

CONFORMED COPY

LOAN NUMBER 3130-BR

Loan Agreement

(Third Agricultural Research Project)

between

FEDERATIVE REPUBLIC OF BRAZIL

and

INTERNATIONAL BANK FOR RECONSTRUCTION  
AND DEVELOPMENT

Dated January 10, 1990

LOAN NUMBER 3130-BR

LOAN AGREEMENT

AGREEMENT, dated January 10, 1990, between THE FEDERATIVE REPUBLIC OF BRAZIL (the Borrower) and INTERNATIONAL BANK FOR RECONSTRUCTION AND DEVELOPMENT (the Bank).

WHEREAS (A) the Borrower, having satisfied itself as to the feasibility and priority of the Project described in Schedule 2 to this Agreement, has requested the Bank to assist in the financing of the Project;

(B) the Project will be carried out by Empresa Brasileira de Pesquisa Agropecuaria (hereinafter referred to as EMBRAPA) with the Borrower's assistance, and the Borrower will make available to EMBRAPA the proceeds of the Loan pursuant to the Subsidiary Agreement (as hereinafter defined); and

WHEREAS the Bank has agreed, on the basis, inter alia, of the foregoing, to extend the Loan to the Borrower upon the terms and conditions set forth in this Agreement and in the Project Agreement of even date herewith between the Bank and EMBRAPA;

NOW THEREFORE the parties hereto hereby agree as follows:

ARTICLE I

General Conditions; Definitions

Section 1.01. The "General Conditions Applicable to Loan and Guarantee Agreements" of the Bank, dated January 1, 1985, with the last sentence of Section 3.02 deleted (the General Conditions) constitute an integral part of this Agreement.

Section 1.02. Unless the context otherwise requires, the several terms defined in the General Conditions and in the Preamble to this Agreement have the respective meanings therein set forth and the following additional terms have the following meanings:

(a) "Account Bank" means Central Bank in respect of the CESA and the Bank referred to in Section 2.02 (c) of this Agreement in respect of the FESA;

(b) "Central Bank" means Banco Central do Brasil, the central bank of the Borrower;

(c) "CESA" means the local expenditures special account to be opened pursuant to Section 2.02 (b) of this Agreement;

(d) "Contractual Arrangement" means an agreement entered into or to be entered into by EMBRAPA and a Participating Entity pursuant to Section 2.04 (a) of the Project Agreement and which includes the terms and conditions for Contractual Arrangements set out in Schedule 2 of the Project Agreement, and "Contractual Arrangements" means collectively all such Contractual Arrangements;

(e) "Cruzado Novo" means the legal currency unit of the Borrower;

(f) "DOC" means the Department of Budget, Departamento de Orcamento e Catacao de Recursos established within EMBRAPA;

(g) "DPLN means EMBRAPA's Department of Planning;

(h) "FESA" means the foreign exchange expenditures special account to be opened pursuant to Section 2.02 (c) of this Agreement;

(i) "FSRMM" means Adicional ao Frete Para a Renovacao da Marinha Mercante-AFRMM, the Borrower's Freight Surcharge for the Renewal of the Merchant Marina established by Decree Law 1.142 of December 30, 1970, as amended to December 31, 1987, or any other tax, levy or charge that, in the reasonable opinion of the Bank, may substitute it, in whole or in part, after January 1, 1988;

(j) "Legal Amazon" means for the purposes of the Project the region in Brazil which comprises the States of Amazonas, Acre, Para, Rondonia, Amapa, Roraima, northern Mato Grosso (north of 16 South) and the State of Tocantins;

(k) "Northeast" means the northeast region of Brazil comprising the States of Maranhao, Piaui, Ceara, Rio Grande do Norte, Paraiba, Pernambuco, Alagoas, Sergipe and Bahia;

(l) "National Research Center" means any of the national research centers of EMBRAPA;

(m) "Other Contractual Arrangement" means an agreement entered into by EMBRAPA and a Participating Entity pursuant to Section 2.04 (b) of the Project Agreement, and which shall be made on terms and conditions satisfactory to the Bank and with the Bank's prior approval;

(n) "Participating Entity" means a party to a Contractual Arrangement or an Other Contractual Arrangement entered into with EMBRAPA which party may be a State Research Agency, a Participating State, or a University or any other entity as agreed to by the Bank from time to time pursuant to Section 2.04 (a) and (b) of the Project Agreement; and "Participating Entities" means collectively all such parties;

