INTER-AMERICAN INSTITUTE FOR
COOPERATION ON AGRICULTURE
OFFICE IN ST. LUCIA

REPORT ON THE NATIONAL AGRICULTURAL RESEARCH SYSTEM OF ST. LUCIA

ET-9031
ET-9052

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PREPARED FOR THE
MINISTRY OF AGRICULTURE,

FORESTRY AND LANDS,
FISHERIES AND COOPERATIVES

CASTRIES, ST. LUCIA
1987

[redacted]

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Castries, St. Lucia
1987

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ACKNOWLEDGEMENT

The Mission is particularly indebted to the staff of the Ministry of Agriculture, Forestry and Lands, Fisheries and Cooperatives of St. Lucia (MOA) and the professionals of the National Agricultual Research Systee (NARS) who cooperated in the developeent of this task and review of the draft report.

We are also deeply grateful to Dr. Reginald E. Pierre, Director of IICA Area II (Caribbean) and Office in St. Lucia/Dominica/Grenada for his generous support in the collection of information and preparation of this ensuing document. Special thanks are due to Mr. Jorge Ardilla, of the IICA Headquarters Office in Costa Rica, to Mr. Gonzalo Estefanell, of the IICA Office in Barbados, and Mr. Jerry La Gra, of the IICA Office in St. Lucia, for their technical assistance in this assignment.

Finally, we would like to thank the secretaries at IICA who helped to produce this document.

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EXECUTIVE SUMMARY

Agriculture continues to contribute substantially and significantly to the national economy and is recognized as the most important productive sector of St. Lucia. Yet, the development of the agricultural sector is plagued by a number of severe constraints, many of which originate from technological deficiencies.

In its Draft Sector Paper for the National Plan 1986-1991, the Ministry of Agriculture, Forestry and Lands, Fisheries, and Co-operatives (MOA) has set its primary national goals in agriculture as follows:

1. Improved nutrition for the population
2. Increased and improved local substitutes for certain (imported) agricultural products
3. Increased export of high quality agricultural produce, and
4. Ensured longterm (soil and water) conservation.

The expressed policies to reach these goals directly involve, or can greatly benefit from, agricultural technology development on the island. This has particular relevance to the Ministry's stated actions aimed at

1. Improvement in efficiency of production of selected crops for export and local consumption
2. Consolidation and expansion of the orchard (tree) crop diversification
3. Consolidation and expansion of livestock production (mainly for achieving and maintaining self sufficiency)
4. Efficient land utilization
5. Soil and water conservation, and
6. Agro-processing

The strategy to implement the policies explicitly stresses the improvement of agricultural extension and research. However the MOA has come to the conclusion that the research currently carried out by the Agricultural Research/Development (ARD) Division in its Department of Agriculture (DOA) has little or no relation to the declared policy thrust of diversification of the agricultural sector. This lack of direction in the research effort is compounded by severe organisational and managerial weaknesses in the Division.

As a result, the MOA requested assistance from the Inter-American Institute for Co-operation on Agriculture (IICA) in the re-organization of the ARD Division, with the aim of enabling it to more adequately respond to the challenges of agricultural development in St.Lucia.

In response to that request, a three person team (Mission) was appointed to design the structure and functions of the National Agricultural Research System (NARS) centred in the ARD Division. The Mission consisted of two IICA professionals and one MOA local counterpart, who carried out the task from February 3 through May 27, 1987. A preliminary evaluation of the NARS which was conducted by a two person team from IICA, from October 26 to November 1, 1986, served as a basis for the Mission's work.

From briefing by the Minister of Agriculture, consultation of available relevant documents, interviews and discussions with key participants in the NARS, and field visits, the Mission's diagnosis confirmed or revealed the following basic technological problems.

1. Lack of a national agricultural technology policy.
2. Lack of a clearly stated and coherent national agricultural research policy.
3. Absence of institutional guidance and leadership in the NARS.
4. Lack of effective articulation and coordination of plans, programmes, projects and activities between the ARD Division and other public or private agencies involved in agricultural research/development and extension actions in St. Lucia.

5. Lack of interaction between research/development and extension functions.
6. Concentration of research activities almost exclusively on crop production, with scarce reference to marketing and post-harvest management of produce.
7. Unclear or often confusing demarcation of agricultural research and development functions vis-a-vis extension and general support services at the DOA.
8. Scarce coordination and scrambled or tortuous chains of command and communication in the hierarchical administrative and operational set-up of the ARD Division.
9. Unorganized reporting system and lack of reports on research/development and extension plans, programmes, projects, activities, and results in the DOA.
10. Lack of an established planning mechanism for the definition and institutional prioritization of research/development work in the ARD Division and limited participation of crop and livestock producers (farmers) in the research planning process.
11. Severe shortage of academically qualified and professionally experienced human resources to properly organize and manage agricultural research/development actions in the DOA, and to provide guidance and leadership in the NARS as a whole.

To remedy the lack of direction in the ARD Division's efforts and strengthen its relevance to agricultural development, the Mission, with the concurrence of the highest echelons and key technical professionals in the Ministry, designed the institutional structure and functions for a re-organized NARS, with special reference to the ARD Division in the DOA.

To streamline the structure, reduce dispersion of similar or closely related functions, and ensure improved operational linkages between research/development and extension, some adjustments have been proposed in the organization and management of training, documentation and information at the MOA (Fig 1). Thus, it is suggested that the Ministry may wish to establish a Training Unit to discharge all training functions, and a

Training, documentation and interaction

Training Unit

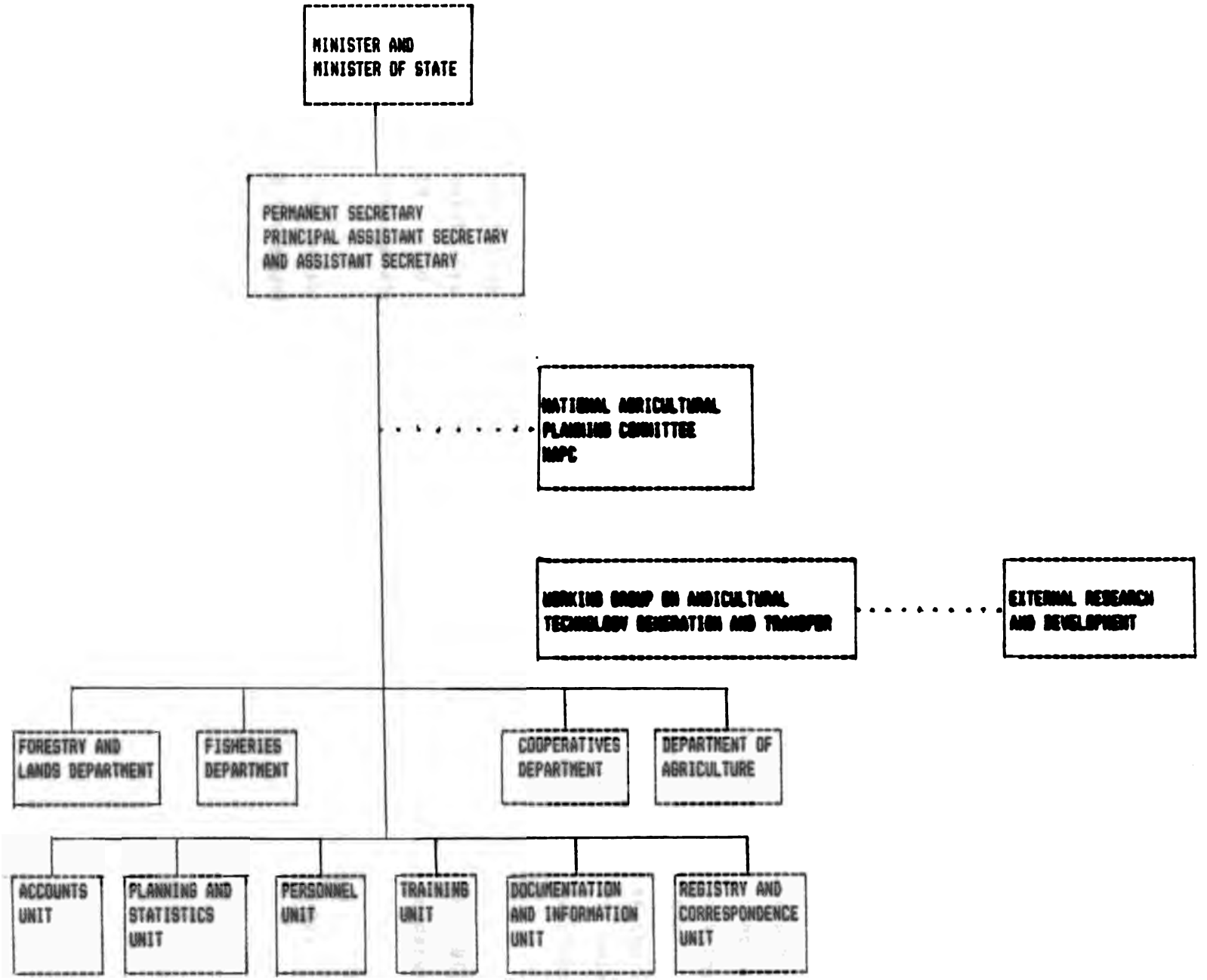

FIG. 1 MINISTRY OF AGRICULTURE, FORESTRY AND LANDS, FISHERIES AND COOPERATIVES OF ST. LUCIA
PROPOSED INSTITUTIONAL STRUCTURE TO STREAMLINE AGRICULTURAL RESEARCH/DEVELOPMENT
DEPARTMENTS AND CENTRAL UNITS

