	170,200		154
Training of Health Attendants	No.	60	152		254
Training of Health Visitors	No.	13	67		516
Training of Midwives	No.	50	85		170
Training of Laboratory Assistants	No.	13	12		92
12. Water Supply					
Type I	No.	130	95		73
Type II	No.	26	8		30
Type III	No.	8	0		
Type IV	No.	1	0		
Operators Trained	No.	165	103		63
Water Users Associations Established	No.	70	-		-

Component	Unit	Updated Appraisal Estimate (1983)	Accomplishments Actual (1985)	Accomplishments % Actual Appraised
13. Education				
Schools:				
Constructed	No.	100	83	83
Repaired	No.	59	102	178
Student Places	No.	14,000	11,690	84
Adult & Youth Vocational Training	No.	1,700	2,855	167
Training of Teachers	No.	3,700	5,775	156
Training of Supervisors	No.	259	245	94
14. Social Forestry				
Production of Seedlings	No.	-	0	0
Distribution to Farmers	No.	-	0	0

ANNEX 1
Table 2

BRAZIL

BAHIA RURAL DEVELOPMENT PROJECT - PARAGUACU
(LOAN 1589-BR)

PROJECT COMPLETION REPORT

ANNUAL PROJECT COSTS
(US$'000)

CATEGORY	78/79	79/80	80/81	81/82	82/83	83/84	84/85	85/86	TOTAL
	1	2	3	4	5	6	7	8	17,193
1 [illegible] Extension	1,695	1,898	2,093	2,859	2,536	3,258	2,851	3	3,526
tural Research	560	326	486	430	440	362	559	363	3,349
tling Services	787	696	616	354	-	-	417	479	1,129
nce to Cooperatives	97	152	152	153	133	142	139	161	638
ion/T.A.	265	111	28	46	23	148	17	-	-
zation	58	-	-	-	-	-	-	-	112
rpose Dams	110	98	19	894	-	-	-	-	499
	216	167	-	-	-	72	43	1	6,307
Total	-	9	1,449	2,224	498	481	1,065	589	-
[illegible] oads	637	1,937	3,049	2,871	1,008	1,428	681	47	11,658
alth	328	322	230	489	212	408	581	131	2,701
[illegible] pply	94	269	614	582	507	742	727	213	3,748
[illegible] ation = M&E	686	641	640	1,022	5,916	973	1,223	1,049	12,150
[illegible]	350	132	1,007	836	722	681	571	487	4,786
[illegible] on	-	-	-	-	-	-	65	104	169
[illegible] t. (SUDENE)	-	-	-	-	-	-	-	-	1,454
[illegible] y	5,883	6,750	10,383	12,760	11,995	8,695	8,939	6,705	70,486

ANNEX 1
Table 3

BRAZIL

BAHIA RURAL DEVELOPMENT PROJECT - PARAGUACU

TOTAL PROJECT COSTS
(U.S. $ million)

Component	Appraisal Estimate	Revised Estimate	Actual	Actual as % of Appraisal Estimate	Actual as % of Revised Estimate
1. Rural Extension	11.6	19.3	17.2	148	90
2. Agricultural Research	2.7	4.1	3.5	129	85
3. Land Titling Services	5.9	8.63	3.3	56	38
4. Assistance to Cooperatives	0.7	1.36	1.1	157	81
5. Irrigation/Technical Assistance	0.7	0.25	0.6	86	240
6. Mechanization	0.2	0.04	0.06	30	150
7. Multipurpose Dams	1.8	0.19	1.3	72	684
8. Storage	0.5	1.02	0.5	100	50
9. Credit/Total	26.7	27.04	6.3	24	23
10. Land Purchase Credit	2.8	-	-	-	-
11. Rural Roads	18.8	13.24	11.7	62	88
12. Health and Water Supply	4.5	8.82	6.4	142	73
13. Evaluation (final)	0.7	0.9	0.44	78	49
14. Education	6.1	5.64	4.8	63	85
15. Small Irrigation	-	1.64	0.17	-	10
16. Technical Assistance (SUDENE)	-	1.16	1.45	-	125
17. Social Forestry	-	0.37	0.0	-	0
18. Project Administration/M&E	3.4	5.66	11.7	344	206
19. Unallocated	19.5				
Total	106.6	99.36	70.52	66	71

