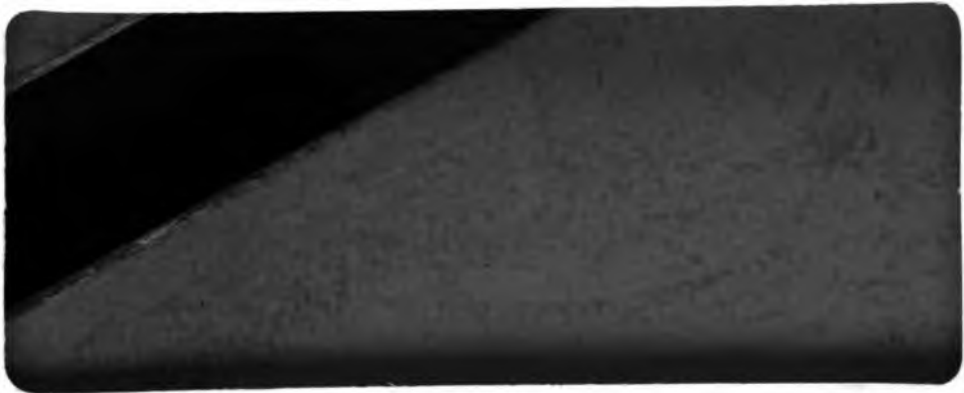


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# IICA



**Upgrading Plant and Animal  
Quarantine in the Caribbean**





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Quarantine in the Caribbean**

Prepared by IICA  
on behalf of CARICOM  
for submission to the EEC

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1.0 SUMMARY

Logical Framework

NARRATIVE SUMMARY	VERIFIABLE INDICATORS	MEANS OF VERIFICATION	ASSUMPTIONS
<p><u>Overall Objectives</u></p> <ul style="list-style-type: none"> <li>- Overall increase in the standard of living; increase of the competitiveness of the agricultural sector; increase employment opportunities; increase foreign exchange earning capacity.</li> </ul> <p><u>Project Goal</u></p>	<ul style="list-style-type: none"> <li>- number of persons employed in the sector; foreign exchange earnings.</li> </ul>	<ul style="list-style-type: none"> <li>- Monitoring reports, national accounts, observations</li> <li>- Quarantine reports</li> <li>- Survey reports</li> </ul>	<ul style="list-style-type: none"> <li>- Facilitatory trade and investment policies in the Agricultural sector</li> <li>- Stable political environment</li> <li>- Government support</li> </ul>
<p><u>PROJECT PURPOSE</u></p> <ul style="list-style-type: none"> <li>- to upgrade plant and animal protection systems</li> <li>- to upgrade and expand CARAPHIN to other countries</li> <li>- To strengthen the capabilities of the countries to provide effective quarantine services in order to facilitate increase production and trade</li> </ul>	<ul style="list-style-type: none"> <li>- Training courses conducted for extension personnel acreage; level of cotton production; level of pest infestation and pest damage; seed cotton/lint ratio and quality of lint produces;</li> <li>- More efficient and uniform operating systems at international ports</li> <li>- Information on timely application of control methods to sanitary problems</li> </ul>	<ul style="list-style-type: none"> <li>- Monitoring reports</li> <li>- Rapid low-cost surveys</li> <li>- Pest and disease status report</li> </ul>	<ul style="list-style-type: none"> <li>- Project implemented</li> <li>- Availability of control practices</li> <li>- Government support</li> </ul>



NARRATIVE SUMMARY	OBJECTIVELY VERIFIABLE INDICATORS	MEANS OF VERIFICATION	ASSUMPTIONS
<p>INTERMEDIATE RESULTS</p> <p>1. Upgraded CARAPHIM and improved access to quality information on agricultural health within the Caribbean</p> <p>2. Appropriate laboratory services available to technicians and exporters.</p> <p>3. Port facilities adequately equipped</p> <p>4. Legal framework in place</p> <p>5. Administrative procedures established</p> <p>6. Agricultural health personnel, exporters, customs officials, importers and producers trained and the public made aware of quarantine and the potential dangers in using and handling of pesticide and veterinary products</p> <p>7. Suitable organizational facilitatory/promotional emergency response system in place</p>	<ul style="list-style-type: none"> <li>- Upgraded and expanded Caribbean Animal and Plant Health Network (CARAPHIM)</li> <li>- Service centres for sampling by commodity, data collection and dissemination</li> <li>- Operating laboratory network for pest and disease identification and chemical residue analysis</li> <li>- Equipped port facilities</li> <li>- Number of interceptions and samples analyzed at the ports and decisions taken</li> <li>- Harmonized legislation approved</li> <li>- Bodies to monitor legislation</li> <li>- Harmonized administrative procedures documented and approved</li> <li>- Regional Committee for resolution of disputes between countries</li> <li>- Number of persons in the different target groups trained</li> <li>- Number of workshops and public awareness exercises</li> <li>- Organizational structure and procedures documented and evaluated</li> </ul>	<ul style="list-style-type: none"> <li>- Monitoring reports</li> <li>- Pest and disease status reports</li> <li>- Project report</li> <li>- Project report</li> <li>- Official Gazette</li> <li>- Meeting minutes</li> <li>- Project report</li> <li>- Quarantine reports</li> <li>- Project report</li> <li>- Rapid low-cost surveys</li> <li>- Project report</li> </ul>	<ul style="list-style-type: none"> <li>- Government support</li> <li>- Government support</li> <li>- Government support</li> <li>- Government support</li> <li>- Government support</li> <li>- Government support</li> <li>- Government support</li> <li>- Government support</li> </ul>





NARRATIVE SUMMARY	VERIFIABLE INDICATORS	MEANS OF VARIATION	ASSUMPTIONS
<p><b>ACTIVITIES</b></p> <ol style="list-style-type: none"> <li>1. - Develop surveillance system and determine data needs <ul style="list-style-type: none"> <li>- develop and test software</li> <li>- prepare training manuals</li> <li>- train personnel</li> <li>- expand system to other countries</li> </ul> </li> <li>- establish linkages among CARAPHIN and other organisations</li> <li>2. - take inventory of existing system <ul style="list-style-type: none"> <li>- develop methodologies and procedures for implementation system</li> <li>- prepare protocols</li> <li>- develop monitoring methods</li> <li>- train personnel</li> </ul> </li> <li>3. - develop training manuals <ul style="list-style-type: none"> <li>- train personnel</li> <li>- conduct simulation exercises</li> </ul> </li> <li>4. - evaluate existing capabilities <ul style="list-style-type: none"> <li>- identify reference centres</li> <li>- provide personnel and equipment</li> <li>- train personnel</li> </ul> </li> <li>5. - evaluate port facilities <ul style="list-style-type: none"> <li>- provide equipment/furniture</li> <li>- prepare posters etc.</li> <li>- prepare legislation</li> <li>- train personnel</li> </ul> </li> <li>6. - prepare legislation <ul style="list-style-type: none"> <li>- establish procedures to settle disputes</li> </ul> </li> </ol>		<ul style="list-style-type: none"> <li>- Government support</li> </ul>	<ul style="list-style-type: none"> <li>- Government support</li> <li>- Support from Inter-American Institute for Cooperation on Agriculture (IICA)</li> </ul>