(o) "Participating States" means collectively, the States of Amapa, Amazonas,

Acre, Para, Rondonia, Roraima, Toncatins, Piaui, Maranhao, Mato Grosso, Ceara, Rio Grande do Norte, Paraiba, Pernambuco, Alagoas, Sergipe and Bahia, and "Participating State" means any such State;

(p) "PAT" means each annual operational plan (Plano Anual de Trabalho) to be prepared by each Participating Entity in respect of the carrying out of a portion or part or parts of the Project, and by EMBRAPA in relation to a portion or parts of the Project carried out by its National Research Centers and Regional Research Centers, and "PATS" means all such annual operational plans; and "Consolidated PAT" means the consolidated annual operational plan (Plano Anual de Trabalho Consolidado) prepared in each year of the Project by EMBRAPA and referred to in Section 2.08 (a) of the Project Agreement, and which includes a plan specifying proposed research programs; training, civil works construction, procurement and technical assistance proposals; implementation schedules; related budgets; and sources of funds required to carry out the Project;

(q) "Plano de Aplicacao" means the annual plan agreed to at the beginning of each fiscal year between the Ministry of Agriculture, Secretaria de Planejamento e Coordenacao da Presidencia da Republica and the Treasury, all of the Borrower, for release of funds for expenditures required to carry out the relevant consolidated PAT to be financed by the Borrower either from the counterpart funds or from the proceeds of the Loan;

(r) "Project Agreement" means the agreement between the Bank and EMBRAPA of even date herewith, as the same may be amended from time to time, and such term includes all schedules supplemental to the Project Agreement;

(s) "Project Area" means the areas of the Legal Amazon and the Northeast together;

(t) "Project Coordinator" means the project coordinator to be appointed within DOC (as hereafter defined) by the Board of Directors of EMBRAPA in accordance with the provisions of Section 2.06 of the Project Agreement;

(u) "Regional Research Coordinator" means each of the regional research coordinators to be appointed by EMBRAPA in each of the two Regional Research Centers in accordance with the provisions of Section 2.07 of the Project Agreement, and "Regional Research Coordinators" means both such Regional Research Coordinators together;

(v) "Subsidiary Agreement" means an agreement to be entered into between the Borrower through the Ministry of Agriculture and EMBRAPA pursuant to Section 3.01 (b) of this Agreement, as the same may be amended from time to time, and such term includes all schedules and agreements supplemental to the Subsidiary Agreement;

(w) "Regional Research Center" means each of the Centro de Pesquisa Agropecuaria do Tropicó Umido, Research Center for Agriculture in the Humid Tropics (hereafter CPATU), and Centro de Pesquisa Agropecuaria do Tropicó Semi-Arido, Research Center for Agriculture in the Semi-Arid Tropics, (hereafter CPATSA) of EMBRAPA, and "Regional Research Centers" means both such centers' together;

(x) "State Research Agency" means a research agency within the Project Area which has entered into a Contractual Arrangement with EMBRAPA, in accordance with the provisions of Section 2.04 (a) of the Project Agreement, for the purposes of carrying out certain activities under the Project and "State Research Agencies" means collectively all such agencies;

(y) "Treasury" means the Secretariat of the National Treasury, Secretaria do Tesouro Nacional, of the Ministry of Finance, Ministerio da Fazenda, of the Borrower; and

(z) "University" means a state, federal, or private university carrying out research for the purposes of the Project.

## ARTICLE II

## The Loan

Section 2.01. The Bank agrees to lend to the Borrower, on the terms and conditions set forth or referred to in the Loan Agreement, various currencies that shall have an aggregate value equivalent to the amount of forty-seven million dollars (\$47,000,000), being the sum of withdrawals of the proceeds of the Loan, with each withdrawal valued by the Bank as of the date of such withdrawal.

Section 2.02. (a) The amount of the Loan may be withdrawn from the Loan Account in accordance with the provisions of Schedule 1 to this Agreement for expenditures made (or, if the Bank shall so agree, to be made) in respect of the reasonable cost of goods and services required for the Project described in Schedule 2 to this Agreement and to be financed out of the proceeds of the Loan.

(b) The Borrower shall open, and thereafter maintain an account in dollars in the Central Bank on terms and conditions satisfactory to the Bank for the purposes of the Project. Disbursements out of this account (hereinafter called the CESA) shall be made exclusively to meet expenditures in Cruzados Novos incurred in respect of the reasonable cost of goods and services required to carry out the Project and to be financed by the Bank pursuant to paragraph (a) above.