ANNEX 1
Table 4

BRAZIL

BAHIA RURAL DEVELOPMENT PROJECT - PARAGUACU
(LOAN 1589-BR)

PROJECT COMPLETION REPORT

WITHDRAWAL OF THE PROCEEDS OF THE LOAN

Category	Amount of the Loan Allocated US$ Equivalent	Amount of the Loan Reallocated in September 7, 1983	Amount Disbursed	Disbursed/ Allocated (%)
FUND: Special Account			20,242,63	
1. Rural Extension	4,150,000	6,881,000	7,311,569,91	106
2. Agricultural Research	1,000,000	1,467,000	1,129,273,93	77
3. Land Titling Services	2,100,000	3,082,000	940,453,57	31
4. Assistance to Cooperatives	250,000	486,000	557,874,73	114
5. Irrigation/Technical Assistance	250,000	80,000	67,131,18	84
6. Mechanization	50,000	15,000	11,893,65	80
7. Multipurpose Dams	600,000	65,000	60,578,93	93
8. Storage	150,000	366,000	124,533,28	34
9. Credit/Total	9,450,000	9,658,000	4,277,813,00	44
10. Rural Roads	6,750,000	4,730,000	3,150,975,00	67
11. Health and Water Supply	!,600,000	3,153,000	2,225,229,24	71
12. Evaluation	250,000	320,000	156,576,27	49
13. Education	2,200,000	2,015,000	1,174,881,25	58
14. Small Irrigation	-	584.000	37,959,67	6
15. Technical Assistance (SUDENE)	-	1,166,000	1,453,731,16	124
16. Social Forestry	-	132,000	0,00	0
17. Administration and M&E	1,200,000	2,020,000	2,919,996,13	144
18. Consultant Service	-	200,000	787,723,32	393
19. Non Allocated	7,000,000	580,000	0.00	0
	37,000,000	37,000,000	26,367,951,57	71

BRAZIL

PARAGUACU RURAL DEVELOPMENT PROJECT - LOAN 1589-BR

Indicative Economic Costs and Benefits

(in 1986 Cruzados)

	1	2	3	4	5	6	7	8	9	10	11	12	13	14-15
INCREMENTAL BENEFITS														
BENEFITS	-	-	1011000	10557000	21619000	31105000	33912000	32924000	42294000	52311000	52311000	52311000	52311000	52311000
PROJECT COSTS														
RURAL EXTENSION	7329333	7983704	9486336	11112589	9619178	16413807	15468492	1674000	1422900	1171800	920700	669600	418500	167400
AGRICULTURAL RESEARCH	2690545	1523643	2447502	1857065	1854381	2026396	3369924	2250600	1879251	1507902	1136553	765204	393855	22506
LAND TITLING SERVICES	3781176	3252932	3102183	1528839	-	-	2513879	2969800	-	-	-	-	-	-
ASSISTANCE TO COOPERATIVES	466041	710410	765474	660770	560529	794885	837960	998200	-	-	-	-	-	-
IRRIGATION TA	1273204	518787	141003	198663	96934	828471	102484	-	-	-	-	-	-	-
MECHANIZATION	278664	-	-	-	-	-	-	-	-	-	-	-	-	-
MULTIPURPOSE DAMS	528500	458028	95684	3860967	-	-	-	-	-	-	-	-	-	-
STORAGE	1037782	780517	-	-	-	4030400	259225	6200	-	-	-	-	-	-
RURAL ROADS	3060495	9053059	15354801	12399147	4248217	7993628	4105399	291400	-	-	-	-	-	-
WATER SUPPLY	451627	1257239	3092111	2513516	2136752	4153552	4382709	1320600	-	-	-	-	-	-
ADMINISTRATION	2636734	2396700	2578438	3531014	1994639	4357311	5898271	5203040	4422584	3642128	2861672	2081216	1300760	520304
SMALL IRRIGATION	-	-	-	-	-	-	391852	644800	-	-	-	-	-	-
TOTAL COSTS	23534101	27935019	37063537	37662570	38462382	40598450	37330195	15358640	7724735	6321830	4918925	3516020	2113115	710210
TOTAL INCREMENTAL NET BENEFITS	-23534101	-27935019	-36052537	-27105570	-16843382	-9493450	-3418195	17565360	34569265	45989170	47392075	48794980	50197885	51600790