<ul style="list-style-type: none"> <li>- establish management bodies</li> <li>- encourage networking.</li> <li>7. - prepare programmes</li> <li>- implement programmes</li> </ul>	US\$'000	Project Administrative Records	
Technical assistance meeting/training	2264.84		
Equipment/furniture	3610.60		
General operating expenses	<u>120.00</u>		
10% incidentals	<u>599.54</u>		
<b>TOTAL</b>	<b>6594.98</b>		
IICA	228.42		
Country	820.00		



## 2 BACKGROUND

### 2.1 Main features of the Sub-sector

The agricultural sector in the CBCs are quite diverse, varying in size, stage of development and structure of production. However, common among them is the fact that a significant percentage of the population of these countries earn their livelihood from the agricultural sector. Approximately 39 per cent of the estimated population of 7.3 million in the Dominican Republic earn their livelihood from the rural economy. The percentage of those in Grenada, St. Lucia, St. Vincent and Dominica who earn their livelihood from the agricultural sector also averages around 39 per cent.

Although differences exist in terms of the relative contribution of agriculture to GDP in the various countries, they are in most cases quite substantial. In the Dominican Republic agriculture contributes approximately 23 per cent to gross output. In Dominica, agriculture contributes 30 per cent, in Grenada 17 per cent, 20 per cent in St. Vincent, 14 per cent in St. Lucia and 16 per cent in Belize. Agriculture's contribution to gross output is less significant in Trinidad and Tobago ( 4 per cent), Jamaica, Barbados, Antigua and Barbuda, Montserrat, St. Kitts/Nevis, Anguilla (approximately 7 per cent).

The governments efforts to diversify agricultural production and exports have been confronted by new problems. With the expansion of non-traditional crops and livestock and the introduction of new species, races or varieties into the countries, the problem of pests and diseases become more important.

While many of the Caribbean countries have plant protection and veterinary services for routine purposes, most are not technically, organizationally or financially equipped to effectively deal with agricultural sanitation problems. There is limited capacity to recognise problems, design preventive measures to control and/or eradicate diseases and be able to respond quickly. Studies in the countries have demonstrated that there is limited protection against the introduction of diseases, inadequate organization of control and eradication programmes and a lack of financial resources to effectively execute those programmes.

The limited ability of the quarantine services to protect against the introduction of pests and diseases is very critical especially in the case of countries which share common borders. As an example, African Swine Fever appeared in the Dominican Republic in 1978 and quickly spread to Haiti because of an ineffective quarantine service at the border. This forced both countries to sacrifice their entire swine population. Guyana has had outbreaks of foot-and-mouth disease imported from Brazil while an outbreak of



bovine tuberculosis in Suriname was caused by cattle imported from Guyana.

As agricultural health is considered a top priority by the Ministries of Agriculture, various institutions have implemented technical cooperation programmes in this area. They included:

- **FAO** presented to the CARICOM countries a model for Plant Protection Legislation. This model was accepted by the Caribbean Plant Protection Commission (CPPC) Executive Committee in 1986 but several countries are yet to implement it since assistance is required in formulating the laws at the national level. FAO developed for the Caribbean Plant Protection Commission (CPPC) a plant protection database that includes information on the prevalence, biology and distribution of plant pests and diseases in the region, with information related to quarantine requirements from more than 50 countries. A similar database on animals has been developed by IICA. Those databases need to be updated regularly.
- Over the years, FAO has implemented Technical Cooperation Projects to strengthen the national plant quarantine services of some Caribbean countries. However, assistance is required in implementing the recommendations.
- The **British Development Division (BDD)** is funding a project to strengthen the plant quarantine system of Belize.
- The **Pan American Health Organization (PAHO)** provides technical assistance to the Caribbean countries for the implementation of surveillance systems for vesicular diseases and execution of zoo-sanitary emergency measures, in coordination with the Pan American Center for Foot and Mouth diseases (PANAFTOSA).
- **IICA** has been providing technical assistance in agricultural health to the Caribbean countries for the last ten years in the areas of quarantine and diagnosis. A project to strengthen the plant quarantine capabilities of the Eastern Caribbean States (ECS) is in progress but is not capable of meeting all the needs of these countries.
- Also important in the region is the IICA project "Survey and Monitoring of Animal and Plant Diseases and Pests to facilitate increase production efficiency in the Caribbean" which operates through the Caribbean Animal and Plant Health Information Network (CARAPHIN). It has





a system for regional surveillance reports on a list of diseases and pests important to the region. It processes and shares information on diseases and pests of quarantine importance within the region.

## 2.2 Problems to be addressed

The concerns of the governments with pests and diseases is derived from the fact that much efforts at agricultural diversification are aimed at non-traditional commodities for extra regional export markets. The Governments have also in principle given their commitments to the removal barriers to trade in a wide range of agricultural commodities within CARICOM as a means of facilitating increases in regional production and reducing the extra-regional food import bill.

For these reasons, the region needs to keep the incidence of pests and diseases at a minimum if extra-regional markets are to be penetrated and intra-regional trade increased. Also, quality standards in the external markets are usually high. The incidence of pests and diseases could adversely effect quality and thus overall competitiveness. Adequate quarantine measures are especially important since the cost of controlling pests and diseases and treating produce may be prohibitive when viewed in the context of competition in extra-regional markets both from other suppliers of the same produce and from competing commodities.

The need to increase production and competitiveness in terms of price, quality and reliability of supply has necessitated the importation of planting material. One result has been the introduction of new pests and diseases in the Caribbean. Continued importation of planting material will no doubt mean that the region would be constantly exposed to many more pests and diseases which are not currently present. Additionally, in cases where pests and diseases may be present in the region but not distributed among all countries, ineffective quarantine measures would allow they spread.

Amongst the pests and diseases that are present in the Caribbean but not widely distributed are mango seed weevil, Thrips palmi, moko disease, Amblyomma tick and certain species of fruit flies. Pests and diseases which are not present in the region include Monilia pod rot of cocoa, bunchy top virus disease of banana and the avocado seed weevil, foot and mouth disease and African swine fever. Table 2.1 presents a distribution of major pests by countries within the Caribbean.



