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PROCICARIBE – A NETWORKING STRATEGY FOR THE COORDINATION AND INTEGRATION OF AGRICULTURAL RESEARCH AND DEVELOPMENT IN THE CARIBBEAN

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ABSTRACT: In 1996, the Caribbean Agricultural Research and Development Institute (CARDI) was mandated by the Caribbean Heads of Government to develop an agricultural science and technology system for the region. Now termed PROCICARIBE, the Caribbean Agricultural Science and Technology Networking System provides the institutional framework within which Caribbean governments, R&D institutions, the private sector, NGOs, farmer groups and other stakeholders design and implement strategies for the integration and co-ordination of agricultural research and development efforts at both the national and regional levels with linkages to international organizations. The paper describes PROCICARIBE's Mission in light of the region's changing environment and provides details of the setting up of the system and its strategy for the next five years.

INTRODUCTION

With the pending expiration of preferential arrangements with Europe and the trend towards trade liberalisation that favours large countries with better production, marketing and transport facilities, the Caribbean agricultural sector faces a serious challenge of improving its competitiveness (Noguera-Devers, 1999). This challenge is made even more difficult by the greater need for environmental protection and biodiversity conservation that are so important to the region's economic development.

Agricultural research and development (R&D) is now characterised in the Caribbean by a decrease in grant funds and fiscal pressure on governments, making it increasingly difficult for governments to fund R&D. Added to this is that the private sector is small in most countries and is not interested in R&D of public goods. Governments, and government-funded organisations, therefore, must somehow generate new technologies under severe fiscal restraints. One positive development has been some growth in private sector and contract research creating an increasing demand for commercially valid technologies. But it is the region's large small farming community which is far removed from markets and private sector funding that is seriously under threat. Hence, there is an increasing need for technological innovation by R&D institutions to boost competitiveness and increase profitability in a framework of social equity and protection of the natural resource base.

However, the main problem facing the development of an effective agricultural R&D system in the small countries of the Caribbean is the conflict between research needs and the amount of resources available to meet those needs. Another important consideration is the relative indivisibility of research below a certain minimum critical mass effort at which levels no relevant results can be expected (Trigo, 1987).

Tropical agriculture tends to be more diversified than temperate agriculture thereby increasing research needs such as for greater replication of experiments in a greater number of different production environments. Although small countries share a number of very important common characteristics, many factors such as economic development, climate, geographical location, and historical and cultural factors differentiate one country from another and, in turn, the relevance of any particular R&D policy.

It is recognised that in order to become internationally competitive, the region's agricultural sector needs to focus on the coordination of efforts and move towards diversification away from traditional crops so as to exploit new market opportunities such as agrotourism, agroprocessing, and niche markets in the North (especially for tropical fruits, vegetables, root crops and cut flowers).

In order to improve the effectiveness of research and development investments, a 1993 World Bank review of the sector recommended that the number of organisations involved in agricultural R&D should be reduced and co-operation encouraged among institutions. Specific strategies were elaborated, one being to establish and strengthen existing research networks in the region, including ties with extra-regional institutions. This need for further regional co-operation especially one that directly involves the private sector as a means of improving the competitiveness of the sector and making better use of scarce resources has also been acknowledged by Caribbean Heads of Government (Blades, 1998).

Strategies for strengthening national R&D capacities and engendering cooperation and coordination at the regional and international levels must provide for:

- A better and more efficient pooling and utilisation of financial and human resources.
- The design and implementation of co-operative integrated commodity and thematic networks including information and communication networks.
- Mechanisms for regional agricultural research policy determination, priority setting and the development of a regional agenda for agricultural science and technology, all of which must be driven internally by the needs of the agricultural sector, its market requirements and the needs of the community at large.
- Financing of the research agenda by the region's public and private sector with external resources coming from partnerships through strategic alliances with international institutions and organisations.
- Research systems structured on the basis of regional co-operation and co-ordination among strengthened National Agricultural Research and Development Systems (NARDS).

At the Seventeenth Meeting of the CARICOM Conference of Heads of Government held in July 1996, the outline of the Regional Transformation Programme (RTP) for agriculture and the Plan of Action was endorsed. At this time, CARDI was given the mandate to implement the "technology generation, validation and transfer" sub-programme of the RTP (Blades, 1998).