(c) The Borrower shall open, and thereafter maintain, in a bank acceptable to the Bank (the Account Bank), an account in dollars on terms and conditions satisfactory to the Bank for the purposes of the Project. Disbursements out of this account (hereinafter called the FESA) shall be made exclusively to meet expenditures in currencies other than Cruzados Novos incurred in respect of the reasonable cost of goods and services required to carry out the Project and to be financed by the Bank pursuant to paragraph (a) above.

(d) Deposits into, and payments out of, the CESA and the FESA shall be made in accordance with the provisions of Schedule 4 to this Agreement. The Borrower, through the Central Bank and EMBRAPA, respectively, shall furnish to the Bank each month certified statements of the CESA and the FESA.

Section 2.03. The Closing Date shall be June 30, 1995, or such later date as the Bank shall establish. The Bank shall promptly notify the Borrower of such later date.

Section 2.04. The Borrower shall pay to the Bank a commitment charge at the rate of three-fourth of one percent ( $3/4$  of 1%) per annum on the principal amount of the Loan not withdrawn from time to time.

Section 2.05. (a) The Borrower shall pay interest on the principal amount of the Loan withdrawn and outstanding from time to time, at a rate for each Interest Period equal to the Cost of Qualified Borrowings determined in respect of the preceding Semester, plus one-half of one percent ( $1/2$  of 1%). On each of the dates specified in Section 2.06 of this Agreement, the Borrower shall pay interest accrued on the principal amount outstanding during the preceding Interest Period, calculated at the rate applicable during such Interest Period.

(b) As soon as practicable after the end of each Semester, the Bank shall notify the Borrower of the Cost of Qualified Borrowings determined in respect of such Semester.

(c) For the purposes of this Section:

(i) "Interest Period" means a six-months' period ending on the date immediately preceding each date specified in Section 2.06 of this Agreement, beginning with the Interest Period in which this Agreement is signed.

(ii) "Cost of Qualified Borrowings" means the cost, as reasonably determined by the Bank and expressed as a percentage per annum, of the outstanding borrowings of the Bank drawn down after June 30, 1982, excluding such borrowings or portions thereof as the Bank has allocated

to fund: (A) the Bank's investments; and (B) loans which may be made by the Bank after July 1, 1989, bearing interest rates determined otherwise than as provided in paragraph (a) of this Section.

(iii) "Semester" means the first six months or the second six months of a calendar year.

(d) On such date as the Bank may specify by no less than six months' notice to the Borrower, paragraphs (a), (b) and (c) (iii) of this Section shall be amended to read as follows:

"(a) The Borrower shall pay interest on the principal amount of the Loan withdrawn and outstanding from time to time, at a rate for each Quarter equal to the Cost of Qualified Borrowings determined in respect of the preceding Quarter, plus one-half of one percent (1/2 of 1%). On each of the dates specified in Section 2.06 of this Agreement, the Borrower shall pay interest accrued on the principal amount outstanding during the preceding Interest Period, calculated at the rates applicable during such Interest Period."

"(b) As soon as practicable after the end of each Quarter, the Bank shall notify the Borrower of the Cost of Qualified Borrowings determined in respect of such Quarter."

"(c) (iii) 'Quarter' means a three-month period commencing on January 1, April 1, July 1 or October 1 in a calendar year."

Section 2.06. Interest and other charges shall be payable semiannually on March 15 and September 15 in each year.

Section 2.07. The Borrower shall repay the principal amount of the Loan in accordance with the amortization schedule set forth in Schedule 3 to this Agreement.

Section 2.08. The Minister of Agriculture of the Borrower, or the person or persons designated by him, are designated as representative of the Borrower for the purposes of taking any action required or permitted to be taken under the provisions of Section 2.02 of this Agreement and Article V of the General Conditions.

### ARTICLE III

#### Execution of the Project

Section 3.01. (a) The Borrower declares its commitment to the objectives of the Project as set forth in Schedule 2 to this Agreement, and, to this end, without any limitation or restriction upon any of its other obligations under the Loan Agreement, shall cause EMBRAPA to perform in accordance with the provisions of the Project Agreement all the obligations of EMBRAPA therein set forth, shall take or cause to be taken all action, including the provision of funds, facilities, services and other resources, necessary or appropriate to enable EMBRAPA to perform such obligations, and shall not take or permit to be taken any action which would prevent or interfere with such performance.

(b) The Borrower shall make the proceeds of the Loan available to EMBRAPA under the Subsidiary Agreement.