Table 2.1: Some major pests and diseases and their distribution by country

	PEST/DISEASE	T&T	A&B	BDS	BEL	DOM	DR	CDA	GUY	HAI	JAM	MON	SKN	SLJ	SVG	SUR
<b>ANIMALS</b>																
Cattle	Rabies	X	X	X	X			X				X	X			
Cattle	Amblyomma sp. tropical bite tick					X								X		
Cattle	Breast-tick		X	X					X							
Cattle	Foot and mouth									X						
Pigs	Swine fever, hog cholera															
Poultry	Newcastle								X							
Cattle	Anthrax															
<b>PLANTS</b>																
Maize	Sternonotus magifera Maize seed weevil (F)			X										X		
Fruits, citrus & vegetables	Caribbean fruit fly (F)					X										
Maize, guava, tomato, cucumber	Carnitella capitata Mediterranean fruit fly (F)													X		
Citrus, mango & other tropical fruits	Bactroflex sp (near dorsalis) Caribbean fruit fly (F)													X		
Citrus, mango & other tropical fruits	Anastrepha Cadens Mediterranean fruit fly															
Banana	Banana top virus (D)															
Fruit & vegetables	Adactia felicia Giant African snail (F)										X					
Pepper, tomato eggplant	Globe-weevil Cottony leaf miner Golden nematode (F)															
Banana/plantain	Myophaenocarpa fijiensis Black Sigatoka (D)				X						X					
Banana/plantain	Pseudomonas solanacearum Moko disease (D)	X						X								
Coconut	Lethal yellowing (D)	X				X		X							X	
Coconut	Red ring (D)	X				X		X								
Honeybee	Apis mellifera Africanized bee (F)	X								X						
Sweet potato	Megastoma grandis Sweet potato weevil (F)	X								X		X				
Citrus	Thrips virus (D)	X				X	X				X		X			
Coconut	Mesochorus neri Meadow sp. rot (D)	X								X						
Anthurium	Xanthomonas campestris pv dieffenbachiae Bacterial blight (Martinique and Guadeloupe)	X					X				X					X
Citrus	Xanthomonas campestris pv citri Citrus canker (D)								X							
Mango, citrus, papaya	Anastrepha suspensa Sapote fruit fly (F)	X						X								X
Fruit	Anastrepha suspensa Caribbean fruit fly (F)					X				X						
Avocado	Helotylenchus Avocado weevil (F)															
Sweetpot	Bephratibolus paraguyensis Sweetpot weevil (F)	X				X										X
Avocado	Acromyces ocochiloneus Leaf cutting ant (F)	X				X										X
Fruit & vegetables	Susoma coccifer Avocado seed moth (F)				X											
Fruit & vegetables	Thrips palmi Palm thrips (F)	X	X	X		X	X						X			

Legend: T&T - Trinidad and Tobago; GUY - Guyana; A&B - Antigua and Barbuda; BEL - Haiti; BDS - Barbados; JAM - Jamaica; DR - Dominica; DOM - Dominice; BEL - Belize; MON - Montserrat; SKN - St. Kitts/Nevis; SLJ - St. Lucia; SVG - St. Vincent and the Grenadines.



Because increases in trade and traffic within the region could result in an increase in the spread of pests and diseases of quarantine importance, the lack of effective quarantine facilities has led to the erection of barriers to intra-regional trade. This has no doubt, by reducing trade, resulted in productivity and income losses.

Although some progress addressing some of the constraints to an effective plant and animal quarantine system in the region has been made, there are still some bottlenecks. Among the more important ones are:

- inadequate laboratory support for technicians, exporters and producers;
- inadequate facilities at the ports of entry into the countries to effectively carry out the quarantine function;
- inadequate legislation at the country level to facilitate the implementation of effective plant and animal quarantine measures;
- insufficient numbers of trained personnel in the area of disease surveillance and personnel who would use an information system;
- inadequate established administrative procedures for dealing with plant and animal quarantine issues;
- the lack of an organized system for early detection of potential plant and animal pests and diseases which may enter the country and prompt response if such occurs;
- an inadequate system for collecting, analysing and disseminating information, including a lack of a suitable database program to record and summarize national surveillance information and produce and disseminate reports to be used in decision making;
- a shortage of microcomputers and printers in the participating countries; presently computers are to be shared between plant and animal health personnel who are usually not located close to each other;
- the limited source of data (presently annual and plant health information is collected primarily from field and lab services and not abattoirs, ports of entry and special surveys) and the absence



of the CARAPHIN information system in all the Caribbean countries creates gaps in the regional surveillance system;

- insufficient levels of public awareness of the need for quarantine and the dangers of pesticide use.

The proposed project aims at directly addressing these constraints.

### 2.3 Documentation available

Some of the available documents relating to plant and animal quarantine in the Caribbean include:

- Strengthening of Plant Protection and Quarantine in St. Vincent and the Grenadines, Grenada, Saint Lucia, Antigua and Barbuda and St. Kitts/Nevis; FAO.
- Report of Consultants on Initiatives to harmonize the Operations of Plant Quarantine Systems; FAO.
- AMBROSE, E. 1993. Study of the Feasibility of Operating the Post Entry Plant Quarantine Facility in Jamaica as a Regional Facility 22pp, 1-3pp Appendices; IICA.
- KHAN, R.P. 1988. Final Report of the Short Term Plant Quarantine Specialist. Export Crops Project. Ministry of Agriculture, Jamaica, 77pp.
- POLLARD, G.V. 1986. Plant Quarantine in the Caribbean. A retrospective view and some recent pest introductions FAO Plant Prot. Bull. Vol. 34 No. 3, 1988. pp. 145 142
- BRATHWAITE, C.W.D. 1984. The Plant Protection Programme for the Caribbean Region 1980-84. Unpublished Report. IICA T & T.
- POLLARD, G.V. Report on a visit to Grenada, St. Vincent and Saint Lucia to investigate the potential pest risk associated with the movement of agricultural produce via the inter-island schooner trade. Report to IICA T & T. 23pp.
- Plant Protection and Quarantine Ordinance Dominica, Grenada and Saint Lucia.
- Draft Plant Protection Law - St. Vincent and the Grenadines, Antigua and Barbuda and St. Kitts/Nevis.





- Plant Quarantine Regulation - Grenada.
- Draft Plant Quarantine Regulation - Saint Lucia.
- Pesticide Control Act - all countries.

### **3. OBJECTIVES AND EXPECTED RESULTS**

#### **3.1 Wider indicative programme objectives**

The wider indicative programme objectives are to contribute to increasing the international competitiveness of the agricultural sector and national food security, to improve the sector's balance of payments by facilitating trade in agricultural products, to improve the capacity of the sector to generate employment and to improve the overall standard of living of the population.

#### **3.2 Project specific objectives**

The specific project objectives are:

- to upgrade the existing animal health and plant protection and monitoring system in the participating countries;
- to upgrade the Caribbean Animal and Plant Health Information Network (CARAPHIN) and extend it to the other Caribbean countries where it presently does not exist.