In order to respond to its mandate, CARDI in its delivery of agricultural research projects and activities in support of the respective national and regional thrusts in agriculture, began working in close co-ordination with the Inter-American Institute for Cooperation on Agriculture (IICA), which had already introduced a number of similar partnerships throughout the hemisphere. Consultations were initiated in most Caribbean countries with the Ministries of Agriculture and public and private sector organisations. Arising from these consultations the concept of PROCICARIBE, the Agricultural Science and Technology Networking System for the Caribbean evolved.

THE STRUCTURE AND FUNCTION OF PROCICARIBE

PROCICARIBE's mission is to contribute to food security, poverty alleviation, improvement in the standard of living and the development of competitive agricultural enterprises for the sustainable development of the Caribbean's agricultural sector through the co-ordination and networking of science and technology programmes among the public and private sectors, NGO's, and other agricultural R&D entities.

The objectives of this networking strategy are to:

- Strengthen the applied research and development capability of NARSs to identify, address, and solve the problems of producers, marketers, processors, entrepreneurs and other dependants of improved technologies.
- Generate appropriate technologies by using existing research personnel, facilities, and other resources more effectively (this applies to the national and regional capabilities).
- Ensure stability of quality agricultural production through a strong and responsive research capability.
- Provide support (both technical and financial) needed to facilitate the co-ordination and implementation of activities at national and regional levels.

The goal of PROCICARIBE is to develop an integrated science and technology networking system, among the public and private sectors, NGOs and other agricultural entities in support of agriculturally based industries in the Caribbean region for the attainment of international competitiveness.

To establish an effective networking system amongst members of the public/private sectors, NGOs, farmer groups and other stakeholders in the Caribbean in key thematic or commodity areas in response to the priorities and demands of the agricultural sector in member countries.

PROCICARIBE's planning process in the development of its networking system has involved the participation of its stakeholders in national consultations to assist in the planning and design of the system to ensure its adequacy, proper formulation, implementation and sustainability. In this regard, since its inception in 1996, and its inaugural meeting in February 1998, PROCICARIBE has been engaged in the following planning process as a means of fully establishing the networking system:

Figure 1. Structure of PROCICARIBE

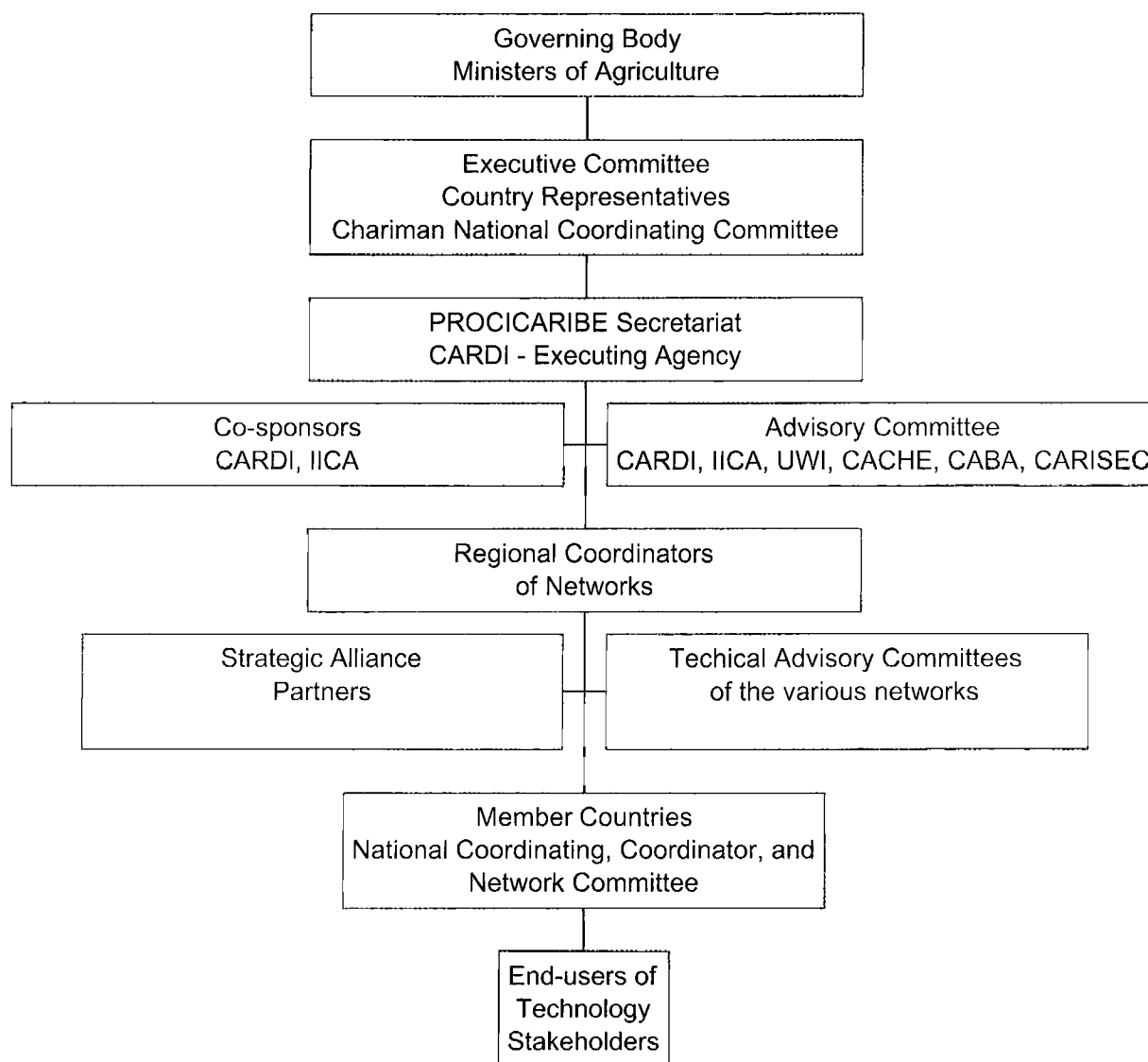
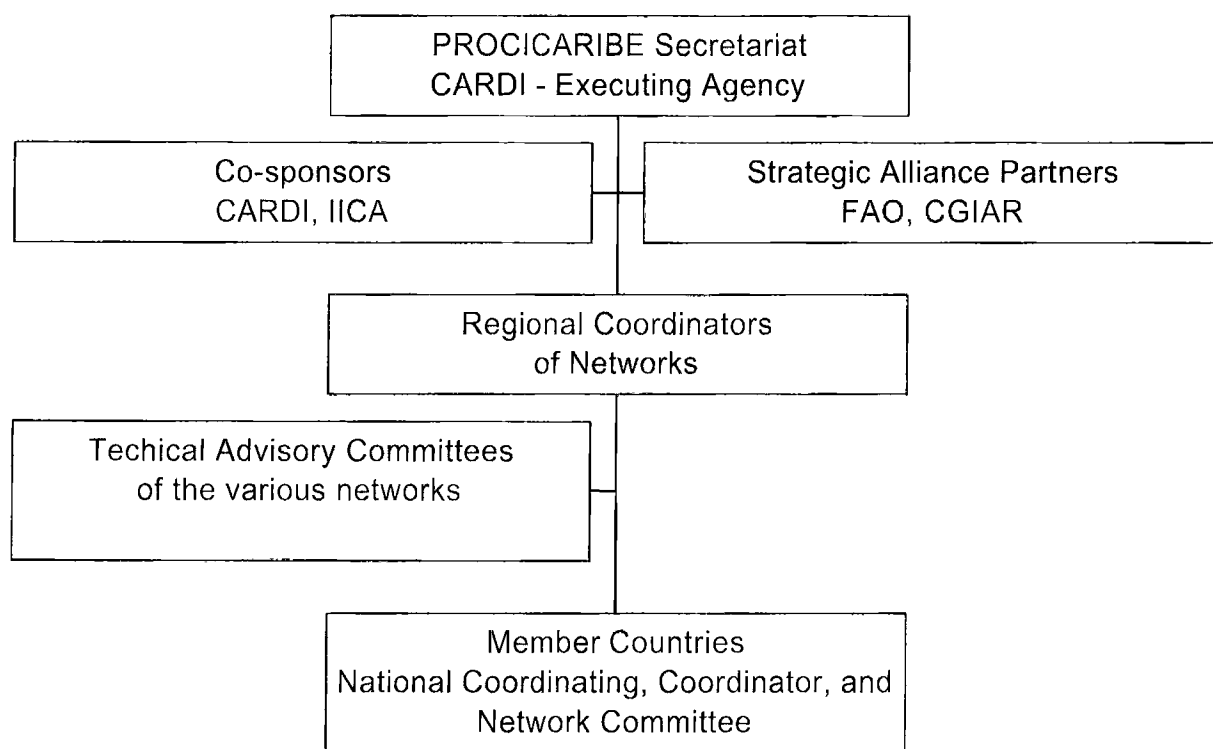