Documentation and Information Unit to serve the documentation and information needs of all Departments rather than those of the DOA only. A **National Agricultural Planning Committee** (NAPC) should be instituted and placed at the level of the Permanent Secretary's office where it could effectively assist in the orientation and formulation of national agricultural technology policy, for the planning and evaluation of agricultural research/development.

A Working Group on Agricultural Technology Generation and Transfer (GAT) is proposed as the mechanism of the NAPC that integrates the ARD Division of the DOA with the external institutional components of the NARS in the country. In its deliberations, the GAT should involve the effective participation of farmers along with senior research/development, extension, marketing and planning specialists.

The DOA should comprise a minimum set of Divisions judged critical to its institutional role in the National Plan on Agriculture and responsibility in the NARS. A Division should encompass a minimum number of complementary Units, as deemed necessary to properly perform its expected functions. The Unit should be conceived as the operational base of the DOA. Slight changes in the current names of the Divisions and Units of the DOA are proposed to clearly identify their particular institutional role and positions, in relation to the functions of the ARD Division in particular.

Administrative functions should be distinguished from technical responsiblity, yet the Director, Deputy-Director and Heads of Divisions should also provide managerial as well as technical leadership in research/development and extension.

Thus, it is suggested that the DOA be structured as follows (Fig 2):

1. **A Directorate**
   - 1.1 Director
   - 1.2 Deputy Director
2. **Four Divisions**

Documentation and Information Unit

National Agricultural Planning Committee

A Working Group on Agricultural Technology Generation and Transfer

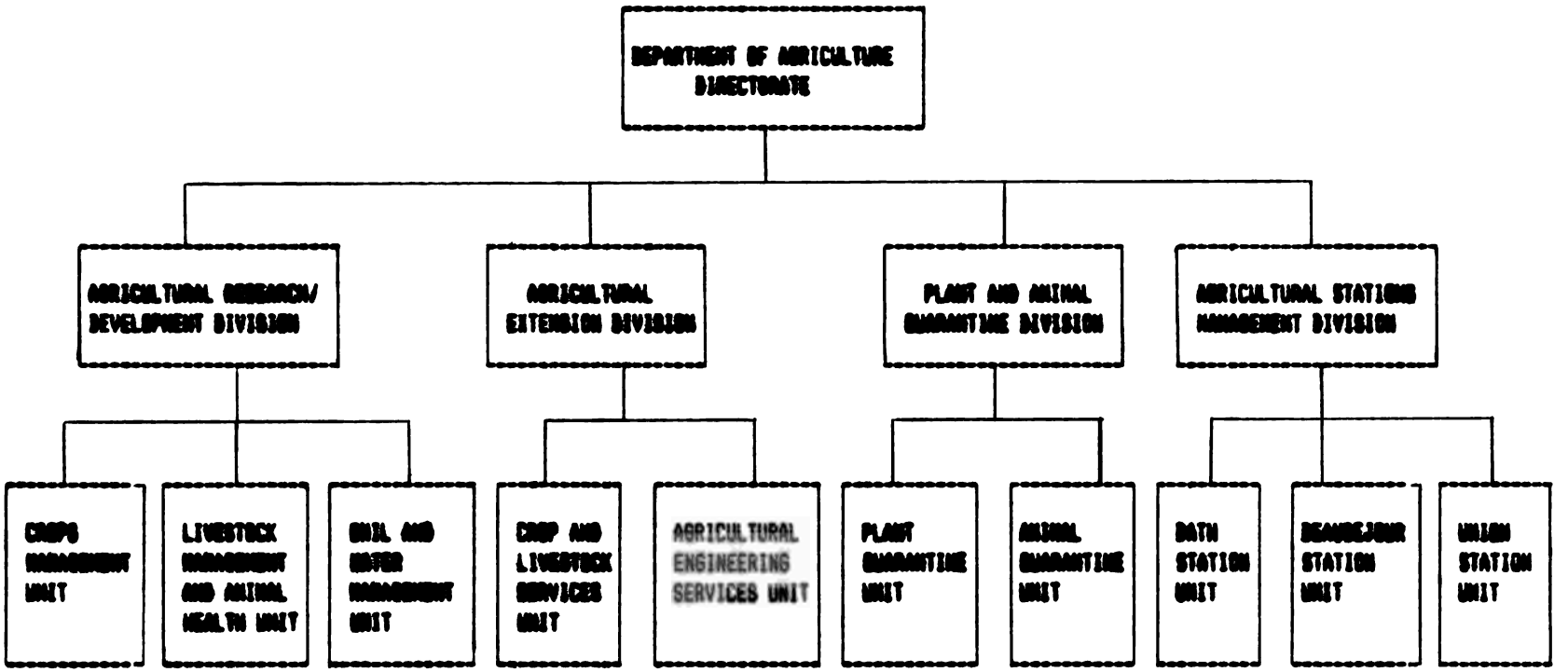

FIG. 2 MINISTRY OF AGRICULTURE, FORESTRY AND LANDS, FISHERIES AND COOPERATIVES ST. LUCIA - PROPOSED INSTITUTIONAL STRUCTURE TO STREAMLINE AGRICULTURAL RESEARCH/DEVELOPMENT OF THE DEPARTMENT OF AGRICULTURE.

DEPARTMENT OF AGRICULTURE
DIRECTORATE

AGRICULTURAL RESEARCH AND DEVELOPMENT DIVISION	AGRICULTURAL EXTENSION DIVISION	PLANT AND ANIMAL QUARANTINE DIVISION	AGRICULTURAL STATIONS MANAGEMENT DIVISION

[illegible] MANAGEMENT [illegible]	LIVESTOCK AND [illegible] UNIT	SOIL AND WATER [illegible] UNIT	CROP AND [illegible] UNIT	AGRICULTURAL ENGINEERING [illegible] UNIT	PLANT [illegible] UNIT	ANIMAL QUARANTINE UNIT	FARM [illegible] UNIT	[illegible] STATION UNIT	[illegible] STATION UNIT

FIG. 2 MINISTRY OF AGRICULTURE, FORESTRY AND LANDS, FISHERIES AND COOPERATIVES ST. LUCIA – PROPOSED INSTITUTIONAL STRUCTURE [illegible] OF THE DEPARTMENT OF AGRICULTURE.

2.1 Agricultural Research and Development (ARD)

2.2 Agricultural Extension (AGREX)

2.3 Plant and Animal Quarantine (PAQ)

2.4 Agricultural Stations Management (ASM)

3. Tea Units

ARD Division

3.1 Crop Management

3.2 Livestock and Animal Health Management

3.3 Soil and Water Management

AGREX Division

3.4 Crops and Livestock Services

3.5 Agricultural Engineering Services

PAQ Division

3.6 Plant Quarantine

3.7 Animal Quarantine

ASM Division

3.8 Bath Agricultural Station

3.9 Beausejour Agricultural Station

3.10 Union Agricultural Station

The Director in the Directorate should represent the DOA within the structure of the Ministry and vis-a-vis the external agricultural community. One of his/her principal duties would be to identify, assist in developing and push through agricultural development projects and procure the financial resources (internal and external) required for their implementation. Another crucial function of the Director should aim at maintaining high staff morale, through continued provision of incentives including technical and managerial development of human resources, recommendations for promotion commensurate to professional performance, and manifest recognition of outstanding achievements. A Deputy Director should assist the Director in the internal administration of the DOA, and carry out special assignments which may be entrusted to him/her by the Director. The Director or, by delegation, the Deputy Director should be the ex officio Secretary of the [illegible].

Ten Units

Director . . . Directorate

Deputy Director

office secretary of the N.S.C.

The **Head** of the **Agricultural Research/Development Division** should administer the Division and approve, supervise and evaluate all agricultural research/development operations conducted by the DOA. In this context, research/development implies biological experimentation as well as socio-economic studies aimed at generating and transfering technology for the country's agricultural development. The bulk of the technical work of the Division should be carried out on actual farmer holdings, to adjust and validate experimental technologies developed on station farms or in greenhouses and laboratories. The ARD Division should provide guidance, coordination and leadership for all agricultural research/development activities that are undertaken in the island of St. Lucia. For this reason, its Head should be the **ex-officio Chairperson** of the BAT.

The **Head** of the **Agricultural Extension Division** should administer the Division and approve, supervise, and evaluate all agricultural extension operations conducted by the DOA. The primary role of the Division is to educate farmers in the use of improved and validated agricultural production and marketing technology and to provide them with backup services, for promoting and facilitating the adoption of such technology. However, those services should avoid becoming paternalistic and whenever possible should be relinquished to the private sector especially large farmers organisations and local autonomous commodity bodies. When the general public is requested to pay for a service, the price should be as realistic as possible to prevent waste and unfair competition with commercial outfits which offer or may wish to offer the same service.

In general, all the activities conducted by the AGREX Division should be integral parts of structured programmes and projects to remedy technological or socio-economic constraints to agricultural development which are addressed in the Ministry's Draft Sector Paper for the National Plan 1986-1991 and its subsequent versions. The AGREX Division should provide guidance, coordination and leadership for all agricultural extension activities which are undertaken in the country. Functionally, it should develop close and effective cooperation with the ARD Division in the planning, prioritization, conduct and evaluation of research projects and

- Head Agricultural Research/development Division

ex-officio Chairperson

- Head Agricultural Extension Division

activities geared towards the generation and transfer of technology for immediate use by farmers. The Head of the AGREX Division should be ex-officio permanent member of the GAT.

The **Head** of the **Plant and Animal Quarantine Division** should oversee all plant and animal quarantine responsibilities of the Ministry especially in the formulation and enforcement of quarantine regulations and pesticide safety. Therefore, the AGREX Division as proposed should not officially perform any plant or animal quarantine task except for bringing to the attention of the PAQ Division quarantine problems which may have been detected through normal extension activities. The PAQ Division should develop close cooperation with ARD Division. The Head of the PAQ Division should be the **ex-officio Secretary of the Plant Protection Board**, once it is established by the Ministry.

The **Head** of the **Agricultural Station Management Division** should administer and cater to the needs of all the DOA's Agricultural Stations. He/she would be assisted by a Local Manager located at each station. The ARD Division would comprise **Crops Management, Livestock and Animal Health Management, and a Soil and Water Management Units.** Their principal role should be to identify, prioritize, design and manage specific agricultural research/development activities derived from structured projects, within established programmes. They should endeavour to provide technological answers to the agricultural development constraints addressed in the Ministry's Draft Sector Paper for the National Plan 1986-1991 and its subsequent versions. Disciplinary Agricultural Research of very basic or a sophisticated nature, should be entrusted to or conducted by the ARD Division in network schemes with the regional/international agricultural research community, especially commodity centers and universities.

The AGREX Division would operate through **a Crop and Livestock Services and an Agricultural Engineering Services Units.** These should provide for farmers education and services in farm/household management and in soil/water conservating, to increase agricultural production and productivity, as well as, to improve rural income and welfare.

Head . . Plant and Animal Quarantine Division

ex-officio Secretary of the Plant Protection Board.

Head . . Agricultural Station Management Division

Crops Management. Livestock and Animal Health Management, and a Soil and Water Management Units.

a Crop and Livestock Services and an Agricultural Engineering Services Units

The laboratories of the ARD Units should provide certain types of technical services to farmers through the AGREX Units and to the other Units within the DOA. As much as possible, paid services offered to the general public or activities that are outside of the Ministry's agricultural development programmes should be relinquished to the private sector, especially to interested farmers organisations. Such services particularly include provision of sexually or asexually propagated planting materials.

The PAQ Division should include a **Plant Quarantine and an Animal Quarantine Unit.** Both of them should operate under the scientific/technical leadership of a highly qualified specialist in each case. Their basic role should be to ensure maximum sanitary protection to crop and livestock production in the Island and to guarantee the processing and marketing of agricultural produce which meet the highest sanitary standards.

The ASM Division should administer all the **Agricultural Station Units** each under the direct responsibility of a Station Manager. The Units should provide space and logistical facilities for the establishment and running of experimental field plots, shelted or open field nurseries or pens, pilot/demonstration agricultural production lots, research or service laboratories, research or service farm machinery and equipment lots, research/pilot agro-processing plants, stores and other physical back-up services of the DOA.

The proposed functions in the DOA should be discharged by professionals who have been proven to have the technical competence and managerial skills commensurate with the nature and level of responsibility involved. Owing to present and anticipated budgetary limitations in the Ministry efforts should be made to appoint in permanent positions only the most functionally critical personnel. The ensuing savings should permit the allocation of increased levels of financial resources to operations.

The consolidation and reshuffling of functions as proposed should entail some personnel movement and reduction in the present staff composition of the DOA. Thus, the minimum number of professional staff (University and

unit.

Agricultural Station Units

Diploma Graduates) required would amount to 122 (Table 1). This figure would be about 74% of the current number of 124 in post plus 40 vacancies totalling 164 budgeted positions. This would result not only in the reduction of personnel costs but also would lead to an increase in staff performance efficiency.

From the proposed total of 122, a minimum of 13 permanent positions at the University Graduate level would be indispensable to carry out the functions outlined for the ARD Division per se in the NARS. This personnel would be assisted by 15 diploma graduates. At present the number of positions assigned by the MOA to the ARD Division amounts to only 9 University and 10 Diploma graduates but research functions are performed by other staff across Divisions. The external entities directly involved in the NARS should define their structure, functions and staff composition in a way which would enable them to complement and support those of the DOA for implementing the MOA's sectoral goals and policies .

Some participants in the discussions on the restructuring of the ARD Division have voiced fears that without the resolute and expeditious intervention of the authorities at the top hierarchy in the Ministry, this proposal, even if officially approved may not be implemented. This has happened to other attempts to improve the organization and management of the ARD Division in the DOA. To pre-empt such a dismal fate, the Mission has strived to arrive at a simple structure which could be developed with presently available human, physical and financial resources at the DOA and the external entities of the NARS.

As the implementation of this proposal may require organizational and managerial skills presently not available within the MOA, IICA stands ready to assist in entering into the inter-institutional cooperation which may be deemed necessary.

TABLE 1. PROPOSED PROFESSIONAL STAFF NUMBER BY LEVEL OF TRAINING IN THE DEPARTMENT OF AGRICULTURE

		RESEARCH AND DEVELOPMENT DIVISION				AGRICULTURAL EXTENSION DIVISION			PLANT AND ANIMAL QUARANTINE DIVISION			AGRICULTURAL STATIONS MANAGEMENT DIVISION				
GRADUATE TRAINING LEVEL	DIRECT-GRATE	HEAD OFFICE	CROPS MANAGEMENT UNIT	LIVESTOCK MANAGEMENT AND ANIMAL UNIT	SOIL AND WATER UNIT	HEAD OFFICE	CROP AND LIVESTOCK SERVICES UNIT	AGRIC. ENG. SERVICES UNIT	HEAD OFFICE	PLANT QUARAN-TINE UNIT	ANIMAL QUARAN-TINE UNIT	HEAD OFFICE	DATH AGRIC. STATION UNIT	BEAUBEJOUR AGRIC. STATION UNIT	UNION AGRIC. STATION UNIT	TOTAL
UNIVER-SITY	2	1	6	3	3	3	6	2	1	1	1	1	-	-	1	31
DIPLOMA	-	1	6	4	4	-	58	5	2	3	3	-	2	2	1	91
TOTAL	2	2	12	7	7	3	64	7	3	4	4	1	2	2	2	122

TABLE 17 RESPONSES [illegible] PLACE A NEW [illegible] BY LEVEL OF TRAINING IN THE AREA [illegible]

[illegible]	[illegible]	CHOICE	[illegible]	[illegible]	[illegible]	DEVICE	[illegible]	[illegible]	DEVICE	[illegible]	[illegible]	DEVICE	UNIT	[illegible]	UNIT	[illegible]
[illegible]	5	5	12	1	1	2	44	1	2	4	4	1	5	5	5	125
[illegible]	-	1	4	4	4	-	29	8	5	2	2	-	5	8	1	61
[illegible]	5	1	4	2	2	2	4	5	1	1	1	1	-	-	1	31

[illegible] DIVISION | [illegible] DIVISION | [illegible] DIVISION | MANAGEMENT DIVISION

1. INTRODUCTION

1.1 Background

St. Lucia is an island of the Windwards group, along with Dominica, Grenada, and St. Vincent. It is located to the the south of Martinique and to the North of St.Vincent at 14 N latitude and 61 W longitude. The island is mountainous with a total area of 616 km^2 (61,600ha) of which 47.3% is agricultural land. The climate is tropical with a pronounced wet season (May to December) and a dry season (January to May). Rainfall varies from 1260 mm to 4062 mm. Temperature ranges between 21C to 29C (72F-85F). The population (mid 1984) was estimated at 134,996 inhabitants. The labour force is estimated at 45,000 persons, with the largest proportion (40%) being absorbed in agriculture. The economy of St. Lucia is open and depends on foreign trade. Average exports of goods and services over the 1980-1984 period amounted to 64% of the Gross Domestic Product (GDP) whilst imports averaged 97%.