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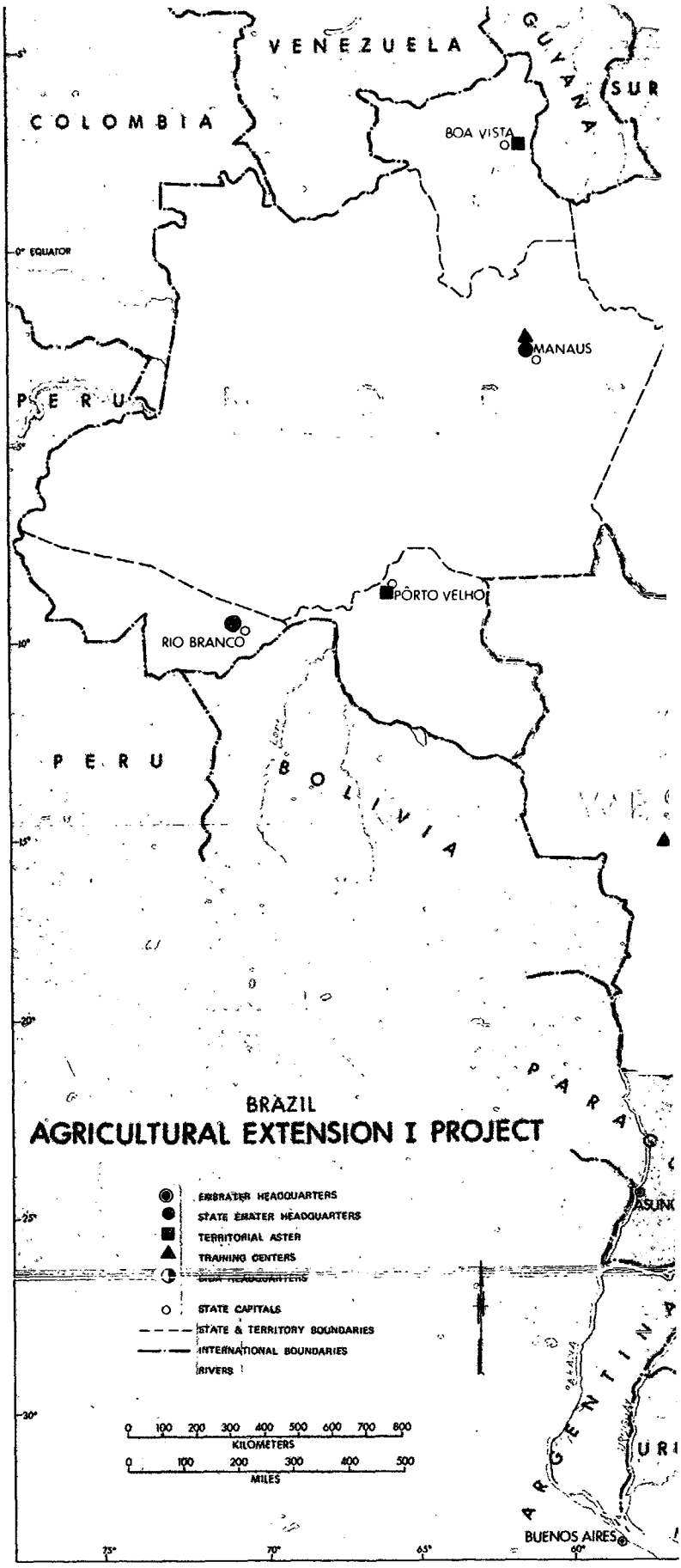
Internal Rates of Return of Net Streams

NTOT 10.65%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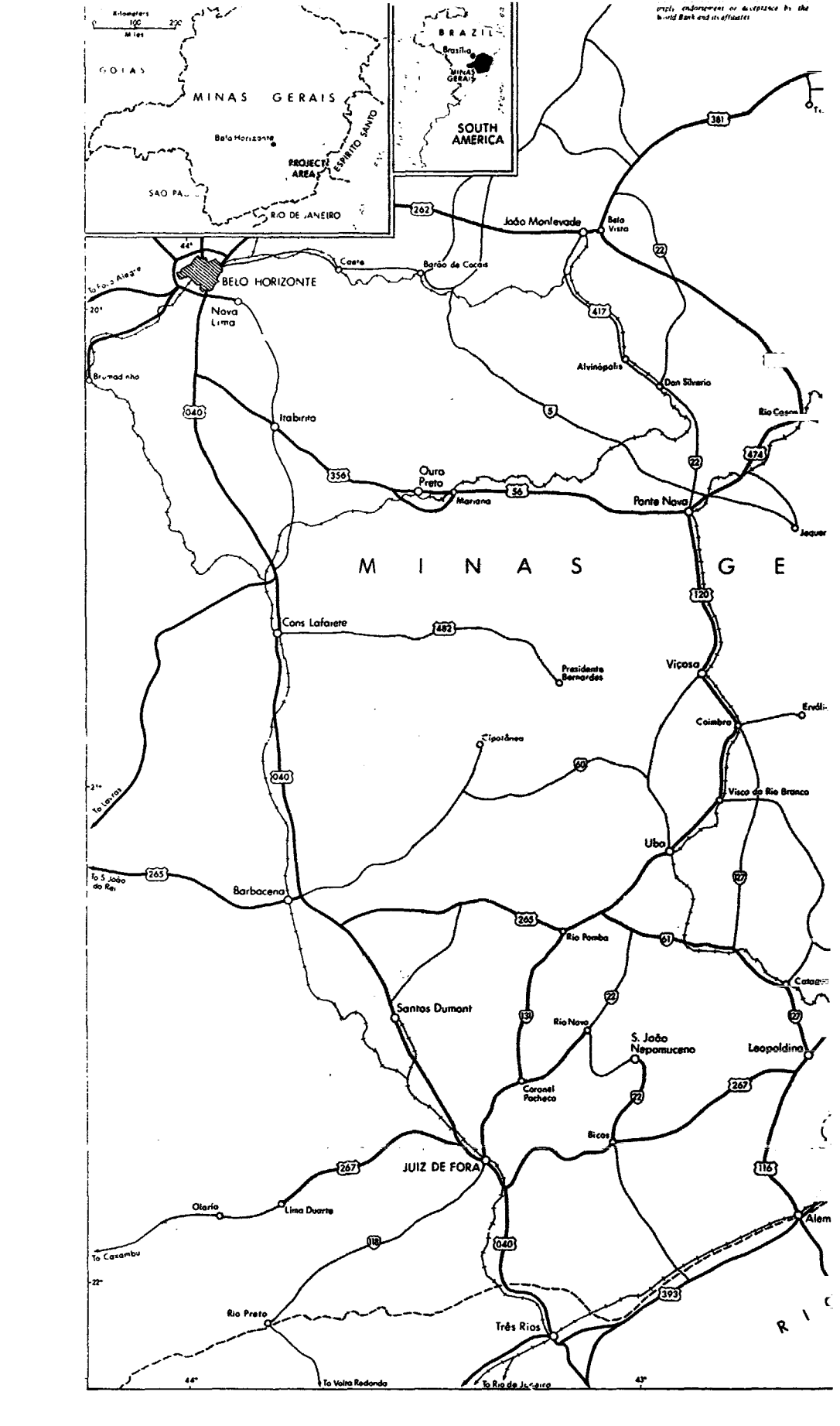
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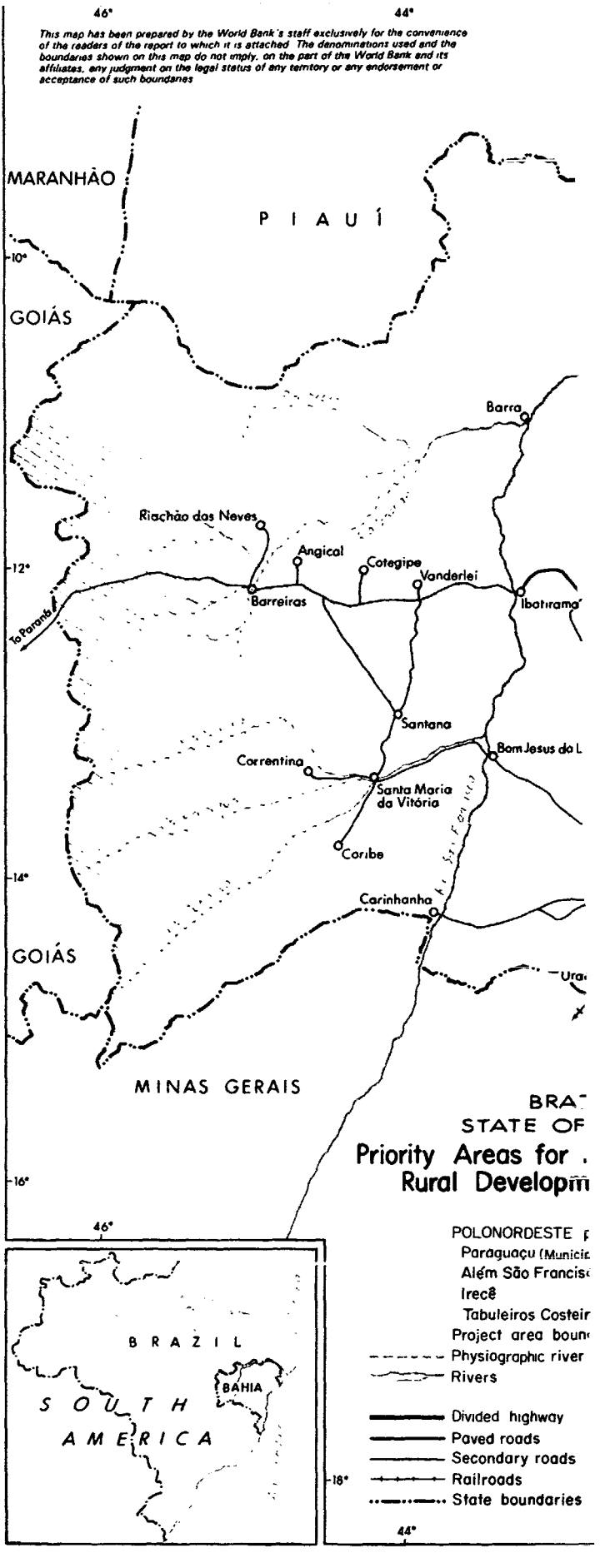
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Paved roads
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Railroads
State boundaries

BRAZIL
STATE OF BAHIA

Paraguaçu Basin Rural Development Project

PROJECT AREA

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