Figure 2. PROCICARIBE Network Structure



National Consultations: To ensure the input of its stakeholders in the development and design of the system, consultations were held in 18 countries with the participation of the majority of R&D stakeholders.

The Organisation and Development of Thematic and Commodity Networks: As a means of co-ordinating agricultural R&D in the region according to a thematic or commodity focus. A National Co-ordinating Committee (NCC) has been established in each country to interpret national policy and set R&D priorities (Figure 2).

The formal establishment of networking arrangements: To create structures that will be responsible for facilitating the co-ordination and co-operation of national and regional agricultural research amongst stakeholders, with contacts to international centres of excellence. In each country a National Network Committee (NNC) headed by a National Coordinator (NC) has been established for each network of the country. NCs come together regionally to form the regional networks under the coordination of a Regional Coordinator (RC) who reports to the PROCICARIBE Secretariat. The NNC facilitates the development/strengthening of the NARDS so that they are capable of implementing the national POWs and to collaborate effectively with other countries/institutions.

Establishment of Regional Networks: For each network, a regional meeting of NCs established national and regional R&D priorities and developed POWs. A Regional Co-ordinator (for each network) was appointed to ensure proper implementation of the POW under guidance from the PROCICARIBE Secretariat. A Technical Advisory Committee (TAC) of 5 - 7 members with expertise within the area of the particular network and drawn from institutions of excellence within and outside of the region was appointed to ensure scientific integrity of the POW.

Establishment of Collaborative Linkages: PROCICARIBE has established collaborative linkages at the national, regional, hemispherical and international levels so as to provide an institutional platform in keeping with a macroeconomic focus. The NCCs and NNCs address national collaboration while the networks foster regional collaboration.

At the hemispheric level, the Chairman of the Executive Committee of PROCICARIBE is a member of the Executive Committee of FORAGRO, the hemispheric forum that is one of five regional fora within the Global Forum of Agricultural Research (GFAR). FORAGRO affords PROCICARIBE network members collaboration with all R&D entities throughout the Western Hemisphere and, indeed, throughout the world.

Internationally, networks form strategic alliances with institutions of excellence such as Centres of the Consultative Group for International Agricultural Research (CGIAR) and universities worldwide. GFAR allows PROCICARIBE to be a part of the global family of R&D providers and aims to promote cost-effective partnerships and strategic alliances for poverty reduction, attainment of food security and the conservation of biodiversity. Each network also has renowned international scientists within its Technical Advisory Committees.

Established Networks and their Functions: To date 10 thematic and commodity networks have been established across the PROCICARIBE member countries of:

Antigua & Barbuda	Curacao	Haiti	St. Vincent and the Grenadines
Bahamas	Dominica	Jamaica	Suriname
Barbados	Dominican Republic	Martinique	Trinidad and Tobago
Belize	Grenada	Montserrat	
British Virgin Islands	Guadeloupe	St. Kitts and Nevis	
Cuba	Guyana	St. Lucia	

CRIDNET (The Caribbean Rice Industry Development Network)

Goal: The goal of CRIDNET is to increase the productivity in the cultivation and marketing of regionally produced rice so that Caribbean rice can improve its competitive position in the international market place while optimising regional self-sufficiency.

Purpose: The purpose is to enhance and improve the transfer and utilisation of improved production technologies in the regional rice sector.

CARIFRUIT (The Caribbean Fruit Network)

Goal: The goal of CARIFRUIT is to contribute to an improvement in the economic viability and sustainability of the fruit industry in the Caribbean by fostering an inter-sectoral and multi-disciplinary approach.

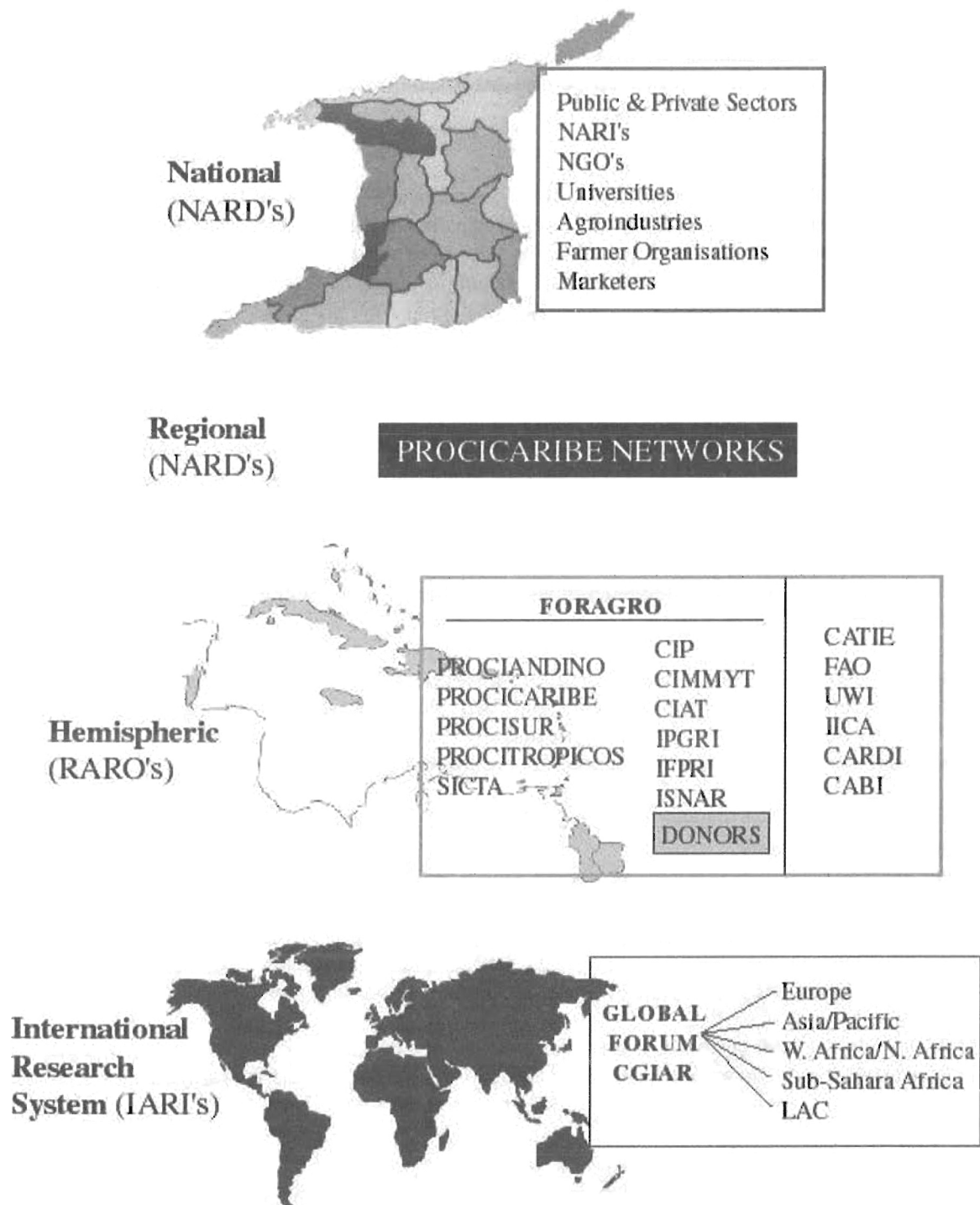
Purpose: The promotion and support of national and regional co-operation in technology, R&D, marketing and the distribution of selected fruit crops; and to promote greater utilisation of fruits grown in the Caribbean at the national, regional and international levels.

CIPMNET (Caribbean Integrated Pest Management Network)

Goal: To promote support and collaboration among Caribbean member states with linkages to international organisations in delivering more effective IPM as a key component of sustainable agriculture in the region.

Figure 3. Research Collaboration at 4 Levels

Research Coordination at 4 Levels



Purpose: The implementation of IPM strategies that encompass cost effective measures of prevention, observation and intervention in a holistic approach that enhances profitability and environmental protection while maintaining pest populations at levels above those causing economically unacceptable damage or loss.

CAPGERNET (Caribbean Plant Genetic Resources Network)

Goal: To ensure that there is improvement in the levels of efficiencies and higher levels of co-ordination in the utilisation and management of plant genetic resources in the Caribbean region.

Purpose: To provide a mechanism to foster collaboration efforts for the accession, improvement, conservation, evaluation and utilisation of crop germplasm for the benefit of the region's farmers within environmentally sound principles and policies.

CARINET (Caribbean Biosystematics Network)

Goal: The goal of CARINET is to contribute to the sustainable development of the region's agriculture and genetic resources, habitat conservation and the information needs for bioprospecting through the provision of efficient biosystematic services. It is the use of existing taxonomic resources of the sub-region whilst attracting Technical Co-operation partnerships to augment these resources to the level of realistic self-reliance.

Purpose: The purpose is to provide a regionally based biosystematic service to the Caribbean.

CASRUNET (Caribbean Small Ruminants Network)

Goal: To develop science and technology in small ruminants among public, private agricultural entities and NGOs to support agriculturally based industries in attaining international competitiveness and the sustainable development of the Caribbean region.

Purpose: To foster collaboration in small ruminants' research and development among stakeholders for the benefit of the region's farmers, entrepreneurs and other beneficiaries within sustainable agricultural systems.

CLAWRENET (Caribbean Land and Water Resources Network)

Goal: Develop Science and Technology in Land and Water Resources among public, private agricultural entities and NGOs to support agriculturally based industries in attaining international competitiveness and the sustainable development of the Caribbean region.

Purpose: Generate, validate and transfer environmentally sound technologies in land and water resources for use by agricultural producers.

CAPHNET (Caribbean Post Harvest Technology Network)

Goal: Develop post harvest technology system among public and private agricultural entities, NGOs and other stakeholders, in the development of sustainable quality assurance systems for perishable, durable and processed products in commercial enterprises in the Caribbean region.

Purpose: Co-ordinate regional research, adapt and transfer post-harvest and processing technologies to contribute to reduced losses, improved quality and improved efficiency in the preparation of Caribbean marketable products.

CAIS (Caribbean Agricultural Information Service)

Goal: To contribute to the improved access to information that will support the development of competitiveness within the Caribbean agricultural sector.

Purpose:

CAMID (Caribbean Agribusiness, Marketing and Information Development Network)

Goal: To increase the level of agricultural trade in network member countries.

Purpose: To establish a sustainable network of agribusiness marketing development service providers in CARICOM.

During 2001 the following additional networks will be established:

CAROT (Caribbean Root and Tubers Network)

Goal: To formally establish the Caribbean Roots and Tubers Network (CAROT) whose members will be responsible for developing and maintaining national and regional projects.

Purpose:

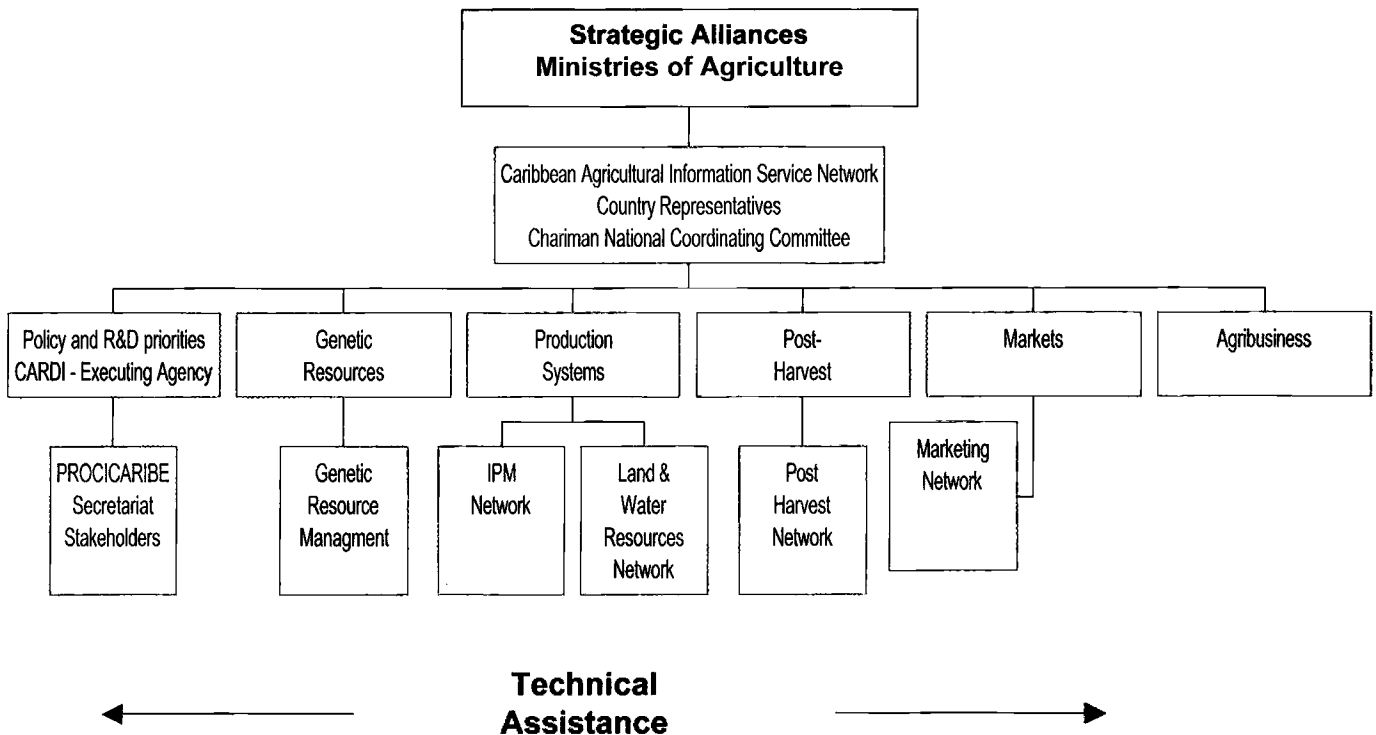
CARIVEG (Caribbean Vegetable Network)

Goal: To formally establish the Caribbean Vegetable Network (CARIVEG) whose members will be responsible for developing and maintaining the Caribbean Vegetable database and other regional and national projects.

Purpose:

The commodity systems approach is utilised to link commodity networks with thematic networks with access to international and regional strategic alliance partners, technical assistance and information technology. This interaction and approach is demonstrated in Figure 4.

Figure 1. Commodity Systems Approach used by PROCICARIBE networks



Collaboration is in the following main areas:

1. *Policy/planning for priority setting*: PROCICARIBE promotes the co-ordination and harmonisation of agricultural research policy and planning at the national and regional levels and enhance the capability in policy and priority analysis and research management of its members.
2. *Organisation and management of research and development (R&D)*: PROCICARIBE organises the activities of various industry and thematic networks and seek financial and technical support for their functioning. The Secretariat works with the various components of the networks and their executive framework to plan, develop, monitor and evaluate priority programmes of work.
3. *Promotion of partnerships*: PROCICARIBE promotes partnerships among public and private sector, NGOs, farmer organisations and other stakeholders to advance the technological modernisation of agriculture in the region.
4. *Strengthening of regional linkages with outside R&D agencies*: PROCICARIBE provides an interface between the region and the CGIAR and other international systems and institutions of excellence and maintains strong relationships with Latin American countries and programmes through FORAGRO.
5. *Resource mobilisation*: The PROCICARIBE Secretariat, the executing agency, CARDI and the co-sponsor IICA assist in mobilising resources for R&D implemented by the networks. The Secretariat also works with NARDS in the member countries to mobilise their own resources (human and financial) for the conduