ANNEX XII

AGRICULTURAL PRODUCTION SUPPORTING SYSTEM STRENGTHENING PROGRAM

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1 General Profile of the Program

This program has general objective of strengthening agricultural production supporting system which envisages structural reform of agriculture-related organizations as well as fostering personnel employed by these organizations. The program is an indispensable program in promoting and expanding agricultural production of the state and entails longer period in accomplishment of its anticipated benefits. Due to the fact that the generation of its benefits requires backups of various components, the implementation of the program is suggested to be made in parallel with the formulation of the plans for the regional development program, as a program of high priority. It is further advised that the contents of the program be formulated in such manner as financial arrangement for implementation should not be over-weighted to the fiscal condition of the state government. Despite the benefits anticipated in subprograms/projects conceived in the program are difficult to quantify, the prioritization for implementation among them shall be made to subprograms/projects which are evaluated to generate immediate and higher benefits to the society.

2 Institutional Reform Sub-Program

This subprogram shall consist of the following components, namely:

1. Land Titling & Registration System Improvement
2. Structural Reform of Agriculture-related Organizations
3. Plants Inspection and Quarantine System Improvement

Due to importance of each institution involved, the subprogram for the structural reform of agriculture-related organizations is divided into two projects: structural reform of SAG and that of RURALTINS. Likewise, the subprogram for plants inspection and quarantine, both of which are services undertaken by SAG, are also divided into two projects.

2.1 Land Titling & Registration System Improvement Project

2.1.1 Outline of the project

The elucidation about land ownership and a precise survey about the land use are necessary conditions for an efficient and fast procedure in the regional development. Therefore, the register of rural properties and the elaboration of graphic and literal register for all the State territory through a fast establishment of a Land Registration System are considered as a very important task.

According to ITERTINS information, the organism responsible for this kind of work in the State, the present stage of the work is presented as shown below. If it continues in the same pace, it will take 20 to 30 years to complete the coverage of the whole state territory with the present structure of the ITERTINS.

(1) Present Condition of the Registration (May 1997)

1) Areas fully Registered

21,750,800 ha (78% of the State Territory)

Discrimination

a) Area regularized by INCRA/TO:	4,500,000 ha
b) Area regularized by IDAGO/GO:	14,000,000 ha
c) Area regularized by ITERTINS/TO:	2,500,000 ha
d) Area in custody of the Federal Government:	708,000 ha

2) Areas which are not Registered

6,091,900 ha (22% of the State Territory)

Reasons for this situation

a) Areas under lawsuit
b) Areas under private domain, not clarified
c) Areas of the State

3) Areas with complete registration by region

a) North Region	80%	8,550,800 ha
b) Central Region	25%	4,100,000 ha
c) South Region	30%	9,100,000 ha
Total		21,750,800 ha

(2) Problems in the Land Registration Process (Restraining Factors)

1) Absence of basic register
2) Absence of modern technology in the collection of data as well as in the land regularization
3) Lack of professional capability
4) Lack of resources
5) Lack of definition and application of an unique policy and disorganization in the laws about the procedures.

The ITERTINS is elaborating and implementing a plan for the acceleration of the land registration system, promoting the improvement of the afore-mentioned situation and reducing the implementation term to 10 years. The plan is presented below.

2.1.2 General and Specific Objectives

The restarting of the land regularization program, especially the rural register as a complementary instrument in the process of agrarian reform, to be carried out in all regions of the Tocantins State, aims to promote the improvement of life and production conditions of the small rural producers who are occupying public and other types of land, through the restructuring of the land.

The specific objectives are as follows :

1) to assure the effective access of small rural producers, subject to the condition of occupants, to production support public services, as well as to technical assistance and rural credit.
2) to promote the planning and increment of productive activities development in consonance with the basic requirements of natural resources and energy conservation and adequacy to the environmental conditions.
3) to promote the survey and materialization of all the land grids in the State.
4) to identify the real stock of public lands incorporated to the State.

2.1.3 Features, Requirements, and Adequacy of Sub-Program Implementation

- The Tocantins State is divided into 10 (ten) regions according to different characteristics. As for the land issue, the available information is not enough due to the lack of a reliable rural register, as well as due to the lack of updating of the register carried out by INCRA, besides the difficulty to access this information.
- It is necessary to implement the register of state rural properties to urgently determine the land grids, and to define an unique policy in the destination of public and private real estates.
- To implement such a project, there should be an adequacy of the works already being carried out at Federal Organisms such as INCRA, Revenue Department, etc.

2.1.4 Contents

The project shall reach all the state territory, electing those regions where the land problems are bigger, and for that purpose the municipal prefectures and concerned state organisms shall be mobilized. It is estimated that the necessary resources for the implementation, annual maintenance and system feedback is around R$ 1.8 million/year.

As for the necessary time established to attain the basic goal which is to conclude one region per year, and for the first year, to implement the graphic and literal system of the

state land grids, the following equipment shall be procured to give the basic support to the program:

- Acquisition of 04 (four) four wheels drive vehicles - Toyota (double cabin)
- Two complete total stations, including software.
- Four pairs of geodesic GPS
- Eight navigation GPS
- Definition of the graphic and literal systems for the elaboration of land register models.

Operation cost for equipment:

1999: R$ 600,000
2000 - 2009: R$ 120,000

(1) Cadastral Operation

Basic preliminary actions of Cadastral operation include comprehending the study and analysis of glebes of land to be worked, collection of decrees, planes and topographical description of the land polygons; survey of the cadastral situation in the municipality where the glebe of land is located; verification of the existence of real estates in fiscalization process in the glebe to be worked; obtaining of cartophaphical bases (DSG, IBGE) referring to the glebe polygon; acquisition of updated satellite images; insertion of the glebe polygon, the existing land grids and other available information in one only graphical base; supply of graphical and literal information for the field teams.

1st Stage (sub-program 1):

Survey of occupations in the field by identifying all existing constructions, through the Land Report of Experts; definition of the land grids in the field, surveying the occupied area to be destined; survey of geodesic points for the graphic addressing of occupation, preferably, in the occupant living place.

2nd Stage (sub-program 2):

- Processing of the obtained graphical and literal information;
- Insertion of the data collected in the field in graphical files;
- Verification of the cartographical technical material of the already demarcated occupations and the information in data banks;
- Definition of occupations and quantification of destined areas;
- Elaboration of studies, based on satellite images, about the occupations and ideal ways to elaborate the basic project of demarcation and destination;
- Elaboration of technical reports aiming the materialization of occupations according to the new area to be occupied;
- Return to the field with the basic project for the location of the areas destined for each occupation;

- Processing and calculation of the location data;
- Elaboration of descriptive memorial and individual plans of the occupations;
- Elaboration of the final cadastral plan;
- Unification in a same data bank the graphical and literal information through graphical stations;
- Filing, back-up of the files and remittance to Palmas for control;
- Making the information available for use by other state organisms.

(2) Diagnosis

The diagnosis of the situation shall be carried out based on the analysis of the material obtained in the previous stages and complemented with available information in the field of work. It shall point out the actions to be developed.

(3) Project of Land Reorganization and Land Allotment

It will be defined in conformity with the indications of the land situation diagnosis, elaborated at the end of the Cadastral Operation actions, defining the areas to be regularized, areas for the creation of projects and other allotment proposals.

The program actions will culminate in the demarcation of parcels to be destined and in the issuing of respective ownership documents; in the promotion of actions to retake areas irregularly occupied and their destination, together with the remaining non occupied area, to the typical clients of the agrarian reform, through the creation of settlement projects to be elaborated by the work stations in the Palmas head office, integration of individual plan and descriptive memorial.

(4) Data Bank

The implementation of the land regularization Data Bank, with an information system which allow the study, proposition and implementation of necessary measures for the execution of the program, shall be carried out.

2.1.5 Operative Procedures

It comprehends a set of integrated actions or stages of work, within the following precedence order:

(1) Basic preliminary actions

1. survey of collection decrees;
2. survey in the register office of the register number of the areas;
3. survey of the land grids (parceling projects) of the collected glebes;
4. survey of the carried out documentation (provisory and definitive);
5. survey of the constituted processes and existing demands;

6. survey about the existence of environmental protection areas and indigenous reservation ones (or intentions) in the collected areas by the concerning agencies (IBAMA and FUNAI);
7. survey of the areas destined to settlement projects;
8. survey of breach of contract cases in the titled areas (with or without notification);
9. survey of the occupants resulting from the last field operation carried out.

(2) Effective Actions

Pre-selection of areas which present higher occupational density, with incidence of land conflicts, concentration of small rural occupants, areas occupied by communities living on the extraction of non planted products, remaining areas destined to the removal of occupants living in the indigenous reservation areas and areas of possession legitimation of remaining communities.

1. Survey of field occupations, by the identification of all existing occupations through inspection and application of the Land Expert Report, its physical and economic characteristics, its occupants, with their personal and social qualifications.
2. Process analysis of the possession situations and their relation with the occupant and his relation with the real estate.
3. Diagnosis of the situation to be carried out based on the analysis of the material obtained in the previous stages and complemented with information available in the work field. It shall point out the actions to be developed and intervention ways.
4. Project of destination and reorganization, in conformity with the indications of the land situation diagnosis, containing proposals for the destination of lands to be regularized, dismembered and those destined to other purposes (remaining in vacancy).
5. Creation of a graphical/literal data bank with information from the land regularization program, open to public and private institutions, with systematized data and information which will allow to promote the study and to propose the implementation of corrective measures and actions.

2.1.6 Main Executing Agencies and Other Organizations to be Involved

The main executing agencies are as follows :

1. ITERTINS - Land Institute of the State of Tocantins
2. SEPLAN - Secretariat of Planning
3. SAG - State Secretariat of Agriculture

The other organizations to be involved are as follows :

State: 1. RURALTINS
2. UNITINS

Federal: 1. INCRA

2. Federal Revenue Department
3. IBAMA
4. FUNAI

2.2 Structural Reform of State Secretariat of Agriculture (SAG)

2.2.1 Present Situation

(1) Organization

The State Secretariat of Agriculture (SAG) is composed of 4 directorates in the head office, namely, Directorate of Finances and Administration, Directorate of Technological Promotion, Directorate of Animal Production and Health, Directorate of Plant Production and Protection. SAG also includes interior units such as 3 Regional Service Units and 18 Execution Local Units.

SAG acts in an integrated manner together with the related organisms: RURALTINS - Tocantins State Rural Development Institute, and ITERTINS - Tocantins State Land Institute.

SAG' s proposal through the indispensable strengthening of public support, aims at the participant and transparent actuation, coherently conducting the agriculture and livestock development process.

SAG is an organism of the superior administration, directly under the governor, having the objective to develop agriculture and livestock sector production, agrarian organization, animal & plant production and protection, agricultural research, rural promotion and extension, agricultural planning, encouragement of cooperatives and rural associations, and the irrigation.

(2) Staff

The total staff number of SAG is 240 including 35 agronomists, 28 veterinary physicians, 3 forestry experts and one fishery expert and the rest are composed of economists, technicians from various specialties, administrative staff and supporting employees.

Among the total staff of 240, ninety-six (96) staff are working in the headquarters and the remaining staff are designated in the local and regional units.

(3) Budget

The budget composition for the 1996 period is as follows:

Staff payment	R$ 2,110,000
Administrative expenses	R$ 1,800,000

Investments	R$ 797,000
Total	R$ 4,088,000

2.2.2 Problems Identified

(1) Severe Shortage of Budget

The total value of the budget of the SAG is extremely small for a State Government organ which is in-charge of the agricultural development and mainly responsible for the economical development of the state.

When compared with the state budget, which is around R$ 626,675,000), the budget of the SAG of R$ 4,088,000.00 represents only the 0.65%. This percentage together with the budget of RURALTINS only reach 1.1%.

Paraguay, the country with the smallest economy of MERCOSUL with a population around 4 million presents a similar characteristics to the state conditions because of the lack of sea way, has destined to the Agricultural Ministry (MAG) and according to the statistics of some years ago, MAG spent an amount equivalent to (R$ 150 millions) which correspond to 10% of the General budget (1.5 billions of Reals) which even included the maintenance expenses of the Army.

Comparing with that data, the total budget value of the state (R$ 626 millions) and considering the state population around 1 million, the budget allocated to the SAG of R$ 4 millions is extremely low. This budget shortage is deeply affecting the SAG's activities, which has become a big problem.

(2) Lack of Laboratory Equipment and Facilities

As a consequence of the shortage of budget, there is a lack of laboratory equipment to carry out the animal health services and tests of agriculture protection, which are considered as the main works of SAG. In the local units, besides the lack of testing equipment, it also is necessary to fix the refrigerators necessary to conserve the vaccines. In all sectors, the minimum limits necessary to carry out the activities of SAG is not maintained.

SAG is constituted by the Central Office, Regional Service Units and Local Execution Units. Among the 3 Regional Service Units, 2 are older and have insufficient facilities and one was recently installed in Taguatinga and is still in structuring stage. It is fundamental that the adequacy of these support units is necessary to properly structure the facilities and staff, besides the widening with the implantation of new units. For instance, the local units in the central region need a new regional unit.

The promotion of training for SAG technicians aiming at the improvement of the service quality is also essential.

3) Absence of Experimental or Research Institution of SAG

There is no experimental field, which is operated by the State in order to improve the agricultural productivity.

Due the lack of institutions which may develop basic research adapted to the state conditions, the products does not present competitiveness equaling to the products produced in the South Region, the fact that necessitates the commercialization of the state products exclusively in the Northeast region, where there is still a market for cheap products. The continuing of this situation shall mean big problems for the exports and more disadvantageous conditions for the future competition of products.

The lack of research institutes means lack of organs to divulge new technologies and species developed to farmers, besides the lack of suitable training necessary to improve the quality of the extension staff responsible for the promotion activities in the regional and local units of SAG and RURALTINS. There is a high necessity to restructure these institutions.

The lack of testing laboratories and the inefficiency of the few existing ones causes problems to the agriculture and livestock sector due to the delay in the results. Therefore it is extremely important to implement laboratories of soil, seeds, biotechnology, animal health and plant protection.

2.2.3 Outline of Structural Reform of SAG

Due to the recent emancipation of the State, the Secretariat of Agriculture still doesn' t present a well defined organizational structure. It still doesn' t reckon on a sufficient staff to elaborate agricultural policies nor on laboratories to carry out agricultural protection and animal health analysis. This fact is magnified in the regional offices where sometimes even the refrigerators to store vaccines are damaged. Therefore, it will be necessary to elaborate the restructuring plan for SAG, assuring a minimum necessary administrative level.

(1) Budgetary Arrangements

The low budget for the SAG shall be seriously discussed as a State problem. Until now, the main product of the state is beef cattle, produced by the large patrimonial cattle farms. For this reason, it would not be necessary to take any urgent measures of the State assistance, and is necessary to make only a minimum intervention with reduced resources. However, the SAG shall be urgently restructured to adapt for the new tendencies considering that the agricultural industry of the state is facing problems to be demonstrated below.

(i) In the globalization context, the price of beef is decreasing, which become critical for the management of ranches and force them to think about the production of cereals through the introduction of rotation of agriculture/cattle

system and diversification of cattle products. This tendency which shall deeply change the state condition may no be ignored by the SAG.

(ii) The policy which promotes familiarizing agriculture for small farmers and is being prioritized by the federal government shall be also followed by the State and the municipalities.

The objectives of this policy are to focus on many small farmers who may request specific services such as technical assistance and assistance to financing sources considering that these farmers have low education level. The works developed by SAG and RURALTINS have a growing tendency.

(iii) The ranch owners mentioned in item (i) are inexperienced in plantation activities and the small farmers mentioned in item (ii) are mainly carrying out subsistence agriculture by the practice of 'clearing land by burning'.

The SAG shall act as the main organ in charge of the technology development and promotion in order to carry out sustainable agriculture by avoiding the environment destruction practices such as clearing land by burning.

(iv) In future, the diversification of the cattle activity shall bring in the processing industries of agricultural products in the domestic scale and in the rural communities, increasing the SAG and RURALTINS work.

SAG shall promote the development activities mainly by discussing with the state governor and it shall make efforts in order to increase the budget and the number of staff, the RURALTINS staff through the elaboration of work plans and budget for the short, medium and long term plans. It is obviously necessary to include the following measures within the plan mentioned above.

(2) Animal Health/Plant Protection

The requirement of minimum level of animal health/plant protection is essential and may be foreseen in the short term plans. In the long term plans, the concept of free zone of foot and mouth disease shall be adopted aiming at the cattle, swine and manufactured products, presenting necessary gradual measures and respective budget for each measure to be adapted.

(3) Creation of an Experimental Field

Taking into account that the implementation of an EMBRAPA branch in the State was not approved by the Federal Government, the State shall propose with the same argument used for the creation of the state capital, the creation of a SAG agricultural experimental field. The Technology Directorate of the SAG may promote the construction of an experimental farm and elaborate the operational plans.

It is necessary to construct an experimental farm with enough technological level in order to receive foreign technical cooperation and is recommendable to take advantage of these cooperation to develop technology improvement and better use of equipment. There is no doubt that the cooperation shall be developed together with the UNITINS and EMBRAPA.

2.2.4 Objectives of the Reform Proposal (Project)

(1) Main Objective

The main objective of the program is the strengthening and restructuring of the Secretariat of Agriculture to allow it to fulfill its role as the organism for the promotion of agriculture and livestock development in the State.

(2) Specific Objectives

(a) To restructure and expand the local execution units and regional services units, animal health inspection barriers, plant protection, inspection and classification and the central office.
(b) To supply SAG with physical and human resources for the implantation of actions in the fulfillment of concerning legislation.
(c) To contribute to the increase in productivity and product quality through the structuring of a demonstration unit for the adaptation and definition of sustainable agricultural technology.
(d) To promote the qualification and updating of SAG human resources aiming to improve the performance and utilization of state labor force, with the dynamization of applied resources.

2.2.5 Details of the Project

(1) Restructuring and implantation of SAG regional and local units

Bearing in mind about the importance of SAG role, its restructuring is very important. Considering the existing 18 local units and 3 regional units, the following actions are proposed in order to attain these objectives:

(a) Improvement of the SAG central office infrastructure with the creation of laboratories, computer center, etc.
(b) Incorporation of 50 new local units and 1 regional unit
(c) The human resources necessary for the implementation and restructuring of the units are as follows;
    - 78 agricultural engineers
    - 78 veterinary doctors
    - 140 agricultural technicians
    - 72 administrative assistants

In relation to the Fixed Points (animal health protection barriers), the 3 barriers shall be restructured (Talismã, Couto Magalhães and Estreito) besides the inclusion of 11 new points (Xambioá, Araguanã, Pontão, Caseara, Araguanã, Palmeirópolis, Arraias, Combinado, Taguatinga, Novo Jardim and Filadélfia)

Necessary Infrastructure

- Improvement of SAG central office infrastructure:
1) Computer sets
2) Laboratories
3) Computer center

- Construction of the facilities for 2 regional units and 70 local units
1) 300 m^2 by regional unit
2) 100 m^2 by local unit
3) Equipment and vehicles (2 units)

The amount required for this Sub-program is estimated as follows:

a) Improvement of SAG central office infrastructure

	Item	Cost (R$)
1.	Fixed Investment (Installation, etc.)	
	Computers	600,000
	Laboratories	500,000
	Creation of Computer center	1,000,000
2.	Annual Expenses (3 years)	900,000
	Total	3,000,000

b) Construction of Regional and Local Units

Item		Cost (R$)
1.	Fixed Investment (Installation, etc.)	
	Regional unit (300 m2 x 2 units)	100,000
	Local units (100 m2 x 70 units)	1,400,000
	Computer sets	210,000
	Furniture for new units (72 units)	300,000
	Vehicles	300,000
2.	Annual Expenses (3 years)	3,000,000
	Total	5,310,000

As for the animal health service, the following items shall be strengthened:

1) 3 animal health laboratories, annexed to the regional units
2) 1 central laboratory annexed to the central office
3) Construction of Fixed Posts (Animal health barriers) - 60 m^2, equipment and 1 vehicle each

c) Construction of Regional and Local Units

Item	Cost (R$)
1. Fixed Investment (Installation, etc.)	
Regional unit (300 m2 x 3 units)	150,000
Animal health laboratory - annexed to the central office	300,000
Fixed posts	500,000
Necessary equipment	500,000
2. Annual Expenses (3 years)	1,000,000
Total	2,450,000

(2) Promotion of Technological Development

The strengthening of this sector activities is proposed through the restructuring of the Technological Development and Promotion Directory and through the implementation of the Demonstration Center of Sustainable Agriculture. The center will contain laboratories of soil, seeds, biotechnology, plant protection analysis and analysis of pesticide residues. Through this demonstration field, technologies adapted to the State will be studied. It will also be a development spreading instrument through the training of rural extension staff and others.

For this purpose, the Regional Centers of Technological Development Promotion will be created by the Services Regional Units, reckoning on enough infrastructure to promote technology. Through the proposed centers, the institutional articulation among national and international research organisms will be promoted. Future external technical cooperation can be carried out propitiating the technological development, with the participation of specialists who will bring innovative contributions. These scientific exchanges and studies promoted in the Centers will search for adaptation and diffusion of advanced technologies towards the productive system, emphasizing the viability of alternative crops and technologies, specially those oriented to the small rural producer, with due attention paid to the environment.

These Centers will be permanently in contact with rural extension organisms - RURALTINS for the fulfill of research demands and diffusion of obtained results. The importance of the action to be carried out must be reinforced through courses and training with the utilization of physical structure and models in the field for the demonstration of proposed activities, aiming at the technology transfer to rural producers and workers.

The required infrastructure facilities are as follows:

1. Administrative Center
2. Laboratories (animal, soil, plant protection, biotechnology, etc.)
3. Experimental Fields

4. Analysis Equipment
5. Agricultural Machinery for Research
6. Other Facilities

The amount required for the establishment of this system is estimated as follows;

Item	Cost (R$)
1. Fixed Investment (Installation, etc.)	
Administrative center	1,000,000
Laboratories	3,000,000
Experimental farm	1,000,000
Analysis equipment	2,000,000
Agricultural machinery	1,000,000
Others	1,000,000
2. Annual Expenses (3 years)	5,000,000
Total	14,000,000

2.2.6 Implementation Methodology

Considering the amount of investment, this Program will be gradually implanted, in a 15 years term, in order to structure the necessary infrastructure.

The priorities of the project are as follows:

1. Improvement of SAG Central Office Infrastructure
2. Promotion of Technological Development
3. Restructuring and Implantation of Central, Regional and Local units

2.2.7 Proposal for the Re-organization of SAG' s Central Office

It is proposed to re-organize the directories in the central office of SAG as shown below

- ASTEP

1. To coordinate the planning actions of the Secretariat, including the Pluriannual Plan;
2. To carry out or promote technical studies;
3. To organize and follow up data collection system and market information;
4. To follow up the projects procedures;
5. To follow up the budget utilization;
6. To technically advise the Secretariat cabinet whenever necessary.

- Administration and Finances Directory

7. Responsible for the administration of human resources, transportation sector, materials, equipment, financial resources, accountancy and budget arrangements.

- Technological Development and Promotion Directory

8. To follow the guidelines of the State Technology and Science Council (CECT);
9. To create agricultural research with technologies adapted to each region of the State;
10. To validate in the State the researches carried out by the Research National Center of EMBRAPA;
11. To be responsible for the laboratories of soil, seeds, biotechnology, plant pathological analysis and analysis of pesticides residues.

- Agriculture and Livestock Production Directory

12. To be responsible for the encouragement of agricultural production, including fish raising;
13. To coordinate the elaboration of projects for regions of strategic interest;
14. To support the cooperatives and associations.

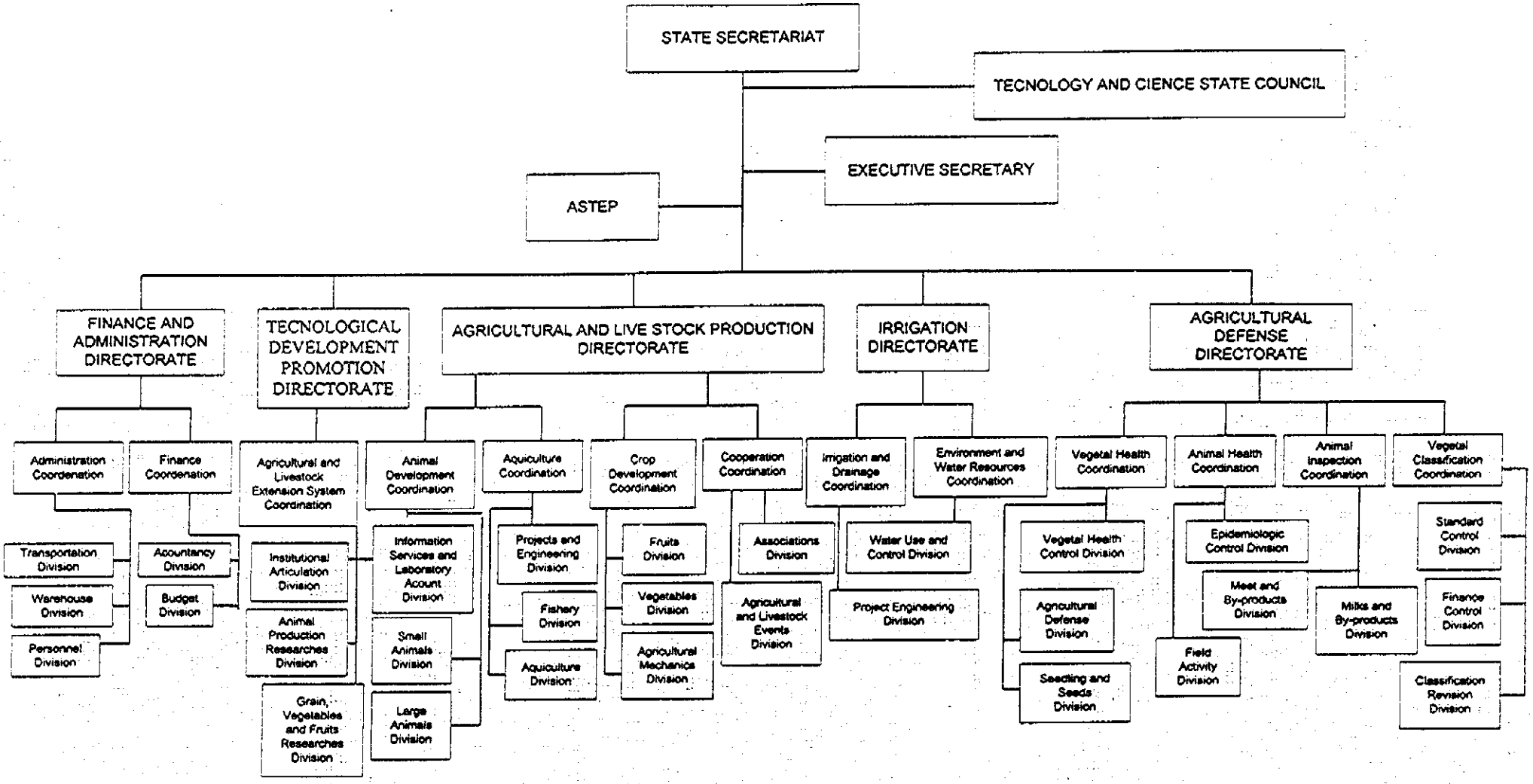
- Irrigation Directory

15. To elaborate irrigation and drainage guidelines for the State.
16. To coordinate, orient and guide irrigated project regions and areas of strategic interest.
17. To monitor all the State hydrological and pluviological data system, registering the micro-basins and water users.

- Agriculture and Livestock Protection Directory

18. To elaborate guidelines for the plant protection and inspection activities.
19. To fiscalize the seeds and seedlings production fields as well as the seeds processing plants, besides the issuing of documents for the register of seeds producers and seedling nurseries.
20. To elaborate guidelines for the animal health and inspection activities, creating Foot and Mouth Disease free zones.
21. To strengthen the plant classification service, thus contributing for the consumer health protection.

ORGRANIZATION CHART OF STATE AGRICULTURAL SECRETARIAT



4 SERVICES REGIONAL UNITS

70 ANIMAL AND VEGETABLE HEALTH LOCAL UNITS

ENTAILED ORGANISMS - RURALTINS
- ITERTINS

2.3 Structural Reform of RURALTINS

2.3.1 General

RURALTINS is a public institution affiliated to SAG which is taking charge of agricultural extension services. The services of the institution covers a wide range of fields such as extension and technical assistance of farm technologies to farmers, implementation of projects in line with the policies of the federal government like PRONAF, etc., planning of regional development projects, guidance to plants and animals disease control system, promotion for rural organization, technical support for access to rural credit and son on.

RURALTINS' s organization consists of one state office located in Palmas, 7 regional offices and 54 municipal offices under the control of the regional offices. The number of employee is 285 in total, of which 80% are stationed at regional and municipal offices.