Section 3.02. Except as the Bank shall otherwise agree, the Borrower shall cause the procurement of the goods, works and consultants' services required for the Project and to be financed out of the proceeds of the Loan to be governed by the provisions of Schedule 1 to the Project Agreement.

Section 3.03. The Bank and the Borrower hereby agree that the obligations set forth in Sections 9.04, 9.05, 9.06, 9.07, 9.08 and 9.09 of the General Conditions (relating to insurance, use of goods and services, plans and schedules, records and reports, maintenance and land acquisition, respectively) in respect of the Project shall be carried out by EMBRAPA pursuant to Section 2.03 of the Project Agreement, or by an Executing Entity, in accordance with its obligations under the relevant Contractual Arrangement or the Other Contractual Arrangement.

Section 3.04. The Borrower shall take, or cause to be taken, all reasonable action required for the issuance to EMBRAPA of all import and other licenses or permits as shall be necessary for the acquisition and importation of goods and services required for the carrying out of the Project in accordance with the provisions of this Agreement and the Project Agreement.

#### ARTICLE IV

##### Financial and Other Covenants

Section 4.01. (a) The Borrower shall maintain or cause EMBRAPA to maintain, in accordance with sound accounting practices, separate records and accounts adequate to reflect the operations, resources and expenditures in respect of the Project.

(b) The Borrower shall, or shall cause EMBRAPA to:

(i) have such separate records and accounts and the CESA and the FESA for each fiscal year audited, in accordance with appropriate auditing principles consistently applied, by independent auditors acceptable to the Bank;

(ii) furnish to the Bank as soon as available, but in any case not later than six months after the end of each such year, a certified copy of the report of such audit by said auditors, of such scope and in such detail as the Bank shall have reasonably requested;

(iii) furnish to the Bank monthly certified statements of the CESA and the FESA; and

(iv) furnish to the Bank such other information concerning said records and accounts and the audit thereof as the Bank shall from time to time reasonably request.

Section 4.02. The Borrower shall, without limitation to Section 3.01 of this Agreement, in each fiscal year cause its Treasury to make available to EMBRAPA through the Ministry of Agriculture all funds for expenditures to be financed by the Borrower, either from the counterpart funds or from the proceeds of the Loan, required to carry out the Project in accordance with, and within the time periods set forth in, the relevant Plano de Aplicacao.

#### ARTICLE V

##### Remedies of the Bank

Section 5.01. Pursuant to Section 6.02 (k) of the General Conditions, the following additional events are specified, provided, however, that if the event specified in paragraph (d) or (e) shall have occurred or be continuing, the suspension by the Bank of the Borrower's right to make withdrawals from the Loan Account in respect of Project expenditures related to the relevant Contractual Arrangement may be limited by the Bank to withdrawals related to such Contractual Arrangement:

(a) EMBRAPA shall have failed to perform any of its obligations under the Project Agreement.

(b) As a result of events which have occurred after the date of the Loan Agreement, an extraordinary situation shall have arisen which shall make it improbable that EMBRAPA will be able to perform its obligations under the Project Agreement.

(c) The Estatutos of EMBRAPA approved by Decree No. 75.374 of the Borrower dated February 14, 1975, shall have been changed so as to affect materially and adversely the ability of EMBRAPA to carry out the covenants, agreements and obligations set forth in the Project Agreement.

(d) A change shall have been made in any Contractual Arrangement or a Contractual Arrangement shall have terminated and not been renewed (provided that in such event EMBRAPA has not made alternative arrangements satisfactory to the Bank for the completion of the part or parts of the Project governed by such Contractual Arrangement), or there shall have been a failure by EMBRAPA to enforce, or carry out the obligations under, any Contractual Arrangement without the prior consent of the Bank.

(e) Any authority having jurisdiction shall have taken any action for the dissolution or disestablishment of a State Research Agency or for the suspension of its operations or parts of its operations and, by such time, EMBRAPA shall not have assumed the obligations of such State Research Agency in respect of the implementation of the part or parts of the Project to have been carried out by such State Research Agency, to the satisfaction of the Bank.

(f) The Borrower or any other authority having jurisdiction shall have taken any action for the dissolution or disestablishment of EMBRAPA or for the suspension of its operations.

Section 5.02. Pursuant to Section 7.01 (h) of the General Conditions, the following additional events are specified:

(a) any event specified in paragraphs (a), (c), (d), and (e) of Section 5.01 of this Agreement shall occur and shall continue for a period of sixty days after notice thereof shall have been given by the Bank to the Borrower; and

(b) the event specified in paragraph (f) of Section 5.01 of this Agreement shall occur.

## ARTICLE VI

### Effective Date; Termination

Section 6.01. The following events are specified as additional conditions to the effectiveness of the Loan Agreement within the meaning of Section 12.01 (c) of the General Conditions:

(a) that EMBRAPA has duly entered into the Project Agreement;

(b) that EMBRAPA has entered into a Contractual Arrangement with each Participating Entity in compliance with Section 2.04 (a) of the Project Agreement on the terms and conditions set out in Schedule 2 to the Project Agreement;

(c) this Agreement has been duly registered by the Central Bank;

(d) that the Subsidiary Agreement has been duly entered into between the Borrower and EMBRAPA;

(e) that the Borrower has allocated adequate funds from its proposed fiscal year 1990 budget to be made available to EMBRAPA in 1990 for EMBRAPA to implement the 1990 Consolidated PAT; and

(f) that EMBRAPA has provided evidence, satisfactory to the Bank, that the minimum number of twenty staff required to carry out Part C (Technology Transfer and Dissemination) of the Project have been appointed or transferred or assigned to, or within, the various research units by EMBRAPA in accordance with Section 2.05 (c) of the Project Agreement.

Section 6.02. The following are specified as additional matters, within the meaning of Section 12.02 (c) of the General Conditions, to be included in the opinion or opinions to be furnished to the Bank:

(a) that the Project Agreement has been duly authorized or ratified by, and executed and delivered on behalf of, EMBRAPA, and is legally binding upon EMBRAPA in accordance with its terms;

(b) that this Agreement has been duly registered by the Central Bank;

(c) all the Contractual Arrangements referred to in Section 2.04 (a) of the Project Agreement have been entered into on the terms and conditions set out in Schedule 2 to the Project Agreement, and have been duly authorized or ratified by, and executed and delivered on behalf of the relevant State Research Agencies and EMBRAPA and are legally binding upon EMBRAPA and the State Research Agencies in accordance with their terms;

(d) that the Subsidiary Agreement has been duly authorized or ratified by, and executed and delivered by, EMBRAPA and is legally binding upon EMBRAPA in accordance with its terms; and

(e) that all necessary acts, consents and approvals to be performed or given by the Borrower, its political subdivisions or agencies or by any agency of any political subdivision or otherwise to be performed or given in order to authorize the carrying out of the Project and to enable the Borrower and EMBRAPA and each State Research Agency, to perform all of the covenants, agreements and obligations of the Borrower in the Loan Agreement, the Project Agreement and each of the Contractual Arrangements referred to in (c) above, respectively, together with all necessary powers and rights in connection therewith, have been performed or given.

Section 6.03. The date April 10, 1990 is hereby specified for the purposes of Section 12.04 of the General Conditions.

#### ARTICLE VII

##### Representative of the Borrower; Addresses

Section 7.01. The Minister of Finance of the Borrower is designated as representative of the Borrower for the purposes of Section 11.03 of the General Conditions.

Section 7.02. The following addresses are specified for the purposes of Section 11.01 of the General Conditions:

For the Borrower:

Ministerio da Fazenda  
Edificio Ministerio da Fazenda  
Esplanada dos Ministerios Bloco "P"  
70048 Brasilia, D.F.,  
Brazil

Cable address:

MINIFAZ  
Brasilia, Brazil

Telex:

611 506 MFAZ BR

Telefacsimile:

202-477-6391

With copies to:

EMBRAPA  
Parque Rural - Final W/3 Norte  
Setor de Areas Isoladas Norte  
70.770 Brasilia, D.F.,  
Brazil

Telex:

612074  
611620



For the Bank:

International Bank for  
Reconstruction and Development  
1818 H Street, N.W.  
Washington, D.C. 20433  
United States of America

Cable address:

INTBAFRAD  
Washington, D.C.

Telex:

440098 (ITT)  
248423 (RCA) or  
64145 (WUI)

Telefacsimile:

612231909

IN WITNESS WHEREOF, the parties hereto, acting through their duly authorized representatives, have caused this Agreement to be signed in their respective names in the District of Columbia, United States of America, as of the day and year first above written.