Agriculture plays a leading role in the economy of the island and accounts for about 15.9% of the Gross Domestic Product (G.D.P). Of the 10,938 farm holdings identified in the 1973-74 Agricultural Census, about 87% measure less than 10 acres (about 4 ha) accounting for about 24% of the island's total agricultural land. More than 92% of the agricultural land is owned.

Within the agricultural sector the production of fresh produce for export is the most important economic activity. Banana is by far the leading export crop and accounts for over 60% of the country's export revenue. The crop occupies 42% of the agricultural land and its share in revenue of the aggregate agricultural export is 95%. No other agricultural export crop accounts for more than 1% of the total agricultural export revenue. However banana production suffers from periodic natural disasters caused by hurricanes and pests.

Domestic agriculture concentrates mainly on starchy roots and tubers, livestock products fruits and vegetables. Agricultural crops are seasonal, giving rise to gluts or scarcities that deepen the country's reliance on imports. Farming income is low due to high production costs relative to domestic marketing opportunities. But because these are limited, farmers

are reluctant to adopt new technologies to improve the productivity of crops and livestock, which imply additional production costs.

Export market potential for non-traditional agricultural products is reduced due to phytosanitary and animal health problems which negatively affect the quality of the produce. Furthermore there are insufficient volumes and a lack of continuous supply of quality produce from the farmer.

The importance of agriculture to the country's economy has been recognised at all levels not only to generate foreign exchange but to secure domestic food supplies as well. Accordingly, in its National Plan 1986-1991 the Ministry of Agriculture, Forestry and Lands, Fisheries, and Cooperatives (MOA) has defined the sector's development goals to be as follows:

1). Improved nutrition for the population
2). Increased and improved local substitute for certain (imported) agricultural products
3). Increased export of high quality agricultural produce, and
4). Ensured long term (soil and water) conservation.

The underlying assumption is that those national goals can only be met if the sectoral policies lead to higher farmer incomes and long term financial and social security. But the MOA also recognised that most if not all of its 14 established policies cannot effectively and efficiently contribute to the achievement of its stated goals without the improvement of agricultural technology in the country. This is particularly evident for the following, 6 major policies:

1). Improvement in efficiency of production of selected crops for export and local consumption.
2). Consolidation and expansion of the orchard (tree) crop diversification.
3). Consolidating and expanding of livestock production, principally for achieving and maintaining self-sufficiency.

4) Improvement of land utilization
5) Improvement of soil and water conservation, and
6) Consolidation and development of agro-processing

To properly address them requires the strengthening of the National Agricultural Research System (NARS), of which the Agricultural Research/Development (ARD) Division of the MOA's Department of Agriculture (DOA) is the core component.

The MOA however realized that whatever research that has been carried out by the (ARD) Division has had little or no relation to the declared official policy thrust of diversification of the agricultural sector due to lack of direction as well as to severe organizational and managerial weaknesses. The Ministry therefore sought IICA's assistance to strengthen its agricultural research and development structure.

IICA responded firstly by sending to St. Lucia a fact finding Team cooprising Jorge Ardila V, Specialist in Technology Generation and Transfer from its Central Office in Costa Rica and Mr. Gonzalo Estefanell, Planning Specialist from its Office in Barbados. As a result of its observations the Team proposed that an expert, supported by IICA personnel in St. Lucia, be assigned to design the structure and functions of the agricultural research system for the island.

1.2 Mission Composition

A three-person team (Mission) was organized to carry out the task.
It comprised of:

1) Dr. Antonio M. Pinchinat, Regional Specialist in Technology Generation and Transfer, assigned by the IICA Headquarters Office in Costa Rica.
2) Mr. Everton C. Ambrose, Plant Protection Specialist, assigned by the IICA Office in St. Lucia and
3) Mr. Julius Polius, Soil Fertility Specialist assigned by the MOA.

1.3 Terms of Reference

The Mission's specific objective was to produce a proposal for strengthening the NARS with particular reference to the organization

1.2 Mission Composition

1.3 Terms of Reference

and management of the ARD Division in the DOA. The terms of reference are detailed in Annex 1.

1.4 Work Schedule and Methodology

The Mission's work was developed according to the schedule summarized in Annex 2 and along the following methodology.

1.4.1 Briefing

A briefing session was held with the Minister of Agriculture during which he outlined the sector goals and technological constraints to Dr. R.E. Pierre, Director of IICA Area II and St. Lucia/Dominica/Grenada Office; Dr. A.M. Pinchinat, Mission Leader and Mr. E.C. Ambrose, Mission Member. At that meeting, the Minister appointed Mr. Julius Polius Soil Fertility Specialist as the Ministry's representative on the Mission.

1.4.2 Diagnosis of the NARS in St. Lucia

To determine the role of the NARS in the agricultural sector setting, the Mission conducted a diagnosis that was based on the consultation of background documents (Annex 3) and meetings or interviews with the heads or senior staff responsible for the operation of the key NARS institutional components in the country.

The Mission also visited the Ministry's main Agricultural Stations (Union, Beausejour and Bath) and toured agricultural areas on the island. Although the Terms of Reference set by the Ministry specifically called for the restructing of the ARD Division, the Mission felt it necessary to include the other Divisions of the DOA because of the functional linkages that must be established between them and the ARD Division to ensure an effective and efficient NARS.

1.4.3 Design of a Draft NARS Model

Based on the diagnosis, the Mission outlined a draft NARS Model for St. Lucia, including a structural chart and description of basic functions of its key institutional components.

1.4 Work Schedule and Methodology

1.4.1 Briefing

1.4.2 Diagnosis of the MAPS in St. Lucia

1.4.3 Design of a Draft MAPS Model

1.4.4 Organization of Workshop

A workshop was organized with high level professionals designated by the Ministry to review and adjust the draft model (Annex 2).

1.4.5 Debriefing

The Mission met with the Minister of Agriculture to submit an executive summary of its findings and tentative proposals for the restructuring of the NARS, with special emphasis on the ARD Division in the DOA.

1.4.6 Preparation and Submission of Mission Report

Following fine tuning of the proposal, the Mission prepared the final version of its report. This was submitted to IICA for its transmission to the Minister of Agriculture of St. Lucia.

2. The National Agricultural Research System

2.1 Institutional Components

The NARS in St. Lucia consists of both public and private institutions.
Its principal components are the following:

2.1.1 Agricultural Research and Development Division of the DOA

The ARD Division is made up of a Food Processing, an Agronomy and Soil Science, and a Crop Protection Section. There are at present a total of 12 staff members, of whom seven are university graduates, four diploma Graduates and one clerical employee. The university graduates include three Crop Protection Officers (two at BSc and one at MSc levels), one Produce Chemist (BSc level in physics and chemistry), two Agronomists (BSc level) and one Soil Fertility Specialist (MSc level). The main efforts of the Division have been directed to the development and expansion of food crops for domestic consumption.

Important activities of the professional staff in the Food Processing Section involve training of school teachers and private sector personnel, routine analysis of drugs and spirits for other government agencies, testing and adapting new processing formulas for onward transfer to interested local entrepreneurs in the industrialization of juices, jams and jellies. The Food Processing Section is also involved in the development of bio-gas technology at the farm level.

1.4.4 Organization of Workshop

1.4.5 Debriefing

1.4.6 Preparation and Submission of Mission Report

2. The National Agricultural Research System

2.1 Institutional Components

2.1.1 Agricultural Research and Development Division of the ICA

At present the Agronomy and the Soil Science Section is dormant mainly as a result of inadequate staffing. There is some work being done in rapid propagation of yam.

The Crop Protection Section carries out regulatory activities of plant quarantine and pesticides control, advisory services and research on pest problems.

2.1.2 Agricultural Extension (AGREX) Division of the MOA

The AGREX Division includes an Extension Diversification and Advisory Services Unit, a Training Section and Agricultural Library, and a Communications Unit.

The Extension Diversification and Advisory Services Unit consist of four administrative officers: one Agricultural Officer in Extension, one Coordinator of Training and Communications and one Area Coordinator for each one of two extension zones (North and South). The country is divided into eight extension regions and six of these are supervised by an officer each; there are proposals for adding two others. There are 29 Agricultural Development Officers working in the eight regions and proposals are made for 11 more. In addition there are four Specialized Officers, comprising of two Agronomists, one Farm Management Specialist and one Home Management Specialist. Proposals are made for adding two Livestock, one Farm Management and one Home Management Specialists.

The Training Section and Agricultural Library consists of one Assistant Training Officer and one Library Assistant. There are proposals for adding one Training Officer, one Technician and one Secretary. The Training Section is mainly responsible for training various Officers of the MOA whilst the Library serves as a reference source for the Ministry's professional staff.

The Communications Unit is staffed with one Agricultural Information Officer, three Agricultural Information Assistants and one Secretary. One of the Agricultural Information Assistants is performing the function of a Graphic Artist. There are proposals for adding a Communications Officer.

2.1.2 Agricultural Extension (ADP/EA) Division of the ECA

The Communications Unit assists in making and maintaining contact with farmers and the public in general.

The major functions of the AGREX Division is to transfer technologies to the farmers in a form they will accept for solving farming system problems. It focuses mainly on farmer education at the field level.

2.1.3 The Caribbean Agricultural Research and Development Institute (CARDI)

CARDI was formed in 1975 to provide for the agricultural research and development needs of countries of the Caribbean Commonwealth (CARICOM). Its headquarters are located in Trinidad & Tobago. It carries out research mostly on the basis of specific projects that are usually funded by external agencies. Presently CARDI is implementing a Farming Systems Research and Development (FRS/D) Project funded by USAID. The project aims at improving productivity on the farm through the testing of introduced technologies alongside the farmers' present practices. The project has a direct linkage with extension to facilitate the dissemination of information on the successful aspects of its results to other farms in similar agricultural situations.

The CARDI research programme in St. Lucia has involved work within the FRS/D Project on production and marketing of vegetables and other food crops and of livestock. Its local staff is equipped with expertise in Agronomy, Marketing, Farming Systems Research, Weed Science and Economics.

2.1.4 The Windward Island Banana Growers' Association (WINBAN)

The WINBAN R/D Centre is administered and funded for the services of the Windward Islands' Banana Industry and has a mandate which limits studies to aspects related to improvement of production and post harvest management of this crop. It maintains well equipped laboratories and offices as support facilities for its agronomy,plant protection and post harvest technology research and development activities.

2.1.5 Caribbean Agricultural and Rural Development Advisory and Training Service (CARDATS)

This Institution is partly owned by the CARICOM member Governments. It

2.1.3 The Caribbean Agricultural Research and Development Institute (CARDI)

2.1.4 The Windward Island Banana Growers' Association (WINBAN)

2.1.5 Caribbean Agricultural and Rural Development Advisory and Training Service (CARDATS)

invests in commercial activities as joint ventures with either the public or private sectors. Such ventures involve agricultural production, agro-processing and manufacturing of agricultural inputs.
In St. Lucia CARDATS is assisting in a Rural Development Programme in the South of the island (Black Bay) and there are plans for a similar venture in the South-West (Delcer). In both programmes, the prime concern is production and marketing of agricultural products.

2.1.6 The Agric-Technical Mission of the Republic of China (Chinese Mission)

The Chinese Mission has set up a model farm at Beausejour Agricultural Station where work is being carried out on the introduction of new varieties of vegetables and fruit crops and the demonstration of the potential of small farms for producing fruits and vegetables. Other Mission objectives include:

1) Studying possible areas for technical assistance in horticultural production
2) Demonstrating the feasibility of producing rice and other food crops
3) Extending technical assistance in pig and poultry development and production and
4) Assisting in shrimp farming, to enrich the diet of the population.

Assistance is being given by the Mission in upgrading of pigstocks. Construction of facilities for shrimp farming is in progress at the same Beausejour station.

2.1.7 Plenty of Canada

This agency is sponsored by the Canadian International Development Agency (CIDA) and is engaged in a Soya Bean Pilot Project which aims at introducing the crop, creating a market for it and demonstating its uses. The project's strategy includes educating people, especially in rural areas, on the nutritional value of soya bean while carrying out research to determine the most suitable cultivars for production under local conditions.

2.1.8 The French Agricultural Technical Mission

The main objectives of the Mission are:

2.1.6 The Agric-Technical Mission of the Republic of China (Chinese Mission)

2.1.7 Plenty of Canada

2.1.8 The French Agricultural Technical Mission

1) Increasing the importance and impact of development activities on small farms by contributing to the improvement of agricultural production and increasing the revenue earned by farmers
2) Reinforcing the farmers' organisations already created, by promoting and supporting their activities and
3) Contributing to the implementation of national policies concerning the diversification of agricultural production and to the conquest of local markets thus decreasing dependency on imported food products.

The Mission works closely with the extension staff of the DOA in the South-western area of St. Lucia.

2.2 Limitations and Potentials

The NARS as a whole appears to follow no clearly defined and stated research policy guidelines. This drives the institutional components to work in isolation, fosters dispersion of efforts, and precludes effective cooperation.

There is no proper planning mechanism within the NARS. In most cases the Programmes of the external entities to the DOA are set from their own perceptions or interests and then are discussed with the Ministry policy makers, and not the other way. This gives rise to projects that duplicate others. A body for the planning and coordination of activities within the system was established but it was short-lived. This may have resulted from the lack of leadership in the ARD Division at the DOA to play a pivotal role in the NARS.

The ARD Division basically operates more as a service than research institution. It has no clearly defined research policy, priorities, or functions and practically works only on crops. It maintains no close links with the AGREX Division and seldom takes into consideration the farmer's felt needs. As a result it has scarcely any technological and socio-economic impact on the country's agricultural development.

Neither the ARD nor the AGREX Divisions at the DOA have been able to produce regular annual reports of activities. Furthermore, they have established no communication mechanism with the relevant policy makers on

2.2 Limitations and Potentials

national agricultural development.

On the other hand the NARS shows considerable potential to contribute effectively to agricultural development in the island. Its eight identified institutional components deal with different and complementary technological aspects of crop and livestock production, processing and marketing.
A complete census of its professional staff was not available to the Mission, but cursory observation indicated that the overall number of qualified researchers and extensionists is relatively high for the size of the country. There is a fairly large pool of junior, unexperienced personnel whose professional competence could be easily improved through adequate training in technical and managerial aspects of agricultural research/development and extension. The total NARS budget could not be documented, but appeared to be relatively substantial.

This favourable institutional panorama therefore would tend to justify and encourage the MOA's attempt to strengthen the organization and management of the NARS in St. Lucia.

3. PROPOSED MODEL OF ORGANIZATION AND MANAGEMENT OF THE NARS

3.1 Organization

The Nars should be structured so as to achieve effective functioning and optimal utilization of available resources (human, physical, and financial). It should be based at the MOA (Fig. 1) and centred on the ARD Division of the DOA (Fig. 2).

For operational purposes, the DOA should be divided into Divisions and each Division, into Units. Each Unit would be conceptually composed of specialized sections but should function as an integrated whole.

For the sake of convenience the external entities directly involved in the NARS are not especially described in the structure (Fig. 1). They should liaise and interact with the ARD Division through the Working Group on a

3. PROPOSED MODEL OF ORGANIZATION AND MANAGEMENT OF THE BASE

3.1 Organization

National Agricultural Planning Committee (NAPC) or its equivalent.