2.3.2 Actual Situation and Constraints

(1) Deficient Budget and Manpower

Direct beneficiaries of the RURALTINS' services account for 47,000 farmers and their services cover not only technical assistance and extension of famine technologies to them but also support in getting rural credit for individual farmers including illiterate farmers. Hence, the services of RURALTINS function as the practical catalyst for agricultural development of the state requiring dedicated tasks.

Under these circumstances, the services should be highly responsive to the needs of farmers as well as they should be effective and active. Nevertheless, the actual services of RURALTINS are considered to be stagnated without performing them in a satisfactory manner.

The budget for the fiscal year of 1996 was R$ 5,753 thousand, of which 58%, which is equivalent to R$ 3,342 thousand, was actually disbursed. And, of the actual disbursed amount, 82% (R$ 2,741 thousand) was allocated to salaries and remuneration of employees and as small as 18% (R$ 601 thousand) was earmarked as expenses for the services including fixed investment. Taking into account that this scarce amount is distributed among a total of 62 regional and municipal offices, it may be concluded easily that the provision of services at regional and municipal office confront deficiency of financial resources.

In addition, the quota of RURALTINS' s manpower according to budgetary allocation is 329, a surplus of 44 persons in comparison with the actual manpower. This deficient manpower also cause a stagnated performance of RURALTINS' s services.

(2) Vulnerable Organization of Municipal Offices

The greater portion of the municipal offices do not have independent office space which is exclusively available for their services, but normally occupy one space within the building of municipal government. Personnel working in a great majority of these offices are one or two technical staffs without qualification of agronomist or veterinary surgeon. In such situation, services such as training to farmers, formulation of projects, plants and animal disease control, farming plan prepared for application of rural credit can not be provided independently by themselves.

The municipal offices are expected, if necessary, to ask for support from regional offices, but it is recommended to reconstruct the organization of municipal offices to meet with the prevailing demand of local farmers.

(3) Remuneration to Employees

The deficit allocation of budget is closely linked with degradation of remunerative conditions for employees of the institute. It is informed that qualified technical staffs of RURALTINS tend to move to other jobs seeking for higher remuneration. This tendency is a critical issue in performance of the institute' s services which entail advanced and experienced expertise. It is thus advised that measures for improvement of remunerative conditions should be taken so that employees working at inconvenient municipal offices might accomplish their services as expected.

2.3.3 Suggestions for reform

1) Although it is considered to be without control from outsiders, it is strongly suggested that strengthening of RURALTINS should be realized in the light of its substantial role within development of the agricultural sector in the state as well as its contribution to beefing up small and marginal farmers in line with policies of the federal government.

In particular, the services of the institution are not generally administrative but are rendered to be going around the corners of each municipality for attending individual farmers directly, and therefore it is requested that special attention should be paid to allocation of fund for their services.

2) Subject to re-construction of organization, it is essential that municipal offices should be strengthened with assignment of more than one agronomist and one veterinary surgeon. Unless an increase of budget should be realized, strengthening of the quality of services for respective municipal office should be made, even some regional or municipal offices should be closed. The strengthening of municipal offices would necessarily lead to abolishment of regional offices and, as a consequence, re-allocation of budget would be made. In addition, the abolishment of this intermediate office-regional office would bring about such synergy effect as more smooth communication between the central office and municipal offices.

3) Municipal offices of RURALTINS have some sources of income with provision of their services for preparation of farming plan for application of rural credit and owing to repayment of commissions from banks in return to supervisory services for beneficiaries of rural credit. This type of income is deposited at the central offices and is not returned to municipal offices. If this income could be returned to municipal offices, it would contribute to ameliorate the living conditions of employees of rural offices who are suffering from depressed salaries and, at the same time, to upgrade the quality of services with allocation of fixed percentage of the income. This measure, in turn, would benefit farmers indirectly, thereby it is suggested to tackle with realization of the issue in question.

4) Part of the budget may be covered through partnership or agreement with other institutions of organizations, such as municipal government and to realize this enterprise major efforts are required.

5) RURALTINS may be perform some role in the field of agricultural research, by means of validation and diffusion of fruits developed by research institutions.

2.3.4 Contents of the project

Bearing an important role of RURALTINS, it is judged that the strengthening of the institution is essential in such a manner as to arrange conditions necessary for implementation of rural extension services.

The basic actions to be required for strengthening the structure of RURALTINS are enumerated below:

1. To structure 31 regional operation units to be capable to satisfy requisites of farmers, expanding and improving family-based farmers' condition with elevating income level and ameliorating their living standard.

2. To provide adequate operational units with provision of materials, manpower and financial resources so as perform their services more efficiently.

Within the process of strengthening, a total of 31 operational units shall be installed and, at the same time, the following actions shall be developed.

1. To recruit staff to satisfy their demand

2. To provide vehicles to be used for rural services

3. To implement an incentive plan for position and salaries exclusively for RURALTINS

In this project, the following two action plans are contemplated.

1. Construction and re-structuring of 31 local offices with training hall
2. Establishment of training center

2.3.5 Objectives of the Project

The objective of the project is to strengthen physical structure and to foster human resources of RURALTINS to expand rural extension services. The specific objectives for each category of action are as mentioned below.

(1) Construction and Restructuring of 31 Agents

These local offices shall function in various fields of activity for support to farmers, including elaboration of documents required for application and approval of rural credit. These local offices shall also conduct training program for the rural population. Objectives of this action are as follows :

- To improve physical working conditions
- To save office rent
- To furnish appropriate office space to be used for meeting and training

(2) Establishment of Training Center

This center shall have the objective to carry out the training of extension workers and farmers and, at the same time, to hold other events such as meeting and seminar.

2.3.6 Justification

The agricultural sector has substantial importance for the economy of the state of Tocantins, in such a manner as to generate employment and to produce foodstuff, especially basic foodstuff. As for institutional aspect, this group of institution for supporting farmers confronts with difficulty due to deficient supply of necessary equipment and shortage of financial resources

Within the context of the agricultural development, the technology transfer to farmers stands out as a measure capable of attending one of the pressing requisites of policies to be promoted. The role of technology transfer is essential within the process of education aimed to farmers, their family members, and their communities to be oriented in such a manner as to introduce transformation, whether it is collective or individual, by means of new knowledge, attitudes, habits and aptitude in the face of problems in production, marketing, elevation of farmers' income level, and enhancement of living conditions of the rural population.

The improvement of technological knowledge is one of the determinants of development. Agricultural science, veterinary medicine, animal breeding farming are the key factors for improvement of productivity of crops and livestock.

Land exploitation and crop and livestock farming involve human resources, as factor for production, and their importance is stressed day by day, especially in the field of technology transfer. Through technology transfer, it will be possible to attain transformation of socio-economic and farming conditions prevailed in the agricultural sector in such aspects as an improvement of output and productivity, which in turn will lead to facilitate social security and stabilization of rural family.

To facilitate the introduction of new production factors, which consist of research and consistent improvement of farming method, the technology transfer constitutes the most valuable and effective investment for the development of the agricultural sector containing essential aspect of its human resources : a)education, b)technical and economic orientation and c)information.

So as to attain this target, the following actions are required.

1. To emphasis on technical and scientific training within development of science and technology.
2. To hasten development and diffusion of technology which serves to assure an improvement of productivity, enhancement of quality and alleviation of risks inherent to production activities.
3. To promote development and diffusion of technologies in view of optimum utilization and conservation of natural resources.
4. To expand and to strengthen the process for development and diffusion of technologies to fulfill technical requisites of small farmers to enhance their agro-ecological and socio-economic conditions.

The technical assistance and rural extension services are substantial measures in orientation of the regional development policies; the technical assistance aims to diffuse technologies and knowledge, meanwhile the rural extension services make up a public policy required to support sustainable rural development, with elevating returns to the society.

RURALTINS, which is the responsible organization in rendering these services in the state of Tocantins, is required to be competent and should be agile and efficient in the aspect of support that entails obligations and competence in every level of hierarchy.

Despite its efforts dedicated up to date, some aspects of the services of RURALTINS are not rendered satisfactorily as cited below.

1. Absence of autonomy for autarchy
2. Low rate of recycling of human resources, which brings about deficiency in provision of services
3. Political interference
4. Financial resources for the budget are insufficient for performance of actual structure

5. Low level of remuneration received by employees discourages in provision of services.
6. Planning of activities is developed without aiming at conditions for their implementation
7. Less propaganda for the services rendered.

RURALTINS has at present 54 municipal offices, 7 regional offices and 1 state (central) office. Among the municipal offices, close to 60% of them are deficient in their working conditions, which prevents them from provision of satisfactory services.

The federal government has just given impulse to the agrarian reform and to PRONAF. In this sense, it is proposed that the service field of RURALTINS should be expanded, paying special attention to family-based farmers, in particular, working in associations and in agrarian reform areas.

In this context, the present proposal for reform is justified to focus on organization which is expected to be efficient in provision of indispensable services in economic and social development of the state of Tocantins.

RURALTINS, at present, is faced with some deficiency both in quality and quantity of human and financial resource as well as materials. Because of this situation, the services of the institution are not rendered effectively. The strengthening of the organization shall be made by means of:

1. Permanent recycling of employees, both technically and socially
2. Recruitment of staff to be engaged in rural extension services
3. Monitoring of performance of activities developed by every sectors (continuous evaluation)
4. Provision of minimum requisites for rendering services (vehicles, telephone, computers, materials for consultation)
5. Guarantee for necessary resources in development of activities to be composed of partnership and agreement with other organization and institutions

Considering the deficient allocation of budget for the expenses of the organization, the institution is required to seek for rationalization of budget by means of realization of specific activities inherent to each sector or department. In order to enhance the level of its services, RURALTINS is advised to seek the following measures :

1. To regulate coverage of services rendered and to normalize other activities
2. To furnish additional system in improving the productivity of employees who have no designated position
3. To realize partnership and agreement with other institutions with regard to the receipt of the services provided.

2.3.7 Details of the project

(1) Construction and Re-structuring of 31 Local Offices

The physical arrangement for the 31 local offices with adequate office space for meeting. These local offices shall be equipped with the following structures and equipment.

1. Construction or re-structuring
2. Furniture
3. Computer
4. Equipment for extension services
5. Vehicles

The amount for this component is estimated as follows.

Items	Cost (R$ x 10^3)
1. Fixed investment (Installation, etc.)	
Construction (300 m^3 for each)	4,650
Furniture	100
Computer	1,200
Equipment for extension services	600
Extension units	600
2. Annual expenses (3 years)	300
Total	7,450

(2) Establishment of training center

The training center with space for lecture room, laboratories, studio, library, dormitory, dining hall and social affairs hall shall be established. This center is proposed to locate in Palmas in the lot where the headquarters of RURALTINS exists. Besides facilities cited before, the center shall have the following provisions.

1. Furniture
2. Audio-visual equipment
3. Computers
4. Equipment for extension of technologies
5. Vehicles

The amount for the project is estimated as follows.

Items	Cost (R$ x 10^3)
1. Fixed Investment	
Construction (1,000 m^3)	500
Furniture	200
Audio-visual equipment	300
Computer	200
Extension equipment	200
Extension unit	200
2. Annual expenses (3 years)	300
Total	1.900

(3) Project implementation method

The implementation of the project shall be done by dividing in the following forms:

1. Construction of building
2. Procurement of equipment and furniture
3. Implementation of seminars

The total cost of the project is summarized as given below (unit: R$ x 10^3).

Items	Construction of Agents	Training Center	Total
Construction of buildings	4,650	500	5.150
Procurement of equipment	2,500	1,100	3,600
Annual expenses	1,240	300	1,540
Total	7,450	1,900	9,350

The construction of building and procurement of equipment shall be carried out through public tendering.

2.4 Project for Strengthening of Inspection System for Agricultural Products

2.4.1 Background of the project

(1) High-ranking Plan

Federal government aims at the fiscal equilibrium, the growth and the external target under the Multi-annual plan 1996-99, in order to contemplate an accomplishment of balanced national economy and re-construction of the country economic structure with an eye laid on the external economic circumstances. And one of the important action plans is to drive the country into the world market. From now on, the federal government, in an attempt to attain international predominance of the Brazilian products, intends to prioritize modernization and rationalization of infrastructure.

The former proposal intends to adjust prevailing agricultural policy to the actual macro-economic performance attained as a consequence of stabilized economic situation and shall lay focus on alleviation of governmental intervention on agricultural related economic activities and on encouragement of market-oriented agricultural production.

As for long term policy, the latter proposal shall target the reconstruction of agricultural sector for free competition in the 21st century from the viewpoint that the agricultural sector plays a strategic role in expanding the share of Brazilian products at the international market.

(2) General Situation of Agriculture

1) Position of Agriculture in Brazil' s National Economy

Although the agricultural sector contributed to as low as 14% (1994) of the Gross Domestic Product, it plays an important role within the context of the national economy; about one-quarter of the national population live in rural area, 27% of the economically active population are employed by the agricultural sector, and close to 25% of the country' s exports earning are represented by agro-products.

2) Changes in Amount of Major Agricultural Exports

Observing the major agricultural exports, one can see that coffee had been the leading export among agricultural-related commodities for a long time, but has been substituted by soybeans recently; in the year of 1996, soybean accounts for about 35% of the total amount of the agricultural exports, followed by coffee, tobacco, sugar, concentrated orange juice, beef and fruits.

3) Major Agriculture-Related Imports

Amount of agricultural imports shows that grains and grain products are represented by rice. Although supply and demand of rice is currently balanced in Brazil, the importation of grains is carried out in terms of price stabilization policy. On the other hand, imported amount of wheat is increasing, as well as other agriculture-related commodities such as foodstuffs for human direct consumption, as a reflex of the diversification of diet among Brazilian people.

4) International Change in Agricultural Produce Trade

MERCOSUL was established in Jan. 1995 aiming at the elimination of customs barriers among member countries, i.e., Brazil, Argentina, Uruguay and Paraguay, thus Brazilian agriculture is being hit by the other countries. Furthermore, Brazilian economy is also requested to strengthen its constitution against international free market system such as FTAA that is to be realized in 2005. Agricultural policy needs to cope with rapid change of such economical conditions.

5) Quantity of Marketed Agricultural and Livestock Products

According to the information estimated by ICMS, Department of Finance, Tocantins state, the marketed quantity of agriculture and livestock products in 1996 is as shown in the following table. Depending on the items, marketed quantity exceeds the production quantity because some items are counted twice or more, each time a business transaction is carried out.

Market Quantity of Agriculture and Livestock Products in 1996
(Period from Jan to Dec/96)

Commodity	Marketed Quantity		
	In State	Out of State	Total
Agriculture			
Rice	23,283,275.6 bags	955,810.7 bags	24,239,086.2 bags
Feijão	106,898.8 bags	21,299.0 bags	128,197.8 bags
Corn	13,915.6 bags	1,116,422.7 bags	1,130,338.4 bags
Soybean	750.0 bags	126.459.9 bags	127,209.9 bags
Powder	690.3 bags	664.7 bags	996.0 bags
Banana	3,391.6 kilo	15,100.0 kilo	18,491.6 kilo
Pineapple	-	4,686.0 units	4,686.0 units
Others	349.0	48,276.7	48,625.7
Livestock			
Fat Ox	47,996.8 heads	265,191.27 heads	313,188.0 heads
Thin Ox	497.0 heads	13,305.0 heads	13,802.0 heads
Pregnant Cow	3,240.0 heads	4,702.0 heads	7,942.0 heads
Slaughter Cow	167,419.5 heads	159,561.6 heads	326,981.2 heads
Single Cow	978.0 heads	9,316.0 heads	10,294.0 heads
Heifer	416.0 heads	27.247.0 heads	27,663.0 heads
Equine	157.0 heads	2,339.0 heads	2,496.0 heads
Male Calf	1,894.0 heads	98,545,0 heads	100,439.0 heads
Female Calf	480.0 heads	21,794.0 heads	22,274.0 heads
Garrote	923.0 heads	19,525.0 heads	20,448.0 heads
Buffalo	26.5 heads	2,987.0 heads	3,013.5 heads
Fat Pork	1,439.7 heads	164.4 heads	1,604.1 heads
Thin Pork	569.6 heads	312.0 heads	881.6 heads
Others	47,900.0 heads	303,539.0 heads	351,439.0 heads

Source: State Secretariat of Finances, GIA - Geral do Estado - 96

6) Export and Import of Agricultural and Livestock Products of Tocantins

The actual export figures of agricultural and livestock products from Tocantins state since 1992 are shown in following table. There are only three items, leather, timber and

soybean. According to information obtained from the parties concerned, meat is also exported. However, due to the address of exporter, export quantity is statistically included in the record of some other states.

Exports of agricultural and livestock products from Tocantins state

unit = kg

Main Exported Products	1992	1993	1994	1995	1996
Soybean grains, lees, soybean oil	---	0	15,070,000	0	2,308,910
Leather	---	---	0	84,500	334,045
Wood floor and wall board	---	---	---	0	76,475
Unprocessed edge leather	---	---	---	0	150,000
Fresh watermelon	---	---	---	0	22,000
Other wood products	0	26,183	---	---	---
Wood bed, drawers, shelves	70,675	26,705	---	---	---
Kitchen wood table, chair, shelves	18,325	10,962	---	---	---
Decorated wood board, plywood,	155,381	38,640	---	---	---
Office wood table, chair, shelves	22,694	11,208	---	---	---
Wood products except log	15	---	129,542	---	---

Source: MICT: Ministry of Industry, Commerce and Tourism
(SECEX: Foreign Trade Secretariat)/ DECEX SERPRO

On the other hand, there are only two records of import of agricultural and livestock products by Tocantins state for the period of 1992-96 such as the ones shown in the next table.

Imports of Agricultural and Livestock Products by Tocantins State

Year	Item	Quantity
1993	Seed bull for breeding	34 head
1996	Garlic	770,120 kg

Source: SECEX/DECEX SERPRO

(3) Inspection Implementation System for Agricultural Products

Under Federal Law No.6.305 (12/15/75), the inspection (classification) of agricultural products and sub-products of vegetal origin is executed by SAG through the Agreement No.030/93, celebrated with the Ministry of Agriculture.

This activity is regulated by rules, the national standards and has as main purpose the classification of agricultural products, supporting the commercialization.

Agricultural products inspection regulations and laws in Brazil were enacted under the Acts No.6305 dated 15/12/1975, and amended under Acts No.82110 in 1975. Member countries of MERCOSUL continue to confer to establish the united laws among member countries.

Inspection of agricultural Products in Tocantins

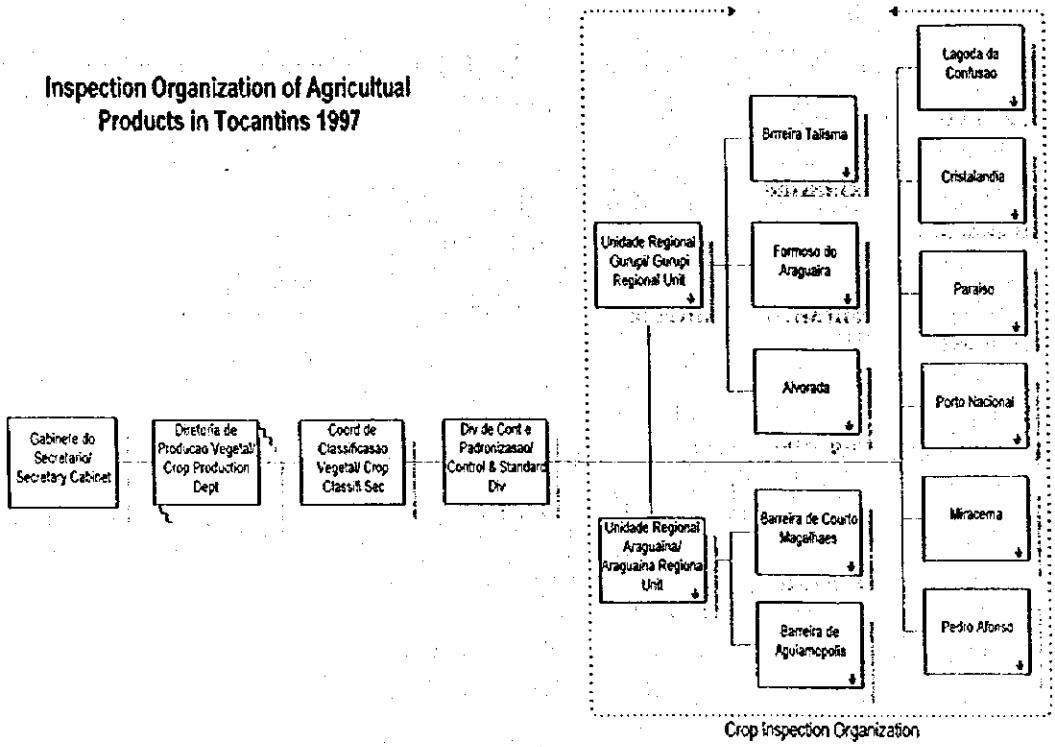
Year	Volume (ton)
1990	337,000
1991	387,000
1992	301,000
1993	305,000

1994	314,000
1995	388,000
1996	302,000

Source: COVEG, SAG

Agricultural products inspection activities in Tocantins cover 5 crops, i.e. rice, beans (feijão), maize, sorghum, soybean, and SAG is for the responsible organization in implementation. In the past every year about 400,000 ton inspected by SAG, but in 1996 inspected 302,347.260 ton, and issued certificates 13,464 affected by production reduce in recent years. Some portion of marketed cereals may not be inspected illegally to save the inspection fee (paddy R$0.87/ton, milled rice R$1.47/ ton).

The physical and staff structure for the development of this function is involving today 29 classifiers and 13 offices located in the municipality of: Alvorada, Formoso do Araguaia, Gurupi, Paraiso, Porto Nacional, Lagoa da Confusão, Palmas, Miracema, Pedro Alfonso, Barreiras de Talismã, Aguiarnópolis and Couto Magalhães. Occasional office open sometimes on the road BR-153.



At Talismã inspection office near the border to Goiás 2 inspectors are engaged in charge of agricultural products and animal for each for 24 hours. They inspect agricultural products in accordance with classification specifications of rice, maize, sorghum, soybean, feijão bean, and specified vegetables. They check classification certificates usually together with products when transported, and in case no certificate issue it after sampling and analysis within one hour. But actually they only check certificates issued by SAG or Ministry of Agriculture, that is ordinary given at an original place.

2.4.2 Outline of the Project

(1) Objectives

Inspection not only make agricultural product trade smoothly but also to promote it properly by means of warrant and guarantee the uniformity, and expedite improvement of its quality. Further, it makes it possible to confirm safety of chemical residue in agricultural products as food.

Inspection regulations on agricultural products in Brazil is established under the Federal laws. Proper grading agricultural products induce incentives for quality improvement by implementation of legal and fair inspection. Benefits of inspection therefore extend to wide range of producers, merchants and consumers.

The agricultural product classification is supported by Law 6.305 (12/15/75) and Decree 82.110 (08/14/78) executed in the sate through the agreement of Agricultural Ministry and SAG, and its purpose is to help the internal commercialization, considering that now with the introduction on MERCOSUL, a research of agricultural products is being developed and in short a new ministerial regulation shall include the involved countries.

The project aims at the improvement and modernization of marketing for agricultural products in Tocantins state, by means of legal implementation of inspection under federal laws created by Ministry of Agriculture. For the aims above mentioned the project perform establishment of inspection implementation system in the state for the regulations.

(2) Implementation of the Project

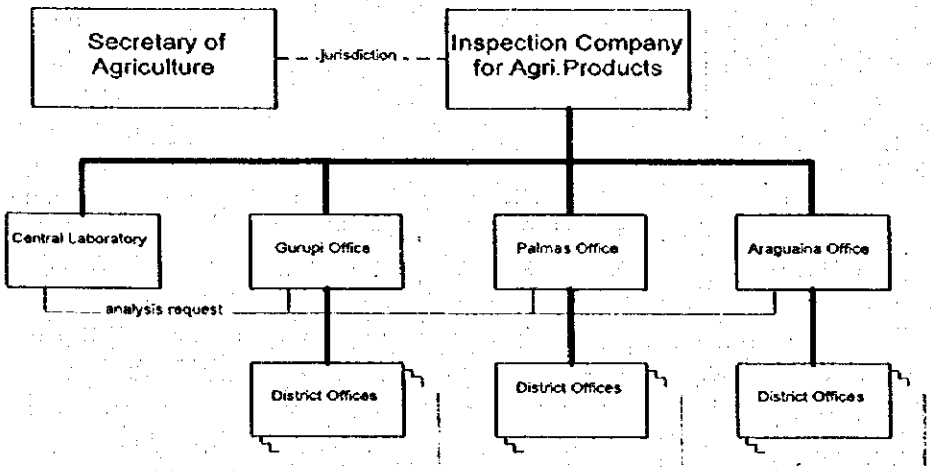
1) Implementation Agency

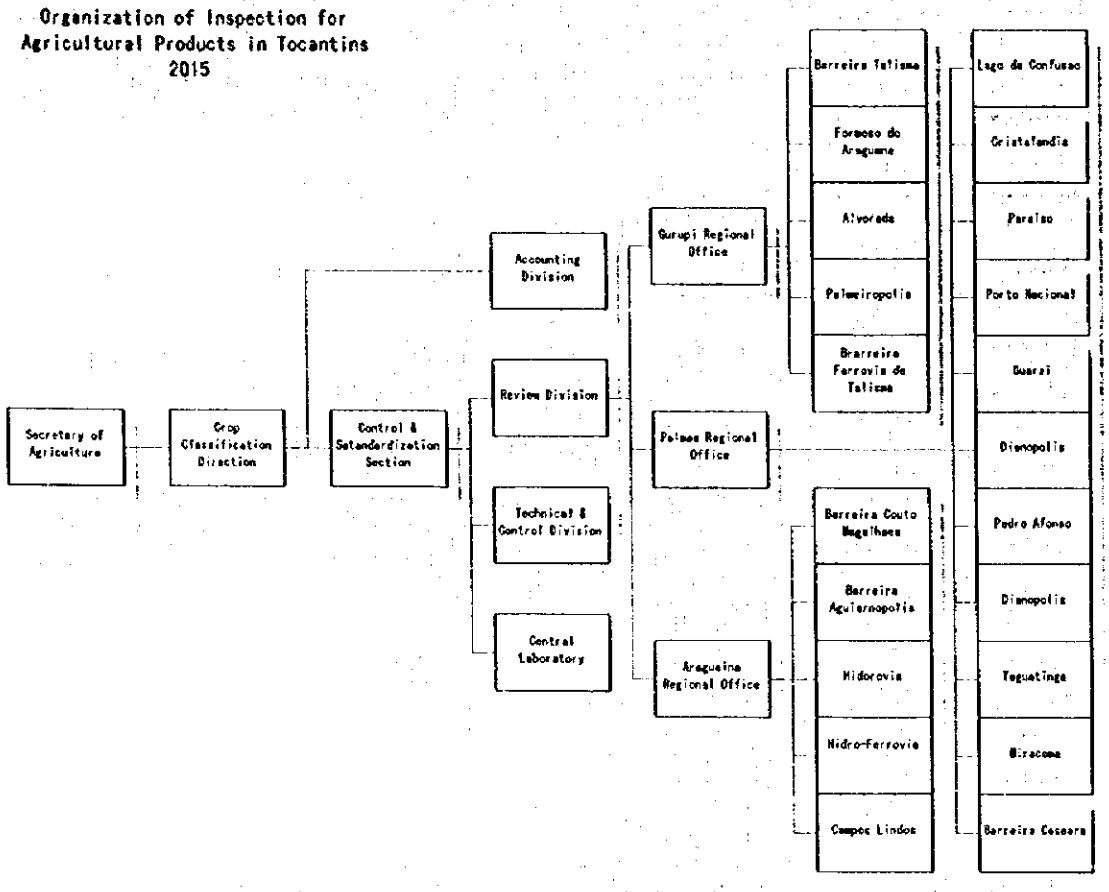
SAG (Secretaria de Estado da Agricutura) is the implementing agency for the project and is responsible organization for inspection for agricultural products.

In short and mid-term SAG is inspection implementation agency as same as present time, however for further consideration, in long term inspection works will be trusted to the private party to make efficient and through inspection. SAG/ Ministry of Agriculture takes exclusively a role of system creation and administration and supervision on inspection works by the private party.

Agricultural product inspection system in case of implementation by SAG and trusted agency is imaged in 2015 in Tocantins as illustrated below:

PLAN FOR ORGANIZAION OF INSPECTION COMPANY,2015



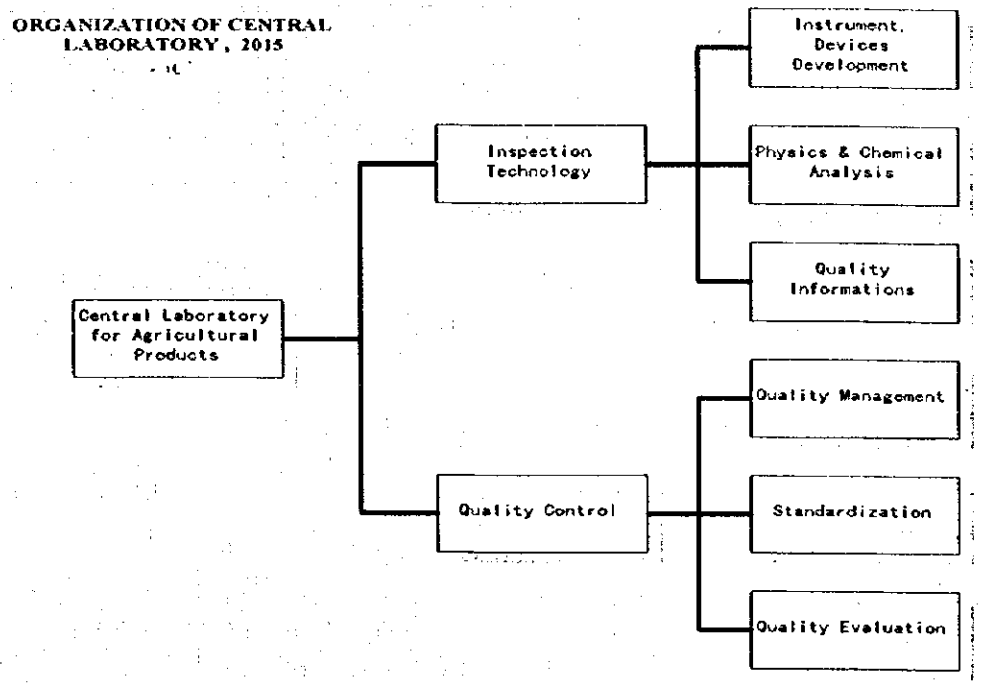


(3) Contents of the project

Three regional offices covering south, central and north region respectively in the state are located in Gurupi, Palmas and Araguaina, and supervise each inspection office under control. Present 13 inspection offices in the state are expected to increase finally 24 offices by 2015.

This project includes necessary building construction and providing equipment and machine, and system reinforcement, staff increment and training, technical collaboration and laboratory installation..

Central laboratory for precise inspection is located in Palmas, and provided with the devices and equipment for physics and chemical analysis, which enable to analyze agricultural products from local inspection offices.



Necessary technical personnel for local inspection offices and central laboratory is increased and properly placed.

State border (barreiras) inspection offices plan to interface with customs and quarantine offices by computer by year of 2015, in order to facilitate consistency of data in Tocantins.

The contents and implementation schedule for inspection office installation is tabled as below;

Schedule on More Establishment of Inspection Office under Project

Office	Present	1998	2000	2005	2015	Total
Local office	3	6	4	3	0	13
Road boarder office		3	1	1	0	5
Railway boarder office		0	1	0	0	1
Port boarder office		0	0	1	0	1
Port-railway boarder office		0	0	0	1	1
Total	3	9	6	5	1	21

Item	1997	2005	2015
Implementing organization	Secretary of Agriculture(SAG)	Secretary of Agriculture(SAG)	Private organization
Local office	0	3	3
Total staff	21	30	40
Inspection office	13	15	21
Equipment	nil	for primary inspection	supplement
Office equipment	typewriter, phone, fax, car, motorcycle	office construction, computer on-line	interface with customs, quarantine and inspection
Central lab.	0	1	1
Equipment	nil	physics/chemistry analytical instruments	supplement

(4) Planned Construction Sites

SAG headquarters and future private inspection agency locate in the state capital, and central laboratory too. Regional inspection offices locate SAG regional office in principle for coming several years.

The sites for new inspection offices are described as follows;

Present Alvorada inspection office is in the SAG local office together with cooperative office, early movement to somewhere is essential.

Formosa do Araguaia office occupies about 30% of inspection in the state , and is a busy office. The present office is in CASETINS premises. In case CASETINS property is unable to be transferred to SAG, another lot for office is required.

Paraiso is located in the center of the state, and a base of transportation because many food warehouses operate there. Inspection office at Paraiso is recommended to be on the side to north direction along BR-153 because agricultural products from Paraiso mostly are transported to the north region. Out door type office is easy to access for trucks which stop for sampling, and analysis. Analytical result to be sent to frontier inspection office by fax so that the truck could save waiting time.

Couto Magalhães locates on the border line to Pará state. An early office construction is expected because land acquisition has been already done.

In Lagoa da Confusão, food production will increase, consequently office construction is needed after acquiring a piece of suitable land.

Pedro Afonso, project area for PRODECER Ⅲ, expects agricultural product increment much. A land for inspection office should be procured.

(5) Contents of Facilities

Devices and equipment provided for local inspection offices are designed for the level of primary inspection, main items as follows;

Building : 100 m^2/each (for both as inspection and quarantine) d rawing attached

Equipment: air-conditioner, telephone, fax, van-vehicle, motorcycle
Inspection devices: moisture meter, gravity meter, length meter, precision balance, magnifier, test-mill, sampler, sealer

Instruments and devices for physics and chemical for central laboratory need to be planed for common use as much as possible. Main instruments and devices as follows:

Comparing degree of freshness
Checking grain measure
Moisture analysis by drying method and electrical moisture meter
Protein analysis by near infrared analyzer and Kjeldahl method
Amylose analysis by spectrophotometer
Starch gel measurement by falling number
Texture measurement by texturometer
Experimental milling by test mill
Physical dough test by extensograph
Grain sorter
Automatic sampler
Odor detecting by odor sensor
Extracting operator on chemical for pesticide residues
Measuring chemicals for GC-MS

(6) Maintenance and Operation

Inspection fee set up by Ministry of Agriculture shall be utilized for maintenance and operation for work load. After privatization in future inspection works require competitiveness among private agencies, hence inspection fee shall be authorized against proposal by SAG/ Ministry of Agriculture.

To make use of the resources according to the established in the Law 6.035 (12/15/75), decree 82.110 (08/12/78), paragraph 1st., article 59, where the incomes obtained from the vegetable classification shall be only applied in the maintenance, improvement and expansions of the related activities.

(7) Project Cost

Buildings and equipment cost for the project by 2015 is shown in the following Table.

Buildings & Equipment Cost for the Project by year 2015

Type	Nos. of Location	Building	Equipment	Total
Local Office	24	R$240,000	R$479,000	R$719,000
Laboratory	1	80,000	215,000	295,000
Total		320,000	694,000	1,014,000

(8) Technical Training

Experts of Ministry of Agriculture and other domestic or foreign sources provide staff with technical training on the base of request. Engineers from manufacturers give training on operation and maintenance for equipment and devices

2.4.3 Execution of the project

(1) Fund Source

Federal government and the state provide the project with fund.

(2) Implementation Schedule

The project is implemented with 2 steps in 2005 and 2015.

2.4.4 Conclusion and Proposal

Inspection warrants uniformity of agricultural products and easy transaction, also accelerate quality improvement as a result. It is also confirm safety of agricultural product in regards with chemical residue. Recently many countries importing agricultural products request strict inspection for exporting commodities because food safety against human beings is getting more significant issue.

Agricultural products in Tocantins need more creditability at home and abroad by strengthening present inspection system. In this sense, it is continuously desirable that the continuous execution for agricultural product inspection law by federal government, and request strict inspection for marketed agricultural products.

2.5 Project for Strengthening of Plant Quarantine System

2.5.1 Background of the Project

(1) High-ranking Policy by Federal Government

Agricultural policy by the federal government in a long-term proposal, is aiming at improvement of agriculture-related activities, reduction of public intervention on marketing activities, etc. Special attention shall be paid to the following four fields.

1) Reconstruction of research and technology extension system
2) Expansion, modernization and diversification of port facilities and transportation network
3) Renovation and intensification of animal and plant disease control system
4) Institutional arrangement for promotion and expansion of private sector' s participation in marketing field

The background for re-construction and reinforcement to control animal and plant diseases is at present of much concern at the international market. As for the plant disease control, an immediate action is required and more sophisticated tasks are essential in this field. It is a worldwide fashion to take up frequency an issue of disease control in an attempt to protect domestic products, and the Brazilian government is well comprehended that it is a matter of public concern to tackle with the issue of disease control so as to lay foundation stone for facilitating private sector' s participation in the international market with improved efficiency and quality. Priority in disease control shall be given to solving any items relevant to agricultural production which cause to impede national product' s access to the international market.

(2) General Situation of Agriculture

1) Position of Agriculture in National Economy

Although the agricultural sector contributed to as low as 14% (1994) of the Gross Domestic Product, it plays an important role within the context of the national economy; about one-quarter of the national population live in rural area, 27% of the economically active population are employed by the agricultural sector, and close to 25% (1994) of the country' s exports earning are represented by agro-products.

2) Changes in Amount of Major Agricultural Exports

The country' s trade volume of agricultural products has been on the rise in recent years reflecting the smooth progress of agricultural policy measures.
The major agricultural exports is showing that coffee had been the leading export among agricultural-related commodities for a long time, but has been substituted by soybeans recently; in the year of 1996, soybean accounts for about 35% of the total amount of the agricultural exports, followed by coffee, tobacco, sugar, concentrated orange juice, beef and fruits.

3) Major Agriculture-Related Imports

Amount of agricultural imports shows grains and grain products are represented by rice. While supply and demand of rice is currently balanced in Brazil, importation of the grain is made in terms of price stabilization policy. While imported amount of wheat is increasing by reflecting diversification of diet among Brazilian people.
The other minor imported agricultural products are fruits and vegetables.

4) Plant Quarantine for Agriculture

The agricultural products from the point of view of plant quarantine, are divided broadly into three categories of food crops, plant for cultivation and plants for testing and research purpose.

Plant quarantine and protection cover in practice a wide range of plants and agricultural products such as seedling, cut-flower, seed, fruits, vegetables, cereals, beans, timber, however canned and bottled products, wooden products that highly processed are excluded.

5) Quantity of Marketed Agriculture and Livestock Products

According to the information estimated by ICMS, Department of Finance, Tocantins state, the marketed quantity of agriculture and livestock products in 1996 is as shown in the following table. Depending on the items, marketed quantity exceeds the production quantity because some items are counted twice or more, each time a business transaction is carried out.

Market Quantity of Agriculture and Livestock Products in 1996
(Period from Jan to Dec/96)

Commodity	Marketed Quantity		
	In State	Out of State	Total
Agriculture			
Rice	23,283,275.6 bags	955,810.7 bags	24,239,086.2 bags
Feijão	106,898.8 bags	21,299.0 bags	128,197.8 bags
Corn	13,915.6 bags	1,116,422.7 bags	1,130,338.4 bags
Soybean	750.0 bags	126.459.9 bags	127,209.9 bags
Powder	690.3 bags	664.7 bags	996.0 bags
Banana	3,391.6 kilo	15,100.0 kilo	18,491.6 kilo
Pineapple	-	4,686.0 units	4,686.0 units
Others	349.0	48,276.7	48,625.7
Livestock			
Fat Ox	47,996.8 heads	265,191.27 heads	313,188.0 heads
Thin Ox	497.0 heads	13,305.0 heads	13,802.0 heads
Pregnant Cow	3,240.0 heads	4,702.0 heads	7,942.0 heads
Slaughter Cow	167,419.5 heads	159,561.6 heads	326,981.2 heads
Single Cow	978.0 heads	9,316.0 heads	10,294.0 heads
Heifer	416.0 heads	27.247.0 heads	27,663.0 heads
Equine	157.0 heads	2,339.0 heads	2,496.0 heads
Male Calf	1,894.0 heads	98,545,0 heads	100,439.0 heads
Female Calf	480.0 heads	21,794.0 heads	22,274.0 heads
Garrote	923.0 heads	19,525.0 heads	20,448.0 heads
Buffalo	26.5 heads	2,987.0 heads	3,013.5 heads
Fat Pork	1,439.7 heads	164.4 heads	1,604.1 heads
Thin Pork	569.6 heads	312.0 heads	881.6 heads
Others	47,900.0 heads	303,539.0 heads	351,439.0 heads

Source: State Secretariat of Finances, GIA - Geral do Estado - 96

6) Export and Import of Agricultural and Livestock Products of Tocantins

The actual export figures of agricultural and livestock products from Tocantins state since 1992 are shown in following table. There are only three items, leather, timber and soybean. According to information obtained from the parties concerned, meat is also exported. However, due to the address of exporter, export quantity is statistically included in the record of some other states.

Exports of agricultural and livestock products from Tocantins state

unit = kg

Main Exported Products	1992	1993	1994	1995	1996
soybean grains, lees, soybean oil	---	0	15,070,000	0	2,308,910
leather	---	---	0	84,500	334,045
wood floor and wall board	---	---	---	0	76,475
unprocessed edge leather	---	---	---	0	150,000
fresh watermelon	---	---	---	0	22,000
other wood products	0	26,183	---	---	---
wood bed, drawers, shelves	70,675	26,705	---	---	---
kitchen wood table, chair, shelves	18,325	10,962	---	---	---
decorated wood board, plywood,	155,381	38,640	---	---	---
office wood table, chair, shelves	22,694	11,208	---	---	---
wood products except log	15	---	129,542	---	---

Source: MICT: Ministry of Industry, Commerce and Tourism , (SECEX: Foreign Trade Secretariat)/ DUCEX, SERPRO

On the other hand, there are only two records of import of agricultural and livestock products by Tocantins state for the period of 1992-96 such as the ones shown in the next table.

Imports of Agricultural and Livestock Products by Tocantins State

Year	Item	Quantity
1993	Seed bull for breeding	34 head
1996	Garlic	770,120 kg

Source: SECEX/DECEX SERPRO

(3) Present Status of Plant Quarantine and Prevention of Epidemics

1) Necessity of Plant Quarantine and Prevention of Epidemics

In order to promote the further growth in the state' s agricultural product trade, however, it is imperative to ensure smooth plant quarantine operation in the state. The import of agricultural products is always accompanied with dangers of invasion of new pests and subsequent damages these pests may cause to the state' s agricultural production. If the export volume of agricultural products is to be increased, it is necessary to efficiency implement export plant quarantine, including export plant treatment. In order to stabilize the state' s agricultural production and expand its exports of agricultural products, therefore, it is of vital importance to improve the quality of state's plant quarantine system.

The present state of export and import of plants and plant products in Tocantins clearly indicates, it is expected that there will be a further increase in the quantity of plants and plant products that enter or leave the state, although quantity of individual plants and plant products will vary depending on type of plant/plant product and means of transportation. This implies possible increases in the plant quarantine workload in the state. It is essential, therefore, to establish a plant quarantine system capable of effectively and quickly coping with such increase in the plant quarantine workload.

It can be said that Tocantins state has a viable plant quarantine system, but the system lacks a plant quarantine facility. The existing plant quarantine facilities' equipment is not sufficient in terms of both quality and quantity. For this reason, one of the major problems facing the state' s present plant quarantine system is the lack of sufficient plant quarantine facilities and equipment.

In this connection, the improvement of the state' s export plant quarantine, as well as the system for their post-harvest treatment and transportation, is an indispensable condition for the smooth exportation of such agricultural products.

2) Laws and Regulations for Plant Quarantine

Laws and regulations which form the basis for plant quarantine services in Brazil are divided broadly in Federal government' s domestic laws and regulations, the state government' s notifications and the international conventions to which Brazil is a signatory.

Plant quarantine laws in Brazil enacted under the Acts No.6305 dated 15/12/1975, and

amended under Acts No.82110 in 1975. Member countries of MERCOSUL presently continue to confer to establish the common laws to member countries.

As a part of the agreement on World Trade Organization, the guidelines for Pest Risk Analysis were approved by FAO general assembly in October 1995, as the international standardization for plant quarantine.

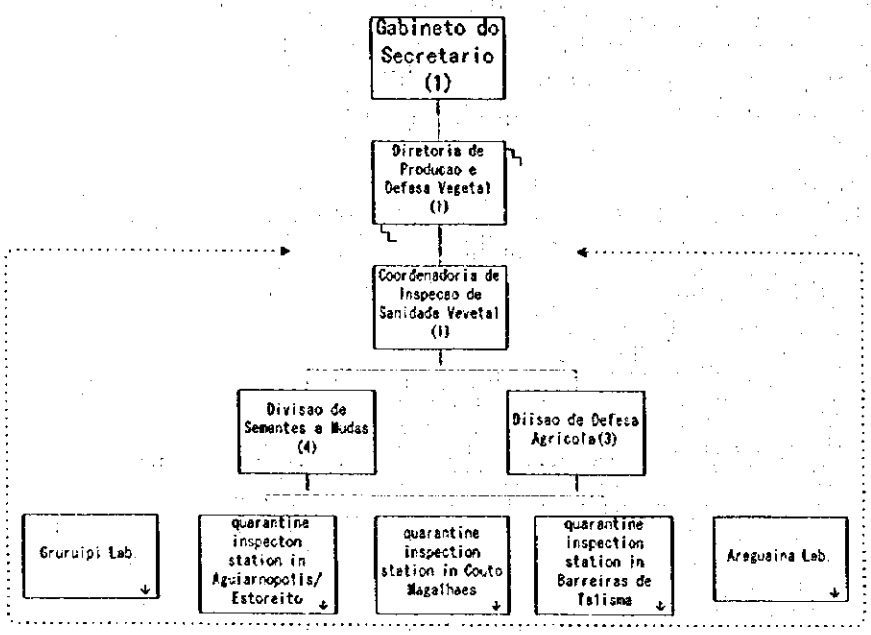
Each state in Brazil is responsible for plant quarantine inspection and protection under the provisions of Ministry of Agriculture and the sate government. Each state regulates practical methodology by state law. In case of Tocantins CESM-TO enacted the detailed rules.

3) Administrative Organization for Plant Quarantine

In Brazil, plant quarantine services are conducted under the control of Seed Certification and Plant Protection Division for the Department of Agriculture, Ministry of Agriculture. Local, seaports and airports plant quarantine stations, which are operating under the supervision of a director of the Department of Agriculture' s Seed Certification and Plant Protection Division, are responsible for primary plant quarantine, and the laboratory in major states for precise inspections.

SAG is for the responsible agency in implementation of plant quarantine in Tocantins. At present the implementing unit is consisted of 2 sections with 29 staff, and 3 quarantine inspection stations exist in the state as shown in organization chart.

Organization of Plant Quarantine in Tocantins



Quarantine inspection stations in the state are installed in 3 locations near the state border-line in Aguiarnópolis-Estreito, Couto Magalhaes, Barreiras de Talismã. Inspectors at quarantine stations mainly check and confirm the certificates because of no equipment. Occasional office opens sometimes on the road BR-153. Laboratories are in Araguanã and Gurupi.

4) Activities by Plant Quarantine Office

(i) Plant inspection

At present, Plant Quarantine Division, Ministry of Agriculture is responsible mainly for precision inspection, including post-entry cultivation inspection, of germ plasma imported from foreign countries. This division only conducts inspection of germ plasma which has high quarantine risks or high commercial value.

At Talismã quarantine office, Tocantins state near the border to Goiás, 2 inspectors are always arranged for 24 hours. Inspectors check certificates which brought in together with when transported. Seed and seedling to across the state border is also required to acquire plant quarantine inspection as a rule. But actually they only check certificates issued by SAG or Ministry of Agriculture, that is ordinary given at an original place. No quarantine certificate means that seed or seedling no to pass the border and return to its original place.

Also Federal Government enacted the agro-chemical residue acts for agricultural products, but any organization is not capable to execute it so far in the state.

(ii) Seed and Seedling Inspection

As part of this activity, pest-free seeds and seedling are imported from other states and foreign countries. In this connection, it is important to carry out accurate precision inspections of imported seeds and seedling.

Seed and seedling is controlled and to be inspected by SAG according to the Federal law. SAG inspected the seed production fields of 1,695 ha in 1996, and inspected seed about 4,000 ton together with seed imported form other states.

There are no companies of seeds and stocks in Tocantins now. Seeds are imported from domestic enterprises and multinational companies of other states, such as CARGIL(Brazil, Goias), SELECTA(Brazil), AGROCERES(Brazil), PIONIER (USA), etc. These imported seeds and stocks should be quarantined by SAG of the State, but the inspection system does not give satisfactory results.

Seeds of rice and soybean are produced in Tocantins, which are mainly produced by COOPERJAVA in Formoso do Araguaia, but most of the other seeds are imported from other states. Seed supply to Tocantins is not enough except the seeds of rice and soybeans so far.

Seeds Produced in Tocantins (1996)

Crops	Seeds Producers	Location of Seeds Production	Amount of Seeds (t)
Soybean	COPERJAVA	Formoso do Araguaina	1,229.72
	COPERFORMOSO		1,099.50
			Sum 2,329.22
Rice	EMBRAPA-SPSB	Formoso do Araguaina	70.62
	COPERJAVA		2,785.77
	CAMPINA VERDE		1,794.05
	SEVAJA		1,271.06
	AGROP.CRISTALANDIA	Pium	418.35
			Sum 5,779.35

2.5.2 Outline of the Project

(1) Objectives

One of the main objectives of this project is to improve plant quarantine system in Tocantins/ Brazil to ensure the safe import of agricultural products. The necessity of an effective and efficient plant quarantine services was stressed on the ground that it is important to import food crops, plants for cultivation and new varieties.

This project is aimed at ensuring the effective and efficient implementation of plant quarantine in Tocantins/ Brazil through the improvement of its plant quarantine system as well as of plant quarantine/treatment technologies, in order to cope with both quantitative and qualitative growth in the export and import of agricultural products. This project is expected to contribute to the protection of agricultural production from the disasters caused by pests/pathogens, and also contribute to the expansion and diversification of agricultural production as well as to the increase in exports though the improvement of self-efficiency in food stuff.

Special attention is paid to this project' s contribution to the expansion in Tocantins/ Brazil' s exports of agricultural products. For this reason, the development and application of technologies for the safe and effective treatment of agricultural products is chosen as one of the main objectives of this project.

Supervise the transportation of vegetal, its products or sub products in order to avoid importation of plagues and diseases such as: fusarium, citrus canker, nematode of soybean, fly of fruits, white fly, dark spot of grass, etc.

Control of the commercialization and use of agriculture toxic products, supervision of seeds and seedling production; prevention of fusariose in pineapple cultivation, where the state of Tocantins can be considered free of this pathogen, supervision of vegetal transportation and also control of grasshopper

In order to expand exports of non-traditional agricultural products, these agricultural products must be competitive in terms of quality and pricing in domestic and overseas markets. To this end, it is necessary to introduce new varieties which excel in quality, productivity and tolerance against pests/pathogens, however, it is essential to conduct precise inspections using scientific methods of quarantine, since the introduction of new varieties is inevitably accompanied with a possibility of introduction of exotic pests/pathogens.

The treatment equipment to be supplied under this project should be selected giving due consideration not only to technological development in the area of treatment but also to the scope of its practical use. In other words, it is appropriate to select such items of equipment as is capable of treating plants and plant products in accordance with the exporting countries' technical requirements, particularly in the case of agricultural products which are exported in certain quantities.

(2) Implementation of the project

It will have three major functions namely, the administration, precision inspection and plant quarantine operation functions. As the plant quarantine administration facility, it will be responsible for operational control, personal management and research. As the precision inspection facility, it will conduct precise inspections of imported agricultural products. Its inspection division will consist of pathological inspection section, entomological inspection section and treatment technology section.

The plant quarantine services is to act as the state' s central plant quarantine organization.

(3) Implementation agency

The SAG is the implementing organization of the project. After completion, the quarantine services will belong to the division of SAG.

As the plant quarantine operation facility, it will conduct primary plant quarantine inspections of export and import agricultural products. Its plant quarantine operations will include treatment of certain quantities of agricultural products exported .

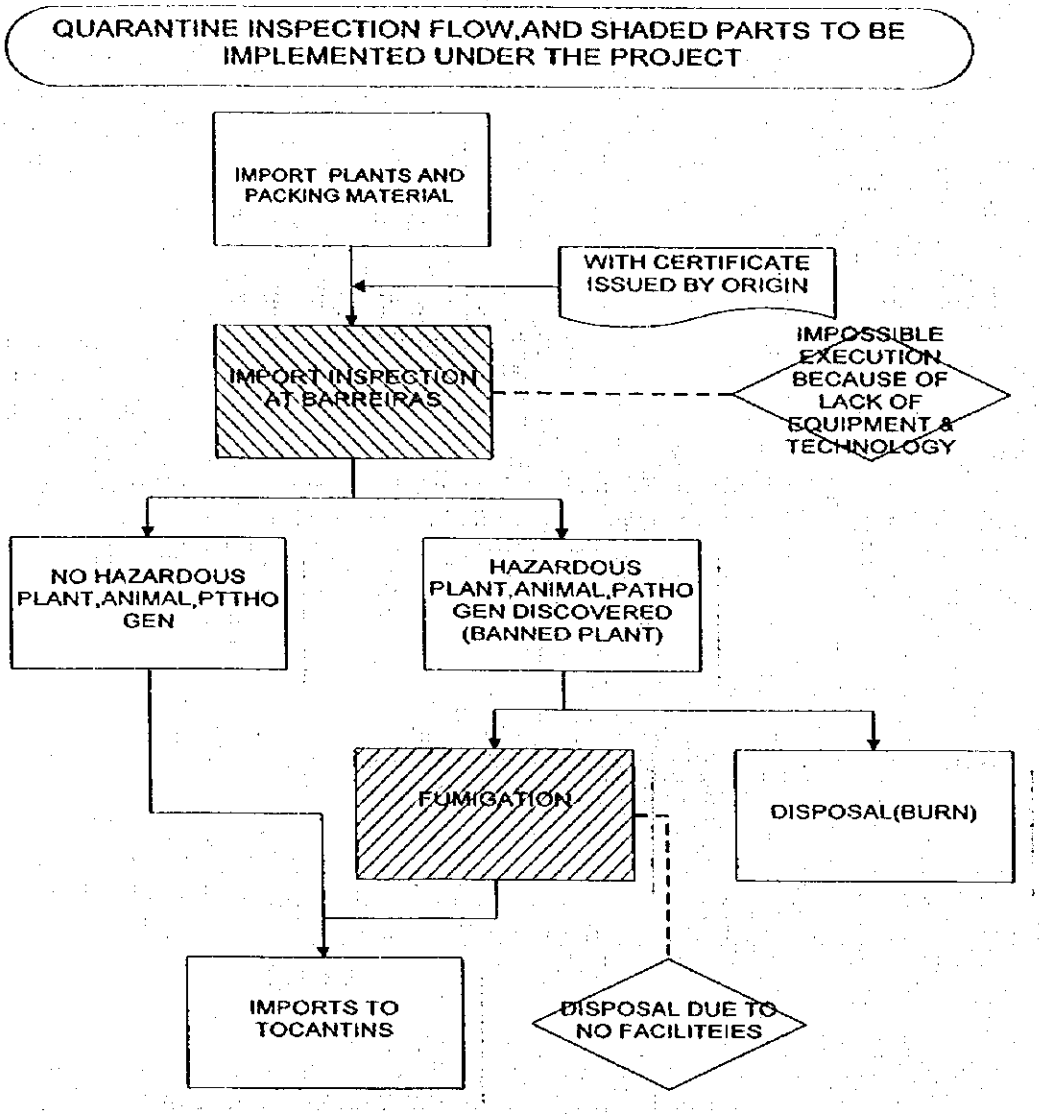
The Plant Services are to provide following three types of services.
- Administration of plant quarantine operation in the country,
  It will also keep in contact with domestic organizations responsible for control of agricultural chemicals and seeds, as well as foreign or international plant quarantine organizations.
  Establishing a legal system related to plant quarantine is also one of the important activities.
- Precise inspection of plants exported and imported
- Quarantine of plants exported and imported

While plant quarantine stations are responsible for primary inspection of plants exported and imported, plant quarantine and issuance of phytosanitary certificates, the services will be conducted by the planned plant quarantine facilities.

State border (barreiras) inspection offices plan to interface with customs and quarantine offices by computer by year of 2015, in order to facilitate consistency of data in Tocantins.

(4) Scope of the project

Significant scope of the project corresponds to the shaded portion as shown in figure;



- To strengthen quarantine activities at border (barreiras) quarantine offices which are facing inspection difficulties because of lack of equipment and technology.
- To improve the problem in disposing the plants contaminated with hazardous insects and/ or pathogen because no facilities for disinfecting or fumigation.

For improving manageable and technology in office works, the following is contained:

- To increase technical staff and level up their technology
- To increase quarantine office, and improve management capability by facilitating necessary equipment such as type writer, telephone, facsimile, personal-computer, vehicle, motorcycle, etc.

(5) Plan of Facilities

The facilities and equipment required for fulfilling the above-mentioned functions are as outlined below.

Project site, floor area of facilities, main building, outdoor facilities, structure and stories shall be specified. Facilities and equipment are designed with policies as mentioned below;

The equipment plan is formulated based on the following basic policy after consultations with the SAG bodies concerned. In developing the basic policy, due consideration is given to the fact that this project is aimed at improving the operational and technical aspects of expansion of the state' s agricultural product trade.

- To procure equipment required to implement plant quarantine operations efficiently and properly and to develop quarantine technologies that suit the actual situation of plant quarantine in the country.
- To select those items of equipment which do not consume much energy and those which are easy to maintain and manage.
- To have those items of equipment for common shared as much as possible.

The table below summarized the explanation that is described before;

Contents of the project and implementation schedule (plant quarantine)

Item	Present(1997)	Short term(2000)	Mid term(2005)	Long term (2015)
Organization	Division, section, laboratory			
Total staff	21	30	40	40
Inspection office	3	5	7	10
Space	30	50	50	50
Office equipment	typewriter, telephone, facsimile, copy machine, vehicle, motorcycle	Office building	Office building, personal compute-online connection between offices	Office building, computerization(interface with customs))
Inspection equipment	none	For primary inspection (magnifier, microscope, balance, refrigerator, filter, filter, etc.	Supplement for primary inspection(gas detector, gas density meter), fumigation facilities, etc.	Supplement for primary inspection
Laboratory	2	1	1	1
Main equipment				

(6) Maintenance and Operation

The estimated annual maintenance expenses of R$3300000 and therefore it is considered relatively easy to make budgetary appropriations for this project.

(7) Estimated Cost for the Project

Buildings and equipment cost for the project by 2015 is shown in the following table.

Project Cost for the year 2015

Type	Nos. of Location	Building	Equipment	Total
ULSAV	26	R$260,000	R$563,000	R$823,000
Fixed Post	24	240,000	581,000	821,000
Movable post	10	---	177,000	177,000
Laboratory	1	80,000	180,000	260,000
Total		580,000	1,501,000	2,081,000

(8) Technical Training

Experts of Ministry of Agriculture and other domestic or foreign sources provide staff with technical training on the base of request. Engineers from manufacturers give training on operation and maintenance for equipment and devices

2.5.3 Execution of the Project

(1) Fund Source

Federal government and the state provide the project with fund.

(2) Implementation schedule

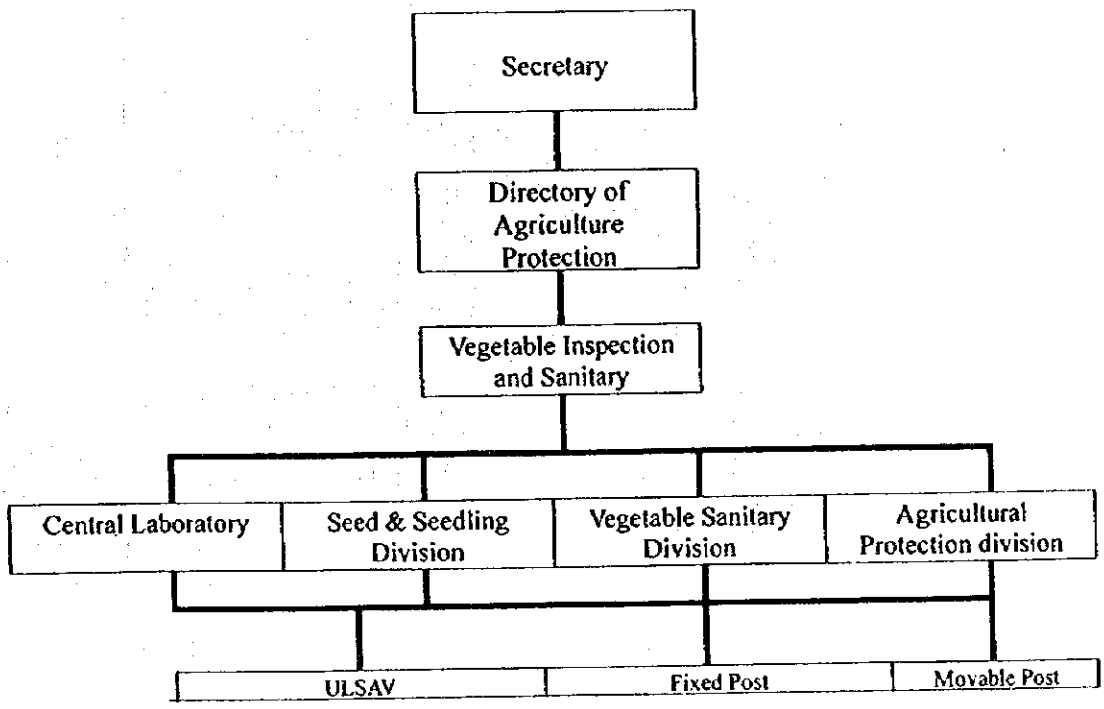
The project is implemented with 3 steps in 2000, 2005 and 2015.

2.5.4 Conclusion and Proposal

When implemented, this project will help reinforce Tocantins' plant quarantine system as well as streamline the plant quarantine operations in the state/ country. As the result, it will become possible to prevent the invasion of pests/pathogens with which imported agricultural products, seeds and seedlings are contaminate, which in turn will result in stabilized agricultural production in the state. In addition, the implementation of this project will lead to improvements in the state' s treatment technology and export of agricultural products, which in turn will contribute to the promotion of the export of agricultural products as well as to the acquisition of foreign currencies.

It is desirable that it will be necessary for the Government of Tocantins to work out and implement proper personnel assignment, to make sufficient budgetary appropriations for the maintenance and management of the facilities and equipment, and to maintain the precision and reliability of plant quarantine at a high level, in order to enhance the expected effects of this project.

The Future organization for quarantine system in SAG is shown in the following figure.


Secretary
Directory of Agriculture Protection
Vegetable Inspection and Sanitary
Central Laboratory
Seed & Seedling Division
Vegetable Sanitary Division
Agricultural Protection division
ULSAV
Fixed Post
Movable Post

	ULSAV	Fixed Post	Movable Post
1	Alvorada	Aguiarnpolis	
2	Araguana	Araguacema	
3	Araguan	Aragua	
4	Araguatins	Araguan	
5	Campos Lindos	Araguatins	
6	Caseara	Arapoema	
7	Colinas do Tocantins	Arraias	
8	Couto Magalhes	BR-153	
9	Cristalndia	Campos Lindos	
10	Formoso do Araguaia	Caceara	
11	Goiatins	Couto Magalhes	
12	Guara	Filad.:.lfia	
13	Gurupi	Goiatins	
14	Lagoa da Confuso	Lizarda	
15	Marianpolis	Mateiros	
16	Miracema	Novo Alegre	
17	Natividade	Novo Jaodim	
18	Palmeirpolis	Palmeirpolis	
19	Paraso	Ponto	
20	Paran	So F.:.lix do Tocantins	
21	Pedro Afonso	So Miguel do Tocantins	
22	Porto Nacional	Talism	
23	Rio da Conceio	Tagualinga	
24	So F.:.lixdo Tocantins	Xambio	
25	Tagualinga		
26	Tocntinpolis		
	26	24	10

3 Livestock Sector Modernization Sub-Program

3.1 Establishment of Animal Disease Free Zone Project

3.1.1 Background

The Animal Health project has been selected among the priority projects identified and formulated by the Integrated Regional Development Master Plan Study. It is an important component of modernization of livestock industry in the Region. The JICA Study team has carried out this study in collaboration with the Secretary of Agriculture livestock counterpart through discussions, data analysis and field investigation.

Animal health support to livestock production system is the most vital segment of planning. The farmers easily learn by experience the technique of breeding, feeding and management in which they become self-sufficient, and need expert' s help in specialized health services. Prevention of diseases is not easy; however, it will pay-off in the long run. It is clear that 80 per cent of the disease problems could be avoided by paying a closer attention to the sound basic principle of management which includes early and timely diagnosis of diseases.

Rapid diagnosis and effective prophylactics play a crucial role in disease control system of the State, especially in viral disease control for which no treatment is available and which could be controlled through the effective vaccination.

When belonged to the Goias State, the Tocantins wasn' t included in animal health programs, obtaining only very low incentives as for vaccinations and other diseases control measures. After creating the State, there is a constant concern about animal disease control programs, which led the State Government to make an agreement with the Federal Ministry of Agriculture and BIRD (World Bank) aiming to control and afterwards eradicate the main infectious diseases. At present, this agreement was terminated, and the State Government has proposed another type of cooperation with the Federal Ministry of Agriculture.

Supported by specific legislation and mainly through animal health campaign programs, the Secretary of Agriculture is conducting vaccinations through out the year, to minimize the losses caused by animal diseases which is clearly shown by the improvement of the attained Foot Mouth Disease vaccination coverage indexes, as shown below;.

FMD Vaccination Indexes

Year	% of Vaccination
1989	17
1997	86

Campaigns carried out from May to November. In the recent administration, 5 campaigns were carried out, for which the Government has purchased 1,392,000 doses

of vaccines, out of which 692,000 were donated and 700,000 were subsidized and applied in the small scale cattle raisers by the technicians of Secretary of Agriculture and RURALTINS.

Decline of the FMD outbreaks

Year	Outbreaks
1994	104
1995	61
1996	22
1997*	3

* until August, 1997.

3.1.2 Objectives

General Objectives

- Eradication of FMD and Classic Swine Fever (CSF) up to the year 2010.
- Establishment of an Export Program of livestock and livestock products.
- Institutional strengthening aiming at the execution of necessary services to the prevention and maintenance of animal health through the utilization of adequate technologies, specialized technical services in such a way that their effects don' t cause impacts over the human health and the environment.

Specific Objectives

1. To expand the control programs against the main animal diseases, especially aiming at the eradication of the FMD and CSF.
2. To implement the local units of animal health control.
3. To investigate the movement of animals, animal products and by-products within the State and between Tocantins and other states.
4. To register the properties of farm.
5. To periodically carry out vaccination campaign.
6. To achieve Laws, decrees and regulations concerning to animal health.
7. To strengthen the warning and epidemiological information systems.
8. To develop the service of notification of disease outbreaks.
9. To realize and qualify human resources.
10. To arrange infectious disease program formation through animal health education measures.
11. To promote the diagnostic services through laboratories network.
12. To directly attend the disease outbreaks.
13. To carry out herds monitoring.
14. To develop the distribution and commercialization network of vaccines, medicines and livestock equipment and tools.
15. To promote the epidemiological characterization of several regions in the State.
16. To create an integrated systems of animal health activity in order to involve through cooperation with the several concerning divisions in the livestock activities.

3.1.3 Justification

In the Tocantins State, per capita cattle, buffaloes and swine population is ranked third respectively in the national level. These figures indicate that as regards to per capita data, the Tocantins is one of the most important States for the livestock activities.

The state development is directly related to the strengthening of the agriculture and livestock activities, through specific programs which supply the increasing external demand for food and a materials.

At present, considering the cattle herds population of approximately 6 millions, and farming activities is the most important sub-sector in the State, and its influence over the economy of Tocantins is extremely important. Therefore, the implantation of programs are urgently needed for the full control of actions in the livestock sector and the control of animal products, which constitutes the productivity base, i.e., the essential condition for the survival of the productive systems, which are the livestock activities, industry and commerce. Such a control directly depends on two factors;

1. qualified livestock technologies,
2. animal health conditions.

Among the number of diseases which can be cause damages to animal health, the FMD represents the biggest obstacle to the growth of livestock economy in the countries and a permanent threaten to the FMD free zones in the world.

In a traditionally agricultural State, it is very clear that the importance of eradication such a disease, not only because of the damages caused but mainly because of difficulties in obtaining capitals which would place Tocantins in the equal position to compete with the other meat exporting states and countries.

3.1.4 Strategy

The strategy to eradicate the FMD are described in the Law 206/90.

Within the eradication strategy against the FMD, the movement control is one of the most important activities. It is worthy to say that the infectious-contagious diseases spread easily and if there isn' t an effective movement control of animals within the State, it will become impossible to trace back to the origin of outbreaks in order to restrain them.

It is also a predominant factor the immediate implementation of new buffer zones in municipalities where the movement of animals is intense. Furthermore, considering the obligation of documents issuing and control which certifies the herds health conditions, the SAG has divided the state in key-municipalities and their respective reaching areas as shown in Table XII – 3.2(1).

In relation to the Classical Swine Fever (CSF), the following strategy is proposed:

1. The eradication of the Classical Swine Fever will be slowly and progressively implemented, being initiated by priority regions, indicated by the economic importance of the swine farming activity and existing epidemiological conditions, aiming to health control areas with the objective to obtain free zones, before reaching the whole state.

a) In all the area, this eradication program will be supported by the epidemiological warnings and in health defense measures in force;

2. The notification of suspicious cases of classical swine fever shall be made to the Secretary of Agriculture in due time so that necessary measures can be taken;

3. Each notification shall be investigated by an official veterinarian who must proceed the collection of materials and the delivery to the reference laboratory;

4. The program will be divided into 3 areas;

4.1 Area I - without vaccination - it will have its limits established according to the physiographical conditions of the region, utilizing whenever possible the natural geographic features. A strict health border will be established, involving all the farms located in the border line of the concerning region.

4.2 Area II - with forced vaccination - if it is confirmed if a suspicious of classic swine fever, by observing clinical area, the establishment will be banned and the infected animals Will be culled independently of the results of laboratory tests.

a) If the laboratory tests results are negative, the establishment will be prolonged and it will be oriented to the adequate health programs to be taken;

b) If the laboratory tests results are positive, the clinical healthy animals, which are considered to be under risk in the farm, will be sent to the slaughtering facilities under official inspection and are not being qualified to export.

4.3 The replacement stocks of the farms can only be carried out with animals proceeding from the same or from free farms or from farms with a minimum disease (MD) herds.

4.4 It is prohibited to the animals from other areas to entry this Area I for the purpose of slaughtering, exhibitions, fairs or other related events.

a) In the Agricultural Exhibitions, replacement of breeding herds, only the swine coming from free farms of MD herds will be allowed to get in.

b) The swine forthcoming to slaughtering, from farms located out of Area I, can only be sent to slaughtering facilities and are not qualified to export.

4.5 In Area III, the vaccination will be voluntarily used and the prevention measures will be done the animal health defense mechanisms.

4.6 The conditions for the farm to receive the FREE CERTIFICATE FOR CLASSICAL SWINE FEVER are:

a) To evaluate with the assistance of a veterinarian;

b) To suspend the vaccination of animals against classical swine fever;
c) To firmly serological monitoring for classical swine fever;
d) To possess adequate facilities which allow the satisfaction of essential conditions to veterinarian control and hygiene;
e) To adopt management techniques compatible with a health control;
f) Being installed out of the urban zone and without contiguity with ports, airports and swine slaughtering limits;
g) To posses one only entrance for the access of persons, animals and vehicles, preferably possessing wheels washers with disinfectant in appropriate concentration to the inactivation of the Swine fever virus;
h) Likewise, to dispose of foot baths at the entrance of all facilities with disinfectants indicated in the combat against the Classical Swine Fever virus;
i) To proceed the replacement stocks of the herds utilizing animals of its own breeding stocks or purchased from Free Farms of Classical Swine Fever or MD herds.
j) To dispose of an information system which allow the evaluation of the reproduction breeding stocks, especially the verification of the occurrence of reproductive disorders or abnormal milk production;This remarks will be part of a control file at the disposition of a veterinarian from the official service.

5. The region described in Area I shall be declared free after the evaluation foreseen in the international context of free zone definition.

6. The municipalities of Area II, contiguous to Area I - without vaccination, can be incorporated by the former one since, elapsed 180 days from the start of works, no outbreaks of CSF is identified by the available diagnostic resources.

3.1.5 Beneficiaries and Benefits

Due to the fact that this is a program involving all activities related to herds health, three groups are defined as beneficiaries, namely,

a) Rural products - who will recognize on more healthy animals and consequently will have their production improved and future perspective of external markets,

b) Site - that with the increase in productivity in the primary sector will not only have an increase in its direct revenue but also will gain with the growth of the agro-industrial sector,

c) Population - with the due health control, they will be assured of consuming animal products and by-products of safe quality.

3.1.6 Coverage Area

The program aims to reach the whole state, however, it can be divided into two stages due to the large territorial extension, which could cause operational problems.

The first area is determined by the characterization of primary endemic for FMD, being limited by the Bananal Island, covering all the left margin of the Tocantins river, from the border with Goiãs up to the municipality of Rio dos Bois at BR 153. There is already a complete register of rural properties in this area which are in need of health services increment, for the effective care of diseases outbreaks and development of a correct prevention activities.

The remaining area needs to be registered of the rural properties, epidemiological characterization, implantation and implementation of animal health services, which shall be constantly in progress in order to assure the program continuity.

3.1.7 Executive Agency and Personnel

The Secretariate of Agriculture will be the Executing Agency.

The direct executive personnel of the program shall be the veterinarians of the animal health official service assigned in the local units of agriculture and livestock health, which covers 1 or more municipalities, according to herein annexed Table XII-3.2(1). If there are no veterinarians assigned in the municipalities, it will be the responsibility of the Secretary of Agriculture, in cooperation with the Federal Commissionership of the Ministry of Agriculture, the assignment of veterinarians from other organizations, institutions or autonomous ones in order to duly fulfill the animal health services.

3.1.8 Project Justification

The project will accrue no cash income to the Government, but will it increase the livestock production i.e., milk, meat, skins and hide which will ultimately raise the socio economy on state level as well as national level thus project is justified to be established in the interest of livestock wealth of the state.

Basic Concept:

Subject	Activities/Services	Target
Immunization of cattle, buffalo against FMD	- systematic vaccination - strategic vaccination	100 % 10 %
Direct supervision of the vaccination against FMD	- supervision of cattle farmers registration	20 %
Eradication and/or control of Classical Swine Fever	- establish registered swine farmers - establish health check visit to the farms - health monitoring - health check - control of outbreaks	100 % 100%
Immunization of swine against classical swine fever	- systematic vaccination	100 %

Supply replacement breeding swine from MD herds	- certificate MD farms	3 units
Control and supervision of the animal movement	- maintenance of regular station - establish regular station - mobile units team - supervision of agriculture and livestock events -issuing movement document	 14 units 4 units 100 % 100 %
Contracting veterinarians	- contract	50
Health inspection for export animals	- animals inspection	whenever necessary
Health inspection for import animals	- animals inspection	whenever necessary
Qualification of human resources	- personnel training; veterinarian, field assistant and administrative assistant	3 courses per year
Health education and campaign	- elaboration of educational material - campaign of health program	10,000 units 6 campaign per year
Organization of the community	- creation of local council of animal health	139 units
Supervision of veterinary products shops	- register and renovation of licenses - facility inspection	100% 100 %
Registration of the farms	- registration and classification of the farms	100 %
Implement of local units of animal health	- implementation and establish local offices	50 units

Necessary Expenditure (R$ 1.00 / Year)

ITEMS	R$
1. Employment labor cost	91,000.00
2. Consumption materials	
- 1. Maintenance of vehicles	15,000.00
- 2. Fuels	40,000.00
- 3. Health Education	5,000.00
- 4. Other materials	400,000.00
Sub Total	460,000.00
3. Services to the private sector	24,000.00
4. Services to the public sector	
- 1. Maintenance of vehicles	15,000.00
- 2. Health education	90,000.00
- Travel Expenses	20,000.00
-Development of field veterinarian services	4,000.00
Sub Total	129,000.00
5. Permanent materials and equipment	
- Vehicle	150,000.00
- Computer and attachment	45,000.00
- Communication equipment	10,000.00
- Health education materials	5,000.00
- Other materials	30,000.00
Sub Total	240,000.00
Grand Total	944,000.00

3.2 Strengthening Of Animal Health Laboratory

3.2.1 Background

Tocantins State posses the resource-base for the establishment of flourishing livestock industries. The approximately livestock production contribute around 16 per cent of the ICMS revenue. Beside contributing foods for high biological value such as milk, meat and other valuable products such as hide and skins, provide the raw materials for leather goods and other industries.

Livestock are the main source of livelihood, employment and earnings for the rural farmers with small holding and the rural women who devote one third of their working time to take care of livestock.

It is estimated that livestock sector worth to millions of Reals die annually from various contagious and infectious diseases. In addition, the target losses also occur due to chronic, sub-chronic and debilitation diseases that may not prove fatal.

At present, Tocantins State is carrying out preventive vaccination against the contagious diseases, but rapid diagnosis and effective prophylactics play a crucial role in disease control systems of the state, especially viral disease for which no treatment is available and which could be controlled through effective rapid diagnosis.

Unfortunately, satisfactory animal disease diagnostic laboratory is not available to prevent losses from most of the infectious and contagious diseases.

3.2.2 Justification

At present, there are no qualified animal disease inspection and diagnostic laboratory in the State, and if disease outbreaks the State needs to send their samples to the Animal Support Laboratory located at Blen, State of Parã, where virological, bacteriological and even parasitological tests are carried out and other chemical analysis. It is difficult for an institute to make proper diagnosis as it usually takes many hours until they receive a specimen from Tocantins. Moreover, a wrong specimen is sometimes delivered. Once a sound principal management for an appropriate and timely diagnosis is realized, about 90 per cent of the disease problems can be eliminated.

Official veterinarians are fully aware of the demand for their services in the forthcoming 21st century, and that the rate of human population is increasing. At the same time, the socio-economic conditions are getting better day by day along with demand for value added livestock products. In order to achieve this condition the role of safety food supply and nutrition will be as a strategic function. Therefor, Tocantins need a further intensify on livestock production in more efficient and cost effective manner.

To provide a protection to the livestock in the interest of livestock owners of the State is must and essential requirement of the time.

3.2.3 Objectives

The objectives of the sector broadly speaking are improvement of livestock production and possibly to strengthen the economy of the State by exporting livestock and their by-products. The good health of the livestock is a pre-requisite of sustained productivity. This project is designed to meet the health requirement of the livestock. It has been estimated that 20 per cent of the animals which succumb to the ravages of disease could be saved if the disease is diagnosed promptly and remedial control measures are taken simultaneously. As such, the project is estimated to save animals worth R$1,000 million per year.

1) Immediate Objectives

1. To develop and establish disease diagnostic technologies which will be applicable to Tocantins.
2. To carry out the rapid diagnosis of animal diseases;
3. To improve the livestock production through the suitable animal disease

diagnosis.

4. To carry out physical, chemical and microbiological analysis of animal products, deriving from the state inspection and investigation sectors;
5. To support to research and services related to animal inspection;
6. To expand and increment the production activities;
7. To assist the Disease Free Zone network of the State as well as Brazil through the application of up-to-date diagnostic technology;
8. To technically qualify the human resources;
9. To assure to the consumers the guarantee of livestock products and proved quality products; and
10. Quality test of feed and animal products which particular reference to safety test such as feed additives, pesticides and antibiotic residues and provides veterinary public services.

2) Long Term Objectives

1. To develop the production capacity of animals conform to the natural conditions in the State;
2. To increase farmers income by efficient disease control system; and
3. To establish Disease Free Zone network; and
4. To reduce the losses of animal not only in and around Tocantins and other state of Brazil. This is the most essential in livestock step to be taken for the development of industry in the Northern part of Brazil in order to increase the income of the farmers and possibly to strengthen the economy of the country by exporting livestock and its products.

3.2.4 Scope of the Project

1. To construct Central Laboratory at Palmas;
2. To construct and strengthening of Regional Laboratories at Araguaina, Gurupi and Taguatinga;
3. To provide necessary equipment for animal health diagnosis and inspection; and
4. To strengthen diagnostic capabilities of the each veterinarians and technicians.

The application of disease diagnostic technology is considered as one of the important and efficient tools to improve livestock production.

The proposed project will conduct technology development in establishing and formulating field application of diagnostic technology and its related fields of science which will be needed for general improvement of livestock industry.

3.2.5 Project Site

Two new laboratories (Palmas and Taguatinga) will be constructed while other two laboratories will be renovated.

Central Laboratory (Palmas)
- equipped to carry out tests of virology, bacteriology, parasitology, pathology and biochemistry,

- building area of 360 m^2, composed of the following items;

(a) Main buildings (312 m^2) containing administration room, selection and distribution room, 5 testing room and washing and sterilization room.

(b) Contagious areas (48 m^2) including necropsy room, experimental animal room, and incinerator.

(c) This Central Laboratory shall be equipped a mobile unit for minimizes the time gap between collecting samples, inspecting them and returning results to the farmers, particularly difficult access municipalities neighboring Palmas.

- Regional laboratory, located in the municipality of Taguatinga (Southeast region), with a construction area of 72 m^2, including following rooms with simple diagnostic equipment;

(a) reception and selection room;
(b) washing and sterilization room;
(c) testing room;

This laboratory shall also be equipped with a mobile unit for prompt analysis and diagnosis.

- The other two laboratories (Araguaina and Grupi) shall be renovate existing facilities to strengthen the same conditions of the Taguatinga laboratory.

3.2.6 Estimated Cost

1) Buildings;

Central Laboratory (Palmas: 360 m^2)	R$ 126,000.00
Regional Laboratory (Taguatinga: 72m^2)	25,200.00
Sub Total	R$ 151,200.00

2) Renovation of exiting Laboratory (Araguaina and Gurupi)

	R$ 12,000.00
Araguaina Laboratory	
Grupi	8,000.00
Sub Total	R$ 20,000.00

3) Equipment

	R$ 3,300,000.00
Central Laboratory (Palmas)	
Three Regional Laboratory	800,000.00
Sub Total	R$ 4,100,000.00

4) Grand Total Estimated Cost

a. Building Construction Cost	R$ 151,200.00
b. Building Renovation Cost	20,000.00
c. Equipment Cost	R$ 4,100,000.00
Grand Total	R$ 4,271,200.00

No provision for cost of land has been made in this cost estimate as land is available free of charge.

3.2.7 Executing Agency

The Secretariate of Agriculture will be the Executing Agency.

3.2.8 Organization and Management

The details of the proposed organization structure should be worked out in details prior to the project implementation.

3.2.9 Scope of Technical Cooperation Required

1) Duration of Cooperation
Three years from establishment.

2) Assignment to Expert
Long term expert: 2 persons for 3 years
Short-term expert: 5 persons for 3 years

The fields of the experts are Bacteriology, virology, parasitology, Pathology and laboratory techniques.

3) Counterpart Training
The five (5) persons for diagnostic technicians for 3 years of cooperation period

3.2.10 Other Reference

The project will be supported by the Federal Livestock Project and related academic and industrial institutions in Brazil.

Table XII - 3.2(1) Key Municipality Area Zone

Municipalities	Areas Included
Miranorte	Miranorte, Rio dos Bois
Pium	Pium
Firueiropolis	Figueiropolis
Duere	Duere
Parana	Parana
Dianopolis	Dianopolis, Novo Jardim., Rio da Conceicao, Taipas
Tocantinopolis	Tocaninopolis, Maurilandia, Itaguatins
Sitio Novo	Sitio Novo, Sao Miguel, Axixa
Wanderlandia	Wanderlandia, Mosquito, Darcinopolis, Piraque
Xambioa	Xambioa
Babaculandia	Babaculandia
Filadelfia	Filadelfia
Augustinopolis	Augustinopolis, Sampaio, Carrasco Bonito, Praia Norte
Ananas	Ananas, Riachinho, Angico
Araguatins	Araguatins, Sao Bento, Cachoeira
Buriti do Taconites	Buriti, Sao Sebastiao, Esperantina
Silvanopolis	Silvanopolis, Pindorama
Natividade	Natividade, Conceicao
Almas	Almas, Porto Alegre
Santa Rosa	Santa Rosa
Nazare	Nazare
Bernardo Sayao	Bernardo Sayao
Dois Irmao	Dois Irmao, Araguacema
Rio Sono	Rio Sono, Lizarda
Nova Rosalandia	Nova Rosalandia
Ponte Alta do Taconites	Ponte Alata do Tocantins
Nova Olinda	Nova Olinda, Palmeirante, Goiatins, Campos Lindos Couto Magalaaes
Colmeia	Colmeia, Pequizeiro, Itapora, Juarina, Couto Magalhaes
Presidente Kennedy	Presidente Kenneday, Tupiratins, Itapiratins Itacaja, Recursolandia
Arrais	Arrais
Fatima	Fatima
Divinopolis	Divinopolis, Abreulandia
Palmeiropolis	Palmeiropolis, Sao Salvador
Peixe	Peixe, Jau
Gurupi	Gurupi, Cariri, Sucupira
Cristalandia	Cristalandia, Lagoa da Confuson
Porto Nacional	Porto Nacional, Monte do Carmo, Brejinho de Nazare
Paraiso do Taconites	Paraiso do Tocantins, Divinopolis
Barrolandia	Barrolandia, Abreulandia
Marinapolis	Marinapolis
Miracema do Taconites	Miracema do Tocantins, Tocantinia, Lageado
Araguacu	Araguacu, Sandolandia
Colinas do Taconites	Colinas do Tocantins, Brasilandia, Palmeirante
Pedro Afonso	Pedro Afonso, Bom Jesus, Santa Maria, Centenario
Arapoema	Arapoema, Pau d Arco
Araguaina	Araguaina, Santa Fe do Araguaia, Carmolandia Muricilandia, Araguana, Aragominas
Guarai	Guarai, Goiaanorte, Fortaleza do Tabocao
Palmas	Palmas, Aparecida do Rio Negro, Santa Teresa Lagoa do Tocantins, Novo Acordo
Alvorada	Alvorada
Combinado	Combinado, Novo Alegre
Taguatinga	Taguatinga, Aurora do Tocantins, Ponte Alta do Bom Jesus
Caseara	Caseara