FEDERATIVE REPUBLIC OF BRAZIL

By /s/ Cid Heraclito de Queiroz

Authorized Representative

INTERNATIONAL BANK FOR  
RECONSTRUCTION AND DEVELOPMENT

By /s/ Ping-Cheung Loh

Regional Vice President  
Latin America and the Caribbean

Witnessed by /s/ Iris de Rezende Machado

#### SCHEDULE 1

##### Withdrawal of the Proceeds of the Loan

1. The table below sets forth the Categories of items to be financed out of the proceeds of the Loan, the allocation of the amounts of the Loan to each Category and the percentage of expenditures for items so to be financed in each Category:

Category	Amount of the Loan Allocated (Expressed in Dollar Equivalent)	% of Expenditures to be Financed
(1) Civil works	11,800,000	50%
(2) Goods, furniture equipment including books, periodicals and	14,000,000	100% of foreign and expenditures and 15% of local expenditures

	livestock (other than vehicles and electronic or computer equipment)		
(3)	Technical assistance	4,800,000	100% of foreign expenditures
(4)	Training (inter alia Postdoctorate, PhD, MSc, short-term training and seminars)	9,400,000	100% of foreign expenditures
(5)	Incremental Operating Costs	2.0	25% up to an aggregate amount of \$0.8 million and thereafter 20% up to an aggregate amount of \$1.9 million, and 4% of such costs thereafter
6)	Unallocated	5.0	
	TOTAL	47.0	=====

2. For the purposes of this Schedule:

(a) the term "foreign expenditures" means expenditures in the currency of any country other than that of the Borrower for goods or services supplied from the territory of any country other than that of the Borrower;

(b) the term "local expenditures" means expenditures in the currency of the Borrower or for goods or services supplied from the territory of the Borrower; and

(c) the term "Incremental Operating Costs" means any project-related expenditures made by EMBRAPA during a fiscal year for research planning, implementation, coordination and dissemination, maintenance of project-funded civil works, and operating and maintenance costs of equipment funded by the proceeds of the Loan and required for the implementation of the Project.

3. Notwithstanding the provisions of paragraph 1 above, no withdrawals shall be made in respect of:

(a) payments made for expenditures prior to the date of this Agreement, except that withdrawals, in an aggregate amount not exceeding the equivalent of \$4,700,000, may be made in respect of Categories (1) through (4) on account of payments made for expenditures before that date but after April 20, 1989;

(b) from Category (1) on account of payments made for civil works for any research station under Parts A and B of the Project, unless the Bank has been furnished with the evidence referred to in Section 9.09 of the General Conditions with respect to land and land rights required for such research station; and

(c) payments made for expenditures under an Other Contractual Arrangement, unless the Bank shall have received a copy of the Other Contractual Arrangement, satisfactory to the Bank.

SCHEDULE 2

Description of the Project

The objectives of the Project are: (i) to strengthen EMBRAPA's and the State Research Agencies' capability to generate and disseminate technology which would contribute to sustained agricultural development in two distinct agro-ecological regions, the Legal Amazon and the Northeast; and (ii) to increase the efficiency of the national cooperative research system by consolidating research planning and monitoring procedures within the various units and institutions belonging to the system under the coordination of EMBRAPA.

The Project consists of the following parts:

Part A: Development of Technology

I. Strengthening agricultural research planning and implementation capacity and carrying out agricultural research programs in the Northeast including:

- including systems; (i) research on the development of improved production systems, integrated crop-livestock, and inter-cropping
- (ii) research on water harvesting and supplementary irrigation systems;
- conditions; (iii) research on the production of high-value crops under irrigated
- (iv) the development of improved livestock production systems through the selection and introduction of improved breeds of small ruminants (goats and hairless sheep) and improved native pasture and supplemental feed production;
- (v) the improvement of infrastructure at certain research centers;
- the above (vi) the acquisition of materials, furniture and equipment required for research programs; and
- (vii) staff training and technical assistance.

II. Strengthening agricultural research planning and implementation capacity and carrying out agricultural research programs in the Legal Amazon including:

- resource (i) research on production potentials and constraints, through natural inventories and socioeconomic studies;
- through basic species; (ii) the development of resource management and production systems, and applied research involving native and exotic
- local (iii) the development of mixed farming systems, in collaboration with producers;
- buffalo; (iv) selection of disease resistant cross-bred cattle, and water
- conservation; (v) forestry research, with particular emphasis on germ plasm management of natural forest formations; silvicultural research; agro-forestry and the pulping quality of native tree species;
- (vi) improvement of infrastructure at certain research centers;
- research (vii) acquisition of materials, furniture and equipment for the above programs; and
- (viii) staff training and technical assistance.