#### **3.3 Project results**

Upon conclusion of the project, the participating countries would be expected to have a flexible and dynamic animal health and plant protection information systems and agricultural sanitation procedures in place. This would enable them to implement preventative measures to reduce the possibility of entry and spread of pests and diseases of quarantine status. Furthermore, they would possess improved capabilities to evaluate and establish priorities for actions needed to develop animal health and plant protection programmes based on the most economically important pests and diseases and thus be better able to manage existing pest and disease problems. Some of the anticipated results of the programme would include:

- a computerized and upgraded Caribbean Animal and Plant Health Information Network (CARAPHIN) expanded to all the participating countries operating as a source of information for improved



decision making in issues related to animal and plant sanitation;

- harmonized methodologies, techniques and procedures in plant and animal health in the participating countries;
- strengthened national and regional capabilities to properly manage endemic sanitary problems and to promptly detect and respond to potential plant and animal diseases which may enter the country;
- adequate laboratory support for technicians, exporters and producers;
- improved facilities at the ports of entry into the countries to effectively carry out the quarantine function;
- improved legislation at the country level to facilitate the implementation of effective plant and animal quarantine measures;

through CARAPHIN, better representation to international plant and animal disease surveillance organisations such as OIE, IPPC, EPPO, NAPPO, FAO and PAHO;

- increased levels of public awareness of the need for quarantine and the dangers of pesticide use.

### **3.4 Activities**

The activities for attaining the results above are discussed below.

#### **1. Activities for an upgraded and expanded CARAPHIN**

An upgraded CARAPHIN expanded to all the participating countries.

The activities leading to an upgraded Caribbean Animal and Plant Health Information Network (CARAPHIN) and its expansion to all the Caribbean countries would include:

- develop a surveillance system to include abattoirs, ports of entry, laboratories, pests and diseases in the field, pesticides and veterinary products; - determine the indicators for which data needs to be collected for an effective plant and animal health information system, ensuring that they are compatible with those of international agencies;



- develop and test a database software programme that can serve as a national computerized information system for each of the Ministries of Agriculture; purchase computer hardware and install the information system;
- prepare training manuals;
- conduct training seminars for MOA personnel and other interested users in the use of the information and in the principles of epidemiology and surveillance;
- expand the information system to include the Dominican Republic, British and Dutch territorial islands; Bahamas, Martinique and Guadeloupe;
- establish linkages among CARAPHIN and major international organizations involved in plant and animal sanitation such as FAO, EPPO, NAPPO, OIE and PAHO;

2. Activities for harmonizing methodologies, techniques and procedures

- take inventory of plant and animal health procedures in the participating countries including an assessment of the human and non-human resource constraints to the functioning of an effective system;
- develop methodologies and procedures for information collection and processing in the participating countries;
- prepare protocols for port inspection, treatment of produce, emergency system, pest risk analysis, early detection methods for exotic pests and diseases; methods for monitoring endemic pests and diseases, develop methods for screening of chemical residues and proper handling of the entry of germplasm;
- train personnel in the individual countries in the use of the methodologies, techniques and procedures;
- organize and conduct workshops involving policy makers and plant and animal sanitation personnel to discuss and agree on the harmonized administrative procedures, protocols, legislation and laboratory procedures.



3. Activities for strengthened national and regional capabilities

- develop training manuals in the principles of epidemiology and surveillance of pests and disease control actions, early detection and response measures;
- train personnel in detection of animal and plant diseases and response measures;
- provide simulation exercises to test emergency responses including the production and dissemination of emergency reports to activate mechanism to bring about a quick and efficient response to control and eradicate exotic pests and diseases in the initial phase of damage.

4. Activities for providing adequate laboratory support

- evaluate the existing laboratory capabilities for pest and disease identification and pesticide residue analysis in the countries as it relates to available equipment, technicians and support professionals and the existing constraints;
- based on this evaluation identify laboratory reference centres (centres of excellence) that could provide services to other countries and determine the mechanisms for the services to be provided;
- provide required personnel and equipment;
- train personnel to perform their duties.

5. Activities for improved facilities at ports of entry

- conduct evaluation of the facilities at the ports of entry;
- provide the required equipment and furniture;
- prepare posters and warning signs for placement at strategic points at the ports of entry asking travellers to declare all plant and animal matter which they may be carrying, the necessity to do so and warning of the consequences of failure to comply;
- obtain legislation to implement a quarantine card system (similar to the immigration cards) to be





given to all travellers for declaration of animal and plant matter;

- train custom officers, exporters and importers at the national level in various aspects of plant quarantine.

#### 6. Activities for improved legislation at country level

- draft legislation for quarantine and pesticides and veterinary products;
- promote the establishment and proper operation of management bodies for plant and animal control and pesticide control;
- encourage networking among relevant management bodies in the countries;
- develop mechanisms for the settlement of disputes;

#### 7. Activities for increased level of public awareness

- prepare mass media programmes for public awareness of the need for quarantine measures and pesticide safety;
- implement programmes in newspapers, national television and radio;
- prepare and disseminate reports through the mass media to provide prompt warnings of the presence of, and courses of actions to be taken to combat the introduction of exotic pests and diseases;

### **4 PROJECT IMPLEMENTATION**

The project will be implemented in Antigua and Barbuda, Barbados, Belize, Dominica, the Dominican Republic, Grenada, Guyana, Haiti, Jamaica, Montserrat, St. Kitts and Nevis, Saint Lucia, St Vincent and the Grenadines, Suriname and Trinidad and Tobago. The project will be headquartered in Trinidad and Tobago.

#### **4.1 Physical and non-physical means**

To coordinate and monitor execution of the Project, a Project Execution Unit (PEU) would be established in Trinidad and Tobago. Specifically, the Project would operate in collaboration with institutions which presently have expertise and ongoing



activities in those areas to avoid duplication of efforts. The physical and non-physical resources required from the project are presented in Table 4.1.

## **4.2 Implementation procedures**

### **4.2.1 The information network system**

The Caribbean Animal and Plant Health Information Network (CARAPHIN) presently being operated by IICA would be upgraded and expanded to serve all the countries of CARIFORUM. Service centres would be established in all countries. There would be one centre in each of the countries of Organization of Eastern Caribbean States (OECS) with one each in St Kitts/Nevis. In the larger countries, there would be two centres but there would be three centres in Trinidad and Tobago including one for Tobago.

The service centre would have a proactive role in monitoring the major endemic pests and diseases of the major commodities in order to assist producers to forecast when control measures are necessary. The service centers would also be responsible for collecting information on agricultural health from abattoirs, ports of entry, laboratories and the monitoring the entry of exotic pests through pest surveys and to monitor the control and use of pesticide and veterinary products. All the information obtained at a national level would be fed to the Caribbean Agricultural Information System.

At the regional level, the Project would collate and disseminate the information received. The Project would be responsible for preparing its requirements for standardizing the information gathering and reporting system. However, the actual development of the data base programmes and the establishment of the information network would be implemented in collaboration with Caribbean Information Systems project (CAIS). The Project would be responsible for obtaining and providing updated information on pests and diseases which affect production and trade both at the regional and international level for distribution to the countries to the system. The Project would provide the required hardware to operate the information system.