The basic operational structure of the DOA to strenghten its institutional role in the NARS should be as follows:

3.1.1 Agricultural Research/Development (ARD) Division

3.1.1.1 Crop Management Unit

1) Agronomy
2) Crop Protection
3) Food Technology
4) Plant Propagation

3.1.1.2 Livestock and Animal Health Management Unit

1) Animal Production
2) Animal Health

3.1.1.3 Soil and Water Management Unit

1) Soil and Plant Analysis
2) Soil Fertility and Plant Nutrition
3) Hydrology

3.1.2 Agricultural Extension (AGRES) Division

3.1.2.1 Crop and Livestock Services Unit

1) Crop
2) Livestock Production and Animal Health

3.1.2.2 Agricultural Engineering Services Unit

1) Land Development
2) Equipment Management

3.1.3 Plant and Animal Quarantine (PAQ) Division

3.1.3.1 Plant Quarantine Unit

3.1.3.2 Animal Quarantine Unit

3.1.4 Agricultural Station Management (ASM) Division

3.1.4.1 Bath Station Unit

2.1.1 Agricultural Research/Development (ARD) Division

2.1.2 Agricultural Extension (AGREX) Division

2.1.3 Plant and Animal Quarantine (PAQ) Division

2.1.4 Agricultural Station Management (AGM) Division

3.1.4.2 Beauregard Station Unit

3.1.4.3 Union Station Unit

3.1.5 External Entities

The other institutional components of the NARS outside the DOA, should define and adjust their structure in the way which would enable them to complement and support the streamlined organization and management of the DOA.

3.2 Descriptions of Functions

The proposed functions of the institutional components of the NARS should be basically as follows:

3.2.1 Working Group on Agricultural Technology, Generation and Transfer (GAT)

1) Advisory support to NAPC in the definition and formulation of the national agricultural technology policy.
2) Planning and programming of agricultural research/development and extension activities by projects, referred to the national agricultural goals and polices.
3) Facilitating the involvement of farmers, and senior agricultural research/development, extension, marketing and planning specialists in defining and prioritizing research/development and extension actions in the country.
4) Evaluation of results from institutional efforts in the generation and transfer of agricultual technology.

3.2.2 Department of Agriculture (DOA) Directorate

1) Administration of the Department
2) Division coordination and supervision
3) Ex-officio secretariat on the NAPC

3.2.3 Office of the Head of the Agricultural Research and Development (ARD) Division

1) Division administration and Units coordination
2) Provision of technical assistance in the definition and formulation of agricultual research/development policy.

3.1.3 External Entities

3.2 Descriptions of Functions

3.2.1 Working Group on Agricultural Technology Generation and Transfer (GAT)

3.2.2 Department of Agriculture (DOA) Directorate

3.2.3 Office of the Head of the Agricultural Research and Development (ARD) Division

3) Planning and prioritization of agricultural research/development actions
4) Approval of ARD Units work programmes
5) Supervision, technical and strengthening monitoring and evaluation of Units work programmes, projects and activities
6) Coordination of ARD actions with the AGREX and the other DOA Divisions
7) Ex-officio chairing of the SAT.

3.2.4 Crops Management Unit

1) Introduction and evaluation of crops
2) Breeding and genetic improvement of crops
3) Development of improved cultural techniques and cropping systems
4) Surveys for the presence or absence of crop pests
5) Identification and evaluation of crop pest constraints
6) Development of management methods of crop pests
7) Testing of pesticides
8) Development of suitable methods for prolonging shelf-life of crop produce
9) Monitoring of food quality
10) Development and evaluation of new crop products
11) Provision of technical assistance to reduce post harvest food losses
12) Improvement of food and feed quality
13) Multiplication of basic/foundation germplasm of sexually or asexually propagated crops, including the application of bio-technology
14) Maintenance of crop germplasm resources

3.2.5 Livestock and Animal Health Management Unit

1) Breeding and genetic improvement of livestock
2) Pasture and forage development and evaluation
3) Development of feed supplements
4) Development of improved methods for fodder and forage production and conservation
5) Formulation and evaluation of feeds and rations.

3.2.4 Crops Management Unit

3.2.5 Livestock and Animal Health Management Unit

6) Development of management methods of animal health
7) Development of preventive medicine measures
8) Evaluation of drugs for animals

3.2.6 Soil and Water Management Unit

1) Soil Physical and chemical analysis
2) Chemical analysis of plant tissue
3) Soil characterization and survey
4) Assessment of level of pesticide residues in soil and water and their effects on crop and animal production
5) Soil fertility evaluation and improvement
6) Improvement of fertilizer and water use
7) Crop residue management
8) Development of improved soil conservation methods and techniques
9) Water quality assessment
10) Stream flow measurement
11) Determination of soil hydraulic properties
12) Recording and interpretation of agrometeorological data for farming zonification and production chronology

3.2.7 Office of the Head of the Agricultural Extension (AGREX) Division

1) Division administration and Units coordination
2) Provision of technical assistance in the definition and formulation of agricultural research/development policy
3) Planning of agricultural extension
4) Approval of AGREX Units work programmes
5) Supervsion, technical strenghtening, monitoring and evaluation of Units work programmes with the ARD and other DOA Division programmes

3.2.8 Crop and Livestock Services Unit

1) Provision of advisory services to farmers for the adoption of improved cropping and livestock management systems
2) Distribution of high qualtiy planting material and semen/animal progenitors as part of DOA's farming development projects

3.2.6 Soil and Water Management Unit

3.2.7 Office of the Head of the Agricultural Extension (Rural) Division

3.2.8 Crop and Livestock Services Unit

3) Provision of technical assistance for farming systems planning, accounting and management
4) Education of farmers for improved management of farming systems and household
5) Education of farmers in crop protection and animal health management
6) Provision of advisory services to farmers for the reduction of post harvest food losses

3.2.9 Agricultural Engineering Services Unit

1) Land development
2) Farm mechanization
3) Land drainage and irrigation
4) Soil conservation

3.2.10 Office of the Head of the Plant and Animal Quarantine (PAQ) Division

1) Division administration and Units coordination
2) Definition and formulation of quarantine regulations and enforcement procedures
3) Sanitary certification for the introduction and exportation of plant and livestock materials
4) Enforcement of pesticide safety regulations and facilities
5) Ex-officio secretariat of the Plant Protection Board, once approved by the MOA

3.2.11 Plant Quarantine Unit

1) Enforcement of plant quarantine regulations
2) Determination of sites and facilities for quarantine
3) Provision of technical assistance in the formulation of quarantine regulations on plants
4) Containment of plant pests of quarantine importance
5) Sanitary certification of plant and plant produce for export
6) Regulation of entry of plants and plant produce
7) Provision of technical assistance in fostering public quarantine regulations on animals

3.2.9 Agricultural Engineering Services Unit

3.2.10 Office of the Head of the Plant and Animal Quarantine (PAQ) Division

3.2.11 Plant Quarantine Unit

8) Management of plant quarantine sites
9) Supervision of sites and facilities under plant quarantine

3.2.12 Animal Quarantine Unit

1) Enforcement of animal quarantine regulations
2) Determination of sites and facilities for quarantine
3) Provision of technical assistance in the formulation of quarantine regulations on animals
4) Containment of animal pests of quarantine importance
5) Sanitary certification of animals produce for export
6) Regulation of entry of animals and animal produce
7) Provision of technical assistance in fostering public awareness in animal quarantine
8) Management of animal quarantine sites
9) Supervision of sites and facilities under animal quarantine

3.2.13 Office of the Head of the Agricultural Stations Management (ASM) Division

1) Station Administration and coordination
2) Planning and monitoring of the use of Stations facilities
3) Supervision of model/pilot lots of crops and livestock established in cooperation with the ARD and AGREX Divisions

3.2.14 Agricultural Station Unit Management Office

1) Local Station administration and supervision
2) Coordination and rationalisation of the use of Station facilities
3) Management of model/pilot lots of crops and livestock, established on the Station in coordination with the ARD and AGREX Divisions

3.2.15 External Entities

Besides the DOA, the other entities which compose the NARS should defined their functions so as to complement, reinforce or otherwise strengthen the generation and transfer of agricultural technology in St. Lucia. For this purpose they should liaise and interact with the ARD Division of the DOA through the SAT.

3.2.12 Animal Quarantine Unit

3.2.13 Office of the Head of the Agricultural Stations Management (ASM) Division

3.2.14 Agricultural Station Unit Management Office

3.2.15 External Entities

3.3 Professional Staff Composition

For practical purposes professional qualification could be grouped into just two categories:

1) University Graduate (BSc or higher level), and
2) Diploma Graduate (Two-year College degree or equivalent)

The professional staff composition of the institutional components involved in the NARS would vary in disciplinary competence and qualification level according to their work programmes.

3.3.1 Department of Agriculture

Specifically the following professional composition of the entire professional staff of the DOA are proposed, allowing for complementarity between the functions of the ARD and the other three Divisions in reference to the current National Plan for the Agricultural Section.

3.3.1.1 Department of Agricultural (DOA) Directorate

1) Director (MSc or higher level)
2) Deputy Director (MSc or higher level)

3.3.1.2 Office of the Head of the Agricultural Research and Development Division

1) Senior Research Officer (MSc or higher level)

3.3.1.3 Crops Management Unit

1) Agronomist (MSc or higher level)
2) Plant Pathologist (MSc or higher level)
3) Entomologist (MSc or higher level)
4) Food Technologist (BSc or higher level)
5) Horticulturist (BSc or higher level)
6) Produce Chemist (MSc or higher level)
7) Agricultural Assistants (Diploma or higher level)
8) Laboratory Technicians (Diploma or higher level)

3.3.1.4 Livestock and Animal Health Management Unit

1) Pasture Development Specialist (MSc or higher level)

2.3 Professional Staff Composition

2.3.1 Department of Agriculture

2.3.1.1 Department of Agricultural (Sub) Directorate

2.3.1.2 Office of the Head of the Agricultural Research and Development Division

2.3.1.3 Crops Management Unit

2.3.1.4 Livestock and Animal Health Management Unit

2) Animal Production Specialist (MSc or higher level)
3) Animal Health Specialist (MSc or higher level)
4) Assistants (Diploma or higher level)
5) Technicans (Diploma or higher level)

3.3.1.5 Soil and Water Management Unit

1) Analytical Chemist (BSc or higher level)
2) Soil Specialist (MSc or higher level)
3) Agro-hydrology Engineer (BSc or higher level)
4) Laboratory Technicians (Diploma or higher level)
5) Hydrology Technicians (Diploma or higher level)

3.3.1.6 Office of the Head of the Agricultural Extension Division

1) Senior Extension Officer (MSc or higher level)
2) Extension Coordinator Northern Zone (BSc or higher level)
3) Extension Coordinator Southern Zone (BSc or higher level)

3.3.1.7 Crop and Livestock Services Unit

1) Agronomy Specialist (BSc or higher level)
2) Animal Husbandry Specialist (BSc or higher level)
3) Farm Management Specialist (BSc or higher level)
4) Veterinary Officers (DVM or higher level)
5) Human Nutrition Officer (Diploma or higher level)
6) Agricultural Assistants (Diploma or higher level)
7) Livestock Officers (Diploma or higher level)

3.3.1.8 Agricultural Engineering Services Unit

1) Agricultural Land Development Engineer (BSc or higher level)
2) Agricultural Farm Machinery Engineer (BSc or higher level)
3) Agricultural Assistants (Diploma or higher level)
4) Mechanical Assistant (Diploma or higher level)
5) Drafts Technician (Diploma level)

3.3.1.9 Office of the Head of the Plant and Animal Quarantine Division

1) Senior Quarantine Officer (BSc or higher level)
2) Pesticide Inspectors (Diploma or higher level)

2.2.1.5 Soil and Water Management Unit

2.2.1.6 Office of the Head of the Agricultural Extension Division

2.2.1.7 Crop and Livestock Services Unit

2.2.1.8 Agricultural Engineering Services Unit

2.2.1.9 Office of the Head of the Plant and Animal Quarantine Division

3.3.1.10 Plant Quarantine Unit

1) Plant Quarantine Officer (BSc or higher level)

2) Plant Quarantine Inspectors (Diploma or higher level)

3.3.1.11 Animal Quarantine Unit

1) Animal Quarantine Officer (DVM or higher level)

2) Animal Quarantine Inspectors (Diploma or higher level)

3.3.1.12 Office of the Head of the Agricultural Stations Management Division

1) Senior Agricultural Stations Management Officer (BSc or higher level)

3.3.1.13 Beth Agricultural Station Unit

1) Manager (Diploma or higher level)

2) Assistant Manager (Diploma er higher level)

3.3.1.14 Beausejour Agricultural Station Unit

1) Manager (Diploma or higher level)

2) Assistant Manager (Diploma or higher level)

3.3.1.15 Union Agricultural Station Unit

1) Manager (BSc or higher level)

2) Assistant Manager (Diploma or higher level)

3.3.2 External Entities

The professional composition of the other institutional components of the NARS should be congruent with the nature and scope of their programme. The qualification level of current professional staff of most of these external entities is remarkably high when compared with the DOA's.

3.4 Professional Personnel Number

3.4.1 Department of Agriculture

The presently budgeted number of professional staff at the DOA amounts to 124 now in post and 40 vacancies to be filled, totalling 164 persons/year.

2.3.1.10 Plant Quarantine Unit

2.3.1.11 Animal Quarantine Unit

2.3.1.12 Office of the Head of the Agricultural Stations Management Division

2.3.1.13 Bath Agricultural Station Unit

2.3.1.14 Beaussejour Agricultural station Unit

2.3.1.15 Union Agricultural Station Unit

2.3.2 External Entities

2.4 Professional Ps social Manager

2.4.1 Department of Agriculture

They include University and Diploma Graduates of different training level. Taking into account the chronic budgetary limitations in the Ministry, only the most functionally critical personnel should be appointed in permanent positions. The proposed consolidation and reshuffling of functions would entail some personnel movement. The ensuing savings should permit the allocation of increased levels of financial resources to operations. Thus, the minimum number of professional staff (University and Diploma Graduates) required could amount to 122 (Table 1). It would be about equal (98%) to the number of professionals in post at present and less than 75% of the total budgeted staff size including vacancies. This would result not only in a reduction of professional personnel costs but also in increased efficiency of staff performance.

From this proposed figure a minimum of 13 permanent professional positions at University Graduate level would be required to carry out the functions outlined for the ARD Division of the DOA per se in the NARS. This personnel would be assisted by 15 Diploma Graduates. At present the number of positions assigned by the MOA to the ARD Division amounts to only 9 University and 10 Diploma Graduates, but research functions are also performed by other staff across Divisions.

3.4.2 External Entities

The other institutional components of the NARS should adjust the size and professional competence of their personnel so as to complement and backup the DOA's professional staff. This would be particularly relevant for research activities where the highest level of specialization or academic training (PhD degree or higher level) are required.

3.6.2 External Entities

4 CONCLUSIONS AND RECOMMENDATION

4.1 Conclusions

During the course of its work the Mission found that the NARS suffered from many organizational and managerial constraints which has made it almost irrelevant to the declared national goals and policy thrust of diversification of the agricultural sector. The most critical weaknesses could be summarised as follows:

1) Lack of a clearly defined and stated national agricultural technology policy.
2) Lack of coordination and communication amongst the institutional components of the NARS.
3) Absence of effective leadership of the ARD Division of the DOA for guiding and integrating research/development actions in the country.
4) Lack of an effective mechanism for agricultural research planning, execution, evaluation and reporting in the NARS in general and in the ARD Division of the DOA in particular.
5) Lack of direction in and ineffective use of scarce human, physical and financial resources due to duplication of functions and effort and complementarity between research/development and extension programmes, projects and activities.

A proposal is submitted to streamline the organization and management of the NARS, centred in the ARD Division of the DOA. The outlined structure aims at integrating the different institutional components involved in agricultural technology generation and transfer in St Lucia.

The overall aim of the structural changes proposed is to make research/development activities and technology transfer more relevant to agricultural development in the country, in line with the MOA's goals and policies for the sector. The re-organization of the NARS therefore calls for the establishment of a mechanism to facilitate and monitor coordination of efforts amongst all its institutional components, public and private. This is intended particularly to strengthen the planning, prioritization, design and evaluation of research/development activities, and aims at promoting farmers' participation in that process.

4 Conclusions and Recommendation

4.1 Conclusions

Functions are defined first and then the relevant professional personnel should be designated to discharge them. Common or strongly related functions are grouped to reduce duplications of efforts, enhance complementarity of work, and minimize operational costs. In the DOA in particular, research functions per se are as clearly as possible separated from the provision of services. Research should focus on developing valid technology for immediate transfer to farmers. The proposed consolidation and reshuffling of functions should result in more efficient and effective management of the ARD Division.

The proposal, if implemented, should result in an increased capacity of the NARS to adopt existing technologies, design new technology models, and transfer valid technology recommendations aimed at improving agricultural production, productivity and profitability in St Lucia.

4.2 Recommendations

The NARS should be reorganized and its management upgraded so that it could generate and transfer technology which is relevant to the national agricultural development goals and policies. Thus the Mission recommends to the attention of the authorities at the MOA, the following steps for the implementation of this proposal.

4.2.1 Approve the proposed structure for the NARS.

4.2.2 Revitalize the National Agricultural Planning Committee to clearly define a National Agricultural Technology Policy.

4.2.3 Set up the Working Group on Agricultural Technology Generation and Transfer (GAT).

4.2.4 Designate the Chairperson of GAT.

4.2.5 Appoint a high level representative of the MOA to implement this proposal to restructure the NARS.

4.2.6 Since the needed organizational and managerial skills required to implement the proposal may not be available within the MOA, confirm the request of IICA's assistance to develop the technical cooperation which may be deemed necessary.

6.2 Recommendations

5. ANNEXES

ANNEX I TERMS OF REFERENCE

(Appendix of letter of Mr John B Henry, Permanent Secretary, MOA to Dr Reginald Pierre, IICA, dated 13 February 1986)

1. The re-organization of the Research and Development Division to respond to the needs of the Agricultural Sector generally;
2. Preparation of Research and Development Projects on a defined basis;
3. Provide co-ordination in the implementation of field research projects;
4. Monitor the conduct of any projects which are carried out by Agronomists attached to the Division and providing technical guidance as necessary;
5. Respond to Extension and other Divisions which may from time to time require attention to plant production problems. He may upon assessment delegate anyone or more of the specialists to address them;
6. Organise consultations with the regional and sub-regional organizations engaged in agricultural research to provide for the necessary coordination of Research and Development Programmes and the transfer of technological information;
7. Coordinate the publication of all Research and Development reports as may be stipulated;
8. Liaise with major Agricultural Development Programmes both in the public and private sector and serve as broker for the provision of technological information;
9. Assist the Ministry in formulation of a policy on Agricultural Research;
10. Any other matters relevant to the establishment and functioning of a strong Research and Development Division in the Ministry.

ANNEX 2 MISSION'S WORK SCHEDULE FEBRUARY 3 - MAY 27, 1987

Date	Activity	Venue
February 3	Meeting with Director, IICA Area 2 (Caribbean) and St Lucia Office	IICA
	Meeting with Hon I D'Auvergne, Minister of Agriculture	MOA
February 4	Meeting with Mr H Lubin, Produce Chemist and Officer in Charge, ARD Division (DOA)	IICA
	Visit to Union Agricultural Station (MOA) and Northern parts of the Island	FIELD
February 5	Meeting with IICA Staff[1]	IICA
	Meeting with Dr D Campbell, Leader, Caribbean Agricultural Extension Project (CAEP)/St Lucia	CAEP
	Meeting with Mr S Fontelle, Deputy Director, DOA	MOA
February 6	Meeting with Mr R Pilgrim, Country Team Leader, Caribbean Agricultural Research and Development Institute and visit to CARDI Field Station	FIELD
	Meeting with Mr G Greene, Senior Animal Husbandry Officer and Mr O James, Manager Beausejour Plant Propagation Station (MOA)	FIELD
	Visit to Bath Agricultural Station and meeting with Mr C George, Manager (MOA)	FIELD
February 9	Meeting with Mr D Demacque, Director, DOA	IICA
	Meeting with Mr F Leonce, Technical Director, Geest Industries	GEEST
	Meeting with Mr C Paul, Coordinator Plant Propagation (MOA)	IICA
	Meeting with Dr B Williams, Director of Research and Development, Windward Islands Banana Growers Association, (WINBAN)	WINBAN
February 10	Meeting with Dr K Scotland, Chief Veterinary Officer (MOA)	Union
	Meeting with Mrs R Jean-Paul and Mr A Satney, Planning and Statistics (MOA)	IICA

Date	Activity

	Meeting with Mr C Henry, Senior Field Officer Extension Division (DOA)	MOA
	Meeting with Mr Chaturvedi, Farm Management/Marketing Specialist (MOA)	MOA
	Meeting with Mr A Desir, Agricultural Officer, Extension Division (DOA)	MOA
February 11	Workshop to discuss NARS draft Model[2]	IICA
February 12	Revision of draft model and preparation of draft proposal	IICA
February 19	Meeting with Hon I d'Auvergne, Minister of Agriculture	MOA
February 20/ April 20	Consultations with NARS representatives to finalise Mission's report	
April 21/ May 26	Report Writing	IICA
May 27	Submission of report to IICA for transmission to MOA	IICA

1/- Participants

1. E Ambrose
2. G Estefanell
3. J La Gra
4. R E Pierre
5. A M Pinchinat
6. J Polius

2/- Participants

1. E Ambrose
2. D Demarque
3. A Desir
4. S Fontenelle
5. F Frederick (Livestock Officer, MOA)
6. G Greene
7. R Jean-Paul
8. C Paul
9. R Pilgrim
10. A Pinchinat
11. J Polius

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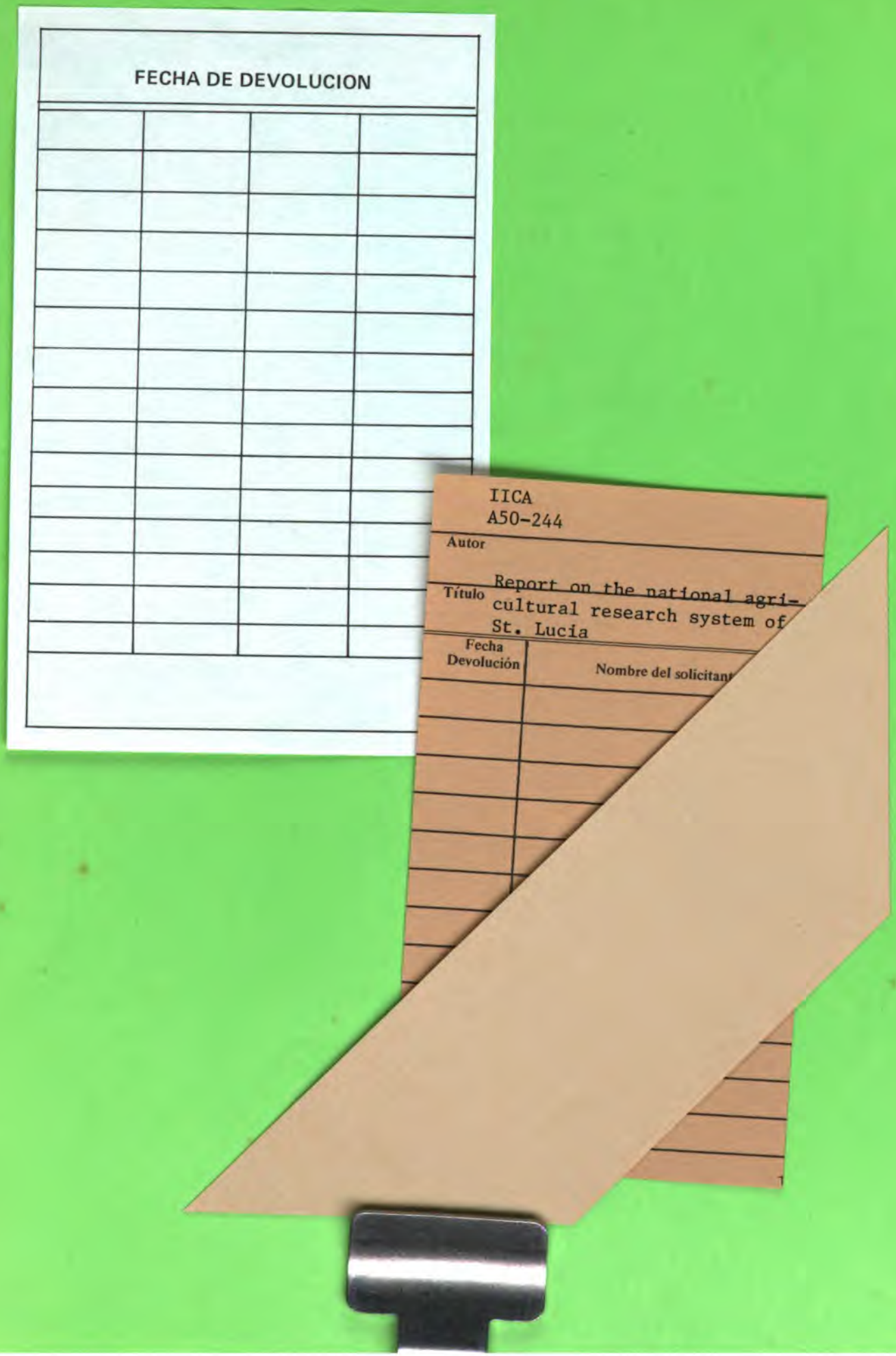
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Título
Report on the national agri-
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Devolución
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