Part B: Research Support Programs

The strengthening and improvement of research centers and carrying out of research under this project component would include:

- (i) biotechnology research (including specific work on beans, vegetables, oil palm, nitrogen fixation, animal health and genetic improvement, and the cataloging of botanical resources);
- (ii) agro-industrial and food technology research;
- (iii) research on soils, including soil microbiology, soil conservation and management;
- (iv) environmental studies related to crop production and protection techniques;
- (v) irrigation and drainage research (including on topics such as hydrological conditions, watershed characteristics, water and soil management techniques, engineering, irrigation and drainage techniques for specific crops and on the profitability and socio-economic impact of irrigated production systems);
- (vi) construction of, and provision of equipment and furniture (including books and periodicals) such as laboratories, offices, administrative offices and other research support facilities and infrastructures;
- (vii) rehabilitation and renovation of: existing facilities at Itaguai and field stations at Recife and Belem for the carrying out of research referred to in (iii) above and the provision of equipment, furniture, books and periodicals there for; and
- (viii) training and technical assistance.

Part C: Technology Transfer and Dissemination

Adaptation and dissemination to extension workers and the farming community, of the technology developed under Part A of the Project, including demonstration of new techniques to producers in the Project Area through field demonstrations, the provision of written information, the preparation and presentation of audiovisual programs and courses to extension staff, farmers, livestock producers, researchers and the general public in the Project Area.

Part D: Institutional Development

With a view to strengthening particularly the state-based agricultural research entities, this component would provide for:

- (i) preparation of diagnostic studies of each of the decentralized EMBRAPA units and State Research Agencies;
- (ii) preparation of an action plan for restructuring and strengthening the national cooperative agricultural research system;
- (iii) training of professional and administrative staff of EMBRAPA and State Research Agencies; and
- (iv) upgrading EMBRAPA's central and decentralized libraries.

Part E: Project Impact Assessment and Special Studies

Research program monitoring and assessment of the impact and benefits of research, through socio-economic and policy studies; an in-depth mid-term review of the Project during the third year of Project implementation, the preparation of future research programs, and studies on topics to be approved by the Bank. The provision of

training and equipment and furniture (including periodicals and books) for the purposes of carrying out such reports and studies.

The Project is expected to be completed by December 31, 1994.

### SCHEDULE 3

#### Amortization Schedule

Date Payment Due	Payment of Principal (Expressed in dollars)*
On each March 15 and September 15	
beginning March 15, 1995 through September 15, 2004	2,350,000

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\* The figures in this column represent dollar equivalents determined as of the respective dates of withdrawal. See General Conditions, Sections 3.04 and 4.03.

#### Premiums on Prepayment

Pursuant to Section 3.04 (b) of the general Conditions, the premium payable on the principal amount of any maturity of the Loan to be prepaid shall be the percentage specified for the applicable time of prepayment below:

Time of Prepayment	Premium
	The interest rate (expressed as a percentage per annum) applicable to the Loan on the day of prepayment, multiplied by:
Not more than three years before maturity	0.20
More than three years but not more than six years before maturity	0.40
More than six years but not more than eleven years	0.73

before maturity	
More than eleven years but not more than thirteen years before maturity	0.87
More than thirteen years before maturity	1.00

#### SCHEDULE 4

##### Special Accounts CESA and FESA

#### 1. For the purposes of this Schedule:

(a) the term "Eligible Categories" means, in respect of CESA, Categories (1) through (5) set forth in the table in paragraph 1 of Schedule 1 to this Agreement and in respect of FESA;

(b) the term "Eligible Expenditures" means expenditures in respect of the reasonable cost of goods and services required for the Project and to be financed out of the proceeds of the Loan allocated from time to time to the Eligible Categories in accordance with the provisions of Section 2.02 and Schedule 1 to this Agreement; and

(c) the term "Authorized Allocation" means an amount equivalent to two million dollars (\$2,000,000) to be withdrawn from the Loan Account and deposited in the CESA and the FESA, respectively, pursuant to paragraph 3 (a) of this Schedule.

2. Except as the Bank shall otherwise agree, payments out of CESA and FESA, as the case may be, shall be made exclusively for Eligible Expenditures in accordance with the provisions of Section 2.02 of this Schedule. The Account Bank shall authorize withdrawals from the CESA or the FESA, as the case may be, on the basis of the evidence that the Bank shall have reasonably determined. For each such withdrawal so authorized, the Account Bank shall debit or cause to be debited CESA and FESA, as the case may be, with the dollar equivalent of the amount of the Eligible Expenditures in question in Cruzados Novos, in the case of CESA, or with the actual dollar amount or the dollar equivalent of the Eligible Expenditures in currencies other than dollars or Cruzados Novos, in the case of FESA.

3. After the Bank has received evidence satisfactory to it that the CESA and the FESA have been duly opened, withdrawals of the corresponding Authorized Allocation and subsequent withdrawals to replenish the CESA or the FESA, as the case may be, shall be made as follows:

(a) For withdrawals of the corresponding amount of the Authorized Allocation, the Borrower shall furnish to the Bank a request or requests for a deposit or deposits which do not exceed the corresponding amount of the Authorized Allocation. On the basis of such request or requests, the Bank shall, on behalf of the Borrower, withdraw from the Loan Account and deposit into the CESA or the FESA, as the case may be, such amount or amounts as the Borrower shall have requested; and

(b) (i) For replenishment of the CESA or the FESA, the Borrower shall furnish to the Bank requests for deposits into the CESA or the FESA at such intervals as the Bank shall specify.

(ii) Prior to or at the time of each such request, the Borrower shall furnish to the Bank the documents and other evidence required pursuant to paragraph 4 of this Schedule for the payment or payments in respect of which replenishment is requested. On the basis of each such request, the Bank shall, on behalf of the Borrower, withdraw from the Loan Account and deposit into the CESA or the FESA, as the case may be, such amount as the Borrower shall have requested and as shall have been shown by said documents and other evidence to have been made out of the CESA or the FESA, as the case may be, for Eligible Expenditures. All such deposits shall be withdrawn by the Bank from the Loan

Account under the respective Eligible Categories, and in the respective equivalent amounts, as shall have been justified by said documents and other evidence.

4. For each payment made by the Borrower out of the CESA or the FESA, as the case may be, the Borrower shall, at such time as the Bank shall reasonably request, furnish to the Bank such documents and other evidence showing that such payment was made exclusively for Eligible Expenditures.

5. Notwithstanding the provisions of paragraph 3 of this Schedule, the Bank shall not be required to make further deposits into either the CESA or the FESA:

(a) if, at any time, the Bank shall have determined that all further withdrawals should be made by the Borrower directly from the Loan Account in accordance with the provisions of Article V of the General Conditions and paragraph (a) of Section 2.02 of this Agreement; or

(b) once the total unwithdrawn amount of the Loan allocated to the aggregate of Eligible Categories for the Project, less the amount of any outstanding special commitment entered into by the Bank pursuant to Section 5.02 of the General Conditions with respect to the Project, shall equal the equivalent of twice the amount of the Authorized Allocation. Thereafter, withdrawal from the Loan Account of the remaining unwithdrawn amount of the Loan allocated to the corresponding Eligible Categories of the Project shall follow such procedures as the Bank shall specify by notice to the Borrower. Such further withdrawals shall be made only after and to the extent that the Bank shall have been satisfied that all such amounts remaining on deposit in the CESA or the FESA, as the case may be, as of the date of such notice will be utilized in making payments for Eligible Expenditures.

6. (a) If the Bank shall have determined at any time that any payment out of either the CESA or the FESA: (i) was made for an expenditure or in an amount not eligible pursuant to paragraph 2 of this Schedule; or (ii) was not justified by the evidence furnished to the Bank, the Borrower shall, promptly upon notice from the Bank: (A) provide such additional evidence as the Bank may request; or (B) deposit into the CESA or the FESA, as the case may be, (or, if the Bank shall so request, refund to the Bank) an amount equal to the amount of such payment or the portion thereof not so eligible or justified. Unless the Bank shall otherwise agree, no further deposit by the Bank into the CESA or the FESA, as the case may be, shall be made until the Borrower has provided such evidence or made such deposit or refund, as the case may be.

(b) If the Bank shall have determined at any time that any amount outstanding in either the CESA or the FESA will not be required to cover further payments for the corresponding Eligible Expenditures, the Borrower shall, promptly upon notice from the Bank, refund to the Bank such outstanding amount.

(c) The Borrower may, upon notice to the Bank, refund to the Bank all or any portion of the funds on deposit in the CESA or the FESA.

(d) Refunds to the Bank made pursuant to paragraphs 6 (a), (b) and (c) of this Schedule shall be credited to the Loan Account for subsequent withdrawal or for cancellation in accordance with the relevant provisions of this Agreement, including the General Conditions.