As a means of attaining flexibility in the implementation of the sub-programme for the upgrading of the Caribbean Animal and Plant Health Information Network and its expansion to the other countries, implementation will take place in two phases. The first phase would consist of:

- the determination of the indicators of interest for which data are to be collected; indicators will include the current status of the disease (rate of incidence, rate of prevalence, etc.), risk factors of the disease and economic variables necessary to estimate losses due to the occurrences of pests and diseases.



Table 4.1: Physical and non-physical resources

Category	IICA	Country	External	Total
<b>Capital</b>				
Laboratory equipment	-	200	590	790
Equipment, computers, vehicles	-	-	1013.9	1013.9
Port facilities	-	10	450	460
<b>Total investment</b>	-	<b>210</b>	<b>2053.9</b>	<b>2263.9</b>
<b>Recurrent</b>				
Office equipment - computer paper	15	-	825	840
Basic laboratory material	-	10	100	110
Communications	-	6	134.48	142.48
Incremental personnel	-	-	93	93
National Support Staff	-	684	227.7	911.7
Training and meetings	-	-	49	49
Technical assistance and general serv.	197.6	-	1371.89	1569.47
Fuel and maintenance	-	-	-	-
Books and subscription	-	-	80	80
<b>Total recurrent cost</b>	<b>212.6</b>	<b>700</b>	<b>2883.89</b>	<b>3795.65</b>
<b>Total project cost</b>	<b>212.6</b>	<b>910</b>	<b>4937.8</b>	<b>6059.55</b>

- the determination of the structure required for the Plant and Animal Health information system;
- the development and testing of software to be conducted in collaboration with CAIS; the purchasing of computer hardware, modems, etc and the installation of the developed programmes in the countries which presently use CARAPHIN;
- the development of training manuals for the information system;
- the training of users of the system. Technology transfer will occur in training through courses, seminars, workshops, field days and in-service training, in order that the methodology be understood and employed by system personnel. Training in the use of the computers will be achieved through courses, workshops, and ongoing in-service training.
- the "ironing out of the bugs" in the system.

After the bugs in the system has been "ironed out", the second phase would begin. This phase would consist of:

- the expansion of the information system to the Dominican Republic, Haiti, the British and other territorial islands;



- the holding of refresher courses in the use of the system, the principles of epidemiology and surveillance;
- the strengthening of links between CARAPHIN and other international organizations dealing with surveillance of plant and animal diseases;
- ongoing support to the countries and monitoring of the effectiveness of the system.

#### **4.2.2 Upgrading of plant and animal sanitation systems**

##### Harmonization of procedures

Uniform protocols would be developed in the Region for port inspection, certification of commodities for export, treatment of produce at ports before entry or on leaving the ports, early detection of exotic pests and diseases, monitoring methods for endemic pests and diseases, screening of chemical residues and the proper handling of the entry of germplasm. The procedures would be adapted to suit the country but the general procedures would be harmonized so that the countries know what is done and what is required in each country.

These protocol would be developed in a form of a manual of operations. Workshops and meetings would be organized to discuss these protocols and agree on extent of harmonization.

##### Strengthening of national and regional capabilities

There would be four, one week training courses two for animal quarantine and two for plant quarantine officers to train them on the procedures developed in plant and animal quarantine and to create an awareness to quarantine pests and diseases. In addition, two national courses in each country for other technicians, producers, exporters, importers and customs personnel to create an awareness to quarantine. The technicians who are trained at the regional level would help in the training at the national level.

Two regional training courses would be held for laboratory technicians, one in the diagnosis of animal and plant pests and diseases and the other in chemical residue analysis.

There would be one, one week regional course in the use and handling of pesticide and veterinary products and two national courses in each country on that same subject. The technicians trained at the regional course would assist in training at the national level.

In addition, the Project would develop models for the emergency response to exotic plant and animal pests and diseases





and would adapt methodologies to suit the country. Simulation exercises would be implemented to ensure that personnel know their role and they are trained to carry out the exercise efficiently.

#### Provision of adequate laboratory services

The laboratory capabilities in relation to equipment for pest and disease identification, chemical residue analysis, technicians and support personnel in the countries would be evaluated. Bases on this evaluation, laboratory reference centres (centres of excellence) that would provide services to other countries would be identified.

The conditions including the fee under which such a service would be provided would be determined. The evaluation would also determine the facilities to be provided to each country. Provision would be made whereby these laboratories would have access to extra-regional laboratories. Thus, a Caribbean Plant Laboratories Network and a Caribbean Animal Health Laboratories Network would be developed and these would have contact with international laboratory networks. The Project would examine models for the participation of the private sector in the strengthening of laboratory services and determine how they can be applied in the region.

There would be two meetings of Directors of Laboratories in the region. The first to agree on the Network and the reference centres and another when the Network is operational to determine effectiveness and how the network can be sustainable.

#### Improving port facilities

An evaluation would be made of the existing port facilities to assess requirements of a country. Based on this evaluation, the Project would complement the required equipment at the ports of entry. These would include incinerator, refrigerator, hand lens, vials, knives and the like.

#### Improving country legislations

The Project would revise and harmonize legislation on animal health and plant protection in the region and adapt these laws and regulations for a particular country with the participation of the country. Consideration would be given to the FAO model already in use in some countries and the model on pesticide legislation being developed in the OECS. The legislation would include plant protection and pesticides and veterinary products. The Project would support the establishment of National Plant Protection Boards to monitor the operations of the Plant Protection system and Pesticides Control Boards to monitor pesticide use and handling.



The present networking of Pesticides Control Boards in the OECS would be expanded and the Project would support these meetings of the Boards to discuss areas of cooperation, common problems and joint actions for their solutions.

#### Increased public awareness

Public awareness campaigns would take place once per year in each country for quarantine and chemicals. In addition, national awareness sessions would be taken with policy makers to create awareness for quarantine and pesticides.

#### **4.3 Timetable**

The timetable for project implementation is presented in Table 4.2.

#### **4.4 Cost estimate and financial plan**

The cost estimate and financial plan for the project implementation is shown in Table 4.1 above. The total project costs equals US\$7,642.42 million, including a 10% contingency cost. This cost would be absorbed by the Governments, IICA and external resources. The latter source is to provide US\$6,594.98 million.

#### **4.5 Special conditions: measures of the governments**

### **5 FACTORS ENSURING SUSTAINABILITY**

#### **5.1 Policy support measures**

The Caribbean governments have identified agricultural diversification and increased trade as two strategies for accelerating growth of the agricultural sector. Both the crop and livestock have been targeted. The governments are fully aware that these strategies would open their agricultural sector to the possibility of the introduction of pests and diseases through the importation of planting material and animal germplasm.



Table 4.2: Project implementation schedule

	MONTHS													
	0	2	4	6	8	10	12	14	16	18	20	22	24	25-36
Recruit personnel	X	X												
Inventory of sanitation procedures/problems etc.	X	X	X											
Develop methodologies and procedures' legislations etc. info collaborating etc.		X	X	X										
Develop database programme		X	X											
Procure equipment		X												
Prepare training manuals		X	X											
Train personnel				X			X			X		X	X	X
Establish network in present countries					X									
Review system						X	X							
Establish linkages to other countries							X					X		
Conduct simulation exercises of emergency measures														
Operate system		X	X	X	X	X	X	X	X	X	X	X	X	X
Prepare reports, mass media programmes						X	X	X	X	X	X	X	X	X
Monitor implementation		X	X	X	X	X	X	X	X	X	X	X	X	X



They are also fully aware that for the strategy to succeed, they must be able to export. However, the presence of pests and diseases could limit or even curtail the possibility of exporting. As a response to these possibilities, the governments have expressed their commitments to fully support the upgrading of the plant and animal quarantine system to enhance their effective operation.

At its Ninth Meeting, the Standing Committee of Ministers responsible for Agriculture (SCMA) approved a proposal to establish a Regional Plant Quarantine System as problems were arising in the application of plant quarantine regulations by various member countries with increased movement of primary products within the Common Market. The functions of such a system would be to make recommendations to the SCMA on:

- draft regional legislation on the movement of plant and plant material within the Common Market taking into account plant quarantine regulations in the main extra-regional markets;
- import and export procedures;
- inspection and certification procedures;
- quarantine measures to be taken with the outbreak of plant pests and diseases within and outside a member country;
- the establishment of an information system to monitor the status of plant pests and diseases in all CARICOM countries and to act as an early warning system to prevent major outbreaks of plant diseases and pests;
- the supply of information on the operation of the plant quarantine regulations in Member States, to importers, exporters, ships, airline agents and passengers;
- techniques of protection and treatments of infected commodities;
- any action on proposed restrictions on trade introduced by any Member States as a result of the operation of national plant quarantine regulations;
- recommending to member countries the requirements for inspection, treatment facilities, and the machinery for the proper administration of the regulations.





Certain actions were also being undertaken in the area of animal health. At their 3rd Meeting the Chief Veterinary Officers agreed to recommend the following to the SCMA:

- the development and strengthening of the information and epidemiological surveillance system and the interchange of technical information;
- coordinating and strengthening of the relationships with international reference institutions for laboratory diagnosis;
- improving and strengthening the infrastructure of field services, border centres and quarantine and the preparation of emergency animal disease preparedness plan and carry out simulation exercises;
- the provision of training to personnel involved in plant and animal quarantine;
- the revision and enactment of sanitary legislation and procedures of foot and mouth prevention programmes.

## **5.2 Appropriate technology**

In the development of legislation, organizational structures and procedures the Project is to place emphasis on harmonized models. Based on these models, appropriate manuals would be developed with the nationals of a country, for the country, based on the country's capabilities. Laboratory areas of excellence or reference centres would be developed based on existing expertise and potential. Method for information system would be developed locally in keeping with the regional model. In addition, the monitoring systems to be developed would encourage more efficient control methods in the particular area.

## **5.3 Environmental protection measures**

Monitoring actions in the Project would facilitate the application of pesticides and other chemicals only when required. Additionally, the Project would provide for the training of technicians, producers and the public in the effective use of these chemicals. The Project would also make provisions for the establishment and operation of regulatory boards (Plant/Animal Protection Boards and Pesticides Control Board) to ensure proper management of chemicals and operations in Plant Protection and Animal Health.

Through the strong emphasis on prevention, the need for the use of chemicals for the control of pests and diseases would be reduced. Integrated pest management (IPM) practices would be



promoted for the control of pests and diseases. This would definitely be beneficial to the environment and are expected to continue long after the project is completed.

#### **5.4 Sociocultural and legal aspects/community participation**

The Project would be implemented in close collaboration with, and by the nationals in the Ministries of Agriculture.

In addition, several actions of the project would involve the general public, producers and exporters. The Project is gender-neutral and would benefit all nationals of the countries.

#### **5.5 Institutional and management capacity building**

Project activities necessitate strengthening the capacity of the Ministries of Agriculture in the countries to provide effective quarantine service through training, technical assistance, equipment and materials and operating resources. The capacity of producers to provide timely and effective control measures would be strengthened. Through the institutional strengthening of the ministries of Agriculture in the participating countries to establish and operate effective quarantine systems, sustainability would be maintained after project completion.

### **6 ECONOMIC AND FINANCIAL SUSTAINABILITY/VIABILITY**

Pests and diseases constitute a limiting factor to the development of the agricultural sector. As shown in Table 2.1, the presence of particular pests and diseases varies from country to country within the Caribbean. A pest or disease which may not be of quarantine importance to one country may be important to others.

Furthermore, there are pests and diseases present in countries outside the Caribbean that have not yet been introduced here. In the recent past, because of the efforts of the governments to diversify agricultural production and exports, they have come to face new problems. Poor quarantine facilities have allowed some pests and diseases to enter some of the countries undetected through the importation of planting material and movement of agricultural produce. Further attempts to import planting material to expand non-traditional crops (including fruits and vegetables) production would allow easy introduction of additional pests and diseases into the region if the quarantine system is not improve.

Economic losses of pests and disease in the Caribbean is unknown due to lack of empirical data. At best, only rough estimates exists. This makes conducting an economic evaluation of any initiative to upgrade plant and animal quarantine systems extremely difficult.



A project such as the one contemplated would generate both direct and indirect benefits. Indirect benefits would include reduced contamination and possible death and other public safety issues through the misuse of pesticides and veterinary medicines, savings in foreign exchange through reduced importation of pesticides and veterinary medicines, increased exports, improvement of the image of the countries abroad as a result of strict agricultural sanitation, possibilities to export to new markets and the like. No attempt would be made to quantify those benefits.

Although empirical data for conducting economic evaluations are not available, estimates of direct losses caused by pests and diseases in the past could put into perspective the potential economic magnitude of the problem and therefore provide economic justification for any investment into upgrading Plant and Animal Sanitation systems. Some examples of these estimates are:

- in Jamaica, losses due to pests and diseases were estimated at more than US\$70,000,000 per year;
- the appearance of African Swine Fever in the Dominican Republic and its spread to Haiti forced both countries to sacrifice their swine herds;
- the discovery of mango seed weevil in Saint Lucia in 1984 has caused a serious set back to exports to Barbados;
- in Belize, annual losses caused by the sugar cane froghopper Aeneolamia postica jugata have been estimated to be between 100,000 - 150,000 tons of sugar cane despite the constant use of pesticides;
- in Trinidad and Tobago, losses caused by the sugar cane froghopper Aeneolamia varia saccharina have been estimated to be between 3,000-4,000 tons in spite of the use of pesticides at a cost of US\$625,000 per year (Mahadeo, 1979). The problem extends to post-harvest losses also.
- in Dominica, losses are estimated at more than US\$4 million (Clarendon, 1981).
- in Guyana, losses in stored rice are estimated from 10 to 30 percent (Kennard and Forde, 1981).
- new pests of quarantine importance have been introduced into the Caribbean recently; among these are: the mango seed weevil Sternochetus mangiferae; coffee rust in Jamaica and Cuba, and coffee berry borer in Jamaica.
- recently in Barbados, what is believed to be a new pest to the country has been found in soursop; unidentified purple scales damage the young fruit.



Another pest introduced in 1984 is the wasp Befra atelloides paraguayensis.

- in Suriname, the Oriental fruit fly (Bactrocera sp. (near dorsalis)) has been detected, and threatens to spread to other countries.
- the following list includes six of the most harmful pests and diseases of agricultural commodities which do not yet exist in the Caribbean could cause substantial losses if they enter: the Mediterranean Fruit Fly (Ceratitis capitata), the golden nematode (Globodera rostochiensis), the giant African snail (Achatina fulica), the Khapra beetle (Trogoderma granarium), the Mexican fruit fly (Anastrepha ludens), and the banana bunchy top virus; effective mechanisms must be established to prevent the introduction of these and other pests and diseases.
- leaf cutting ants (Atta sp and Acomyrnex sp) have been considered in some countries where they exist to be among the most important pest group. In a report of a survey of 27 countries of Caribbean and Latin America, it was reported that 47 agricultural and horticultural crops, 15 forest species and 13 range plants were attacked. These included major crops like cotton, maize, citrus, cocoa, plantain, rice and sweet potato. A study in Trinidad indicated that if allowed to attain a maximum potential nest density of 153 nests/ha could remove 20 to 25% of the total leaf area in the first year of newly established cocoa. By the time the plantation is five years, 80-85% of the trees could be lost.
- In citrus orchards at a maximum potential leaf cutting ants nest density of 36/ha, 20-25 three years old trees could be defoliated each year; in addition to the data quoted above, annual losses of US\$1,000 million in tropical America and US\$10 million in Brazil have been quoted; annual losses for cocoa and citrus in Trinidad and Tobago have been estimated around US\$250,000.
- Estimates of losses due to Thrips palmi infestation of vegetables and fruit crops are very high; in the dry season of 1989, production of melongene, hot peppers and cucumber in Trinidad declined by 80, 68 and 55% respectively; in Puerto Rico in 1989 production of sweet peppers declined by 33% and was estimated at 90% in some areas; in the Dominican Republic, losses to melon and tomatoes alone amounted to US\$60 million in 1988 after combined infestation by Thrips palmi and Bemisia





**tabaci**; apart from low yield, many of the harvested fruit is cracked and unsalable on the export market.

- Moko disease of banana and plantain was reported in Grenada in 1978. However, it was assumed to be in the country two years earlier. Banana exports began declining from 31, 956,974 lb in 1977 to 22,031,456 lbs in 1982; at prevailing prices, and assuming that in the absence of moko disease 1977 production levels would have been maintained in 1982, production losses over the period has been estimated at over US\$ 4.5 million; if one assume that in the absence of moko disease banana production would have increased, the estimated losses would be even greater; if moko disease spreads to St Vincent and the Grenadines, Saint Lucia and Dominica due to weak quarantine measures would likely cause greater losses in those countries due to higher levels of banana production.

The aphid *Toxoptera citricidus*, the efficient brown aphid, vector for the transmission of Citrus Tristeza Virus (CTV), has been identified in Nicaragua. Its spread to Belize could destroy the citrus industry worth US\$20 million of exports. Since about 90% of the citrus is on sour orange rootslock which is extremely susceptible, within three years of entry of *T citricidus* into Belize, the citrus industry could be destroyed.

A poor quarantine system could result in increased production costs as additional activities would be required for controlling pests and diseases and treating the finished product in order to be able to export. The cost could be prohibitive.

Furthermore, because control is likely to be by chemical means, this is likely to have detrimental environmental effects. In addition, the incidence of pests and diseases usually result in productivity losses thereby increasing the per unit cost of supplying products. At the extreme, the introduction of pests and diseases of quarantine importance to a country could cause its trading partners to terminate trade as a means of ensuring that the disease does not enter their country. An inefficient quarantine system could therefore be translated into the loss of the ability to supply products at international markets at competitive prices.

It can therefore be reasonably argued that the proposed investment of 5.0 million ECUs into the upgrading of the plant and animal quarantine system in the Caribbean would be both financially and economically justified. The fact that once a functioning system is in place, the Governments would not require a huge amount of resources for its maintenance would help ensure its economic and financial sustainability.



Beneficiaries of the project include:

- agricultural producers will benefit by being provided with information and support that will help them increase productivity and incomes;
- animal health and plant protection technicians of the Ministries of Agriculture of the participating countries, who will receive training and improved facilities and thus be able to more effectively conduct their jobs.
- technicians of other ministries/institutions including planners and policy makers who will use the information from the system to enhance their decision making.
- the general public of the participating countries through the availability of higher quality products with reduced possibility of pesticide contamination.

## **7 ASSUMPTIONS, RISKS AND FLEXIBILITY**

A number of assumptions have been made in the conceptualization of the project. They include the assumptions that:

- regional governments would continue to maintain the policy of non-restriction in regional trade;
- the region could not remain isolated to international developments which encourages trade liberalization;
- that with the opening of European Market, producers would be encouraged to produce and would have the access to resources to use the new technology;
- IICA will continue to provide some support to the CARAPHIN Coordinator;
- tested control measures for the various endemic sanitary problems should be available.

There are no major risks in implementing this project.

## **8 MONITORING AND EVALUATION**

To monitor and execute the Project in the region, a Project Executing Unit would supply semi-annual and annual reports based on data obtained from the following:



### Goal level questions

- Has there been any reduction in the introduction of exotic pests and diseases?
- What percentage of producers are using the monitoring information for implementing control methods?
- Has there been an increase in production?
- Are producers comfortable with the control strategy?
- Is the control strategy environmentally sound?

### Goal level indicators

Some indicators which would be used to measure goal achievement are:

- number of inspections/interceptions/detections at international ports;
- absence of exotic sanitary problems in the field;
- number of producers benefitting from the information supplied implement pest and disease control activities;
- number of exporters using the system.

### Objective level question

Questions to be addressed could include:

- To what extent has the capability of the country strengthened for providing effective quarantine and in monitoring major pests and diseases?
- Are the countries able to implement the inspection/certification/detection system efficiently?
- Are recommendations for time of application of control measures working?
- To what extent are producers able to implement the control practices at the time required?
- Is the monitoring system for exotic pests and diseases effective?
- To what extent are pesticides and veterinary supplies being handled and used efficiently?
- To what extent are the capabilities for registration/control of pesticides and veterinary supplies strengthened?

### Objective level indicators

Indicators which would be used to measure achievement would include:

- level of cooperation by the public and customs officers;



- number of programmes against exotic pests and diseases;
- number of trained quarantine officers and pesticide inspectors;
- number of sanitary certificates issued at the ports;
- uniform operating systems at the ports in the countries;
- major pests and diseases identified;
- information to assist in more effective control of pests and diseases;
- internal/regional monitoring system for sanitary problems available;
- model for establishing national systems for early detection and early response to control/eradication of pest and diseases available;
- pesticides and veterinary supplies registered before entry and use in the countries;
- organized system (registrar and inspectors) for monitoring use and handling of pesticides and veterinary supplies in place;

#### Objective level data collection methodologies

Data would be obtained from records kept by the quarantine officers, extension officers, registrars of pesticides and minutes of meetings of Pesticides and Plant Protection Boards. CARAPHIN reports and reports from the Project Executing Unit would provide information on indicators.

#### Project Results

Personnel, registrars of Pesticides Boards, producers, exporters and other target groups trained in use and handling of pesticides and veterinary products and the public made aware of the potential damages. To determine the extent to which project results are being achieved the following questions will be asked:

#### Result level questions

- To what extent is the information available being used by the producers and the countries?
- Is the information to producers and exporters provided in a manner they would utilize?
- To what extent are technicians, producers and exporters using the laboratories?
- Is the equipment provided at the ports being used?
- How uniform are procedures, protocol and legislation in the countries in the region and how do they relate to international standards?





- To what extent do the procedures and legislation in the countries facilitate trade amongst the countries?
- To what extent are organizational structure for early detection and emergency response stems for pests and diseases adaptable for all exotic problems?
- Is the system for handling germplasm working?
- Are the procedures recognizing the importance of the service centres?

### Result level indicators

Result level indicators could include:

- upgraded Caribbean Animal and Plant Health Information Network operations in all countries;
- established Service Centres;
- a system for sampling by crop/animal, data collection processing and dissemination operational;
- laboratory networks for pest and disease identification and residue analysis developed;
- port facilities available;
- harmonized legislation and administrative procedures (protocols, inspection, certification, handling of germplasm) in place;
- number of workshops and public awareness campaigns for agricultural health personnel, exporters, customs officials, producers and the public in quarantine and use and handling of pesticides and veterinary products;
- committees established for the resolution of agricultural health disputes between countries arising with respect to trade;
- model organizational structure and procedures for emergency response system available.

### Data collection methodologies

Information would be obtained on priority pests and diseases of major crops and the number of laboratory samples analyzed. Baseline data on the number of samples intercepted and analyzed before the Project started, midway in the Project and at the end of the Project would be obtained from records at the ports of entry.

Surveys would be conducted using interviews to determine the level of public awareness and reaction to restrictions in pesticides and veterinary products and quarantine. Also visits will be made to agricultural sectorial planning and foreign trade offices to determine the degree of importance - and use of the



information system in decision making. This feedback system, complemented by the opinions of technicians and farmers, will make it possible for the system to keep up to date and be adjusted as necessary along the way. The countries would be required to provide data on the number of early detection of exotic pests and diseases and the emergency control/eradication.

## **8.2 Monitoring and evaluation schedule**

Monitoring of the Project would be done by the Project Executing Unit and would be ongoing. The data collected from the records of the country, the survey carried out and other items in the verifiable indicators would provide a basis for evaluation. An evaluation would be conducted, mid way through the Project to determine the extent of progress achieved.

Just before termination of the Project, there will be a full evaluation to determine whether the project has achieved the expected impact.

## **9 CONCLUSIONS AND PROPOSALS**

The profile suggests that the proposed Project has the potential to contribute towards achieving the objectives for the agricultural sector. It further indicates that the Project could assist in preventing the introduction and spread of sanitary problems and improve the capabilities for controlling endemic sanitary problems thus increasing production and trade.

It is recommended that the proposal is further investigated to assess its technical, financial and economic viability.

FECHA DE DEVOLUCION			

Upgrading plant and animal quarantine in the Caribbean

Fecha de devolución	Nombre del solicitante

## WHAT IS IICA?

The Inter-American Institute for Cooperation on Agriculture (IICA) is the specialized agency for agriculture of the inter-American system. The Institute was founded on October 7, 1942 when the Council of Directors of the Pan American Union approved the creation of the Inter-American Institute of Agricultural Sciences.

IICA was founded as an institution for agricultural research and graduate training in tropical agriculture. In response to changing needs in the hemisphere, the Institute gradually evolved into an agency for technical cooperation and institutional strengthening in the field of agriculture. These changes were officially recognized through the ratification of a new Convention on December 8, 1980. The Institute's purposes under the new Convention are to encourage, facilitate and support cooperation among the 32 Member States, so as to better promote agricultural development and rural well-being.

With its broader and more flexible mandate and a new structure to facilitate direct participation by the Member States in activities of the Inter-American Board of Agriculture and the Executive Committee, the Institute now has a geographic reach that allows it to respond to needs for technical cooperation in all of its Member States.

The contributions provided by the Member States and the ties IICA maintains with its twelve Permanent Observer Countries and numerous international organizations provide the Institute with channels to direct its human and financial resources in support of agricultural development throughout the Americas.

The 1987-1991 Medium Term Plan, the policy document that sets IICA's priorities, stresses the reactivation of the agricultural sector as the key to economic growth. In support of this policy, the Institute is placing special emphasis on the support and promotion of actions to modernize agricultural technology and strengthen the processes of regional and subregional integration.

In order to attain these goals, the Institute is concentrating its actions on the following five programs: Agricultural Policy Analysis and Planning; Technology Generation and Transfer; Organization and Management for Rural Development; Marketing and Agroindustry; and Animal Health and Plant Protection.

These fields of action reflect the needs and priorities established by the Member States and delimit the areas in which IICA concentrates its efforts and technical capacity. They are the focus of IICA's human and financial resource allocations and shape its relationship with other international organizations.

The Member States of IICA are: Antigua and Barbuda, Argentina, Barbados, Bolivia, Brazil, Canada, Chile, Colombia, Costa Rica, Dominica, the Dominican Republic, Ecuador, El Salvador, Grenada, Guatemala, Guyana, Haiti, Honduras, Jamaica, Mexico, Nicaragua, Panama, Paraguay, Peru, St. Kitts and Nevis, St. Lucia, St. Vincent and the Grenadines, Suriname, Trinidad and Tobago, the United States of America, Uruguay and Venezuela.

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INTER-AMERICAN INSTITUTE FOR COOPERATION ON AGRICULTURE

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P.O. Box 705, Bridgetown, Barbados  
Tel: (809) 427-4740/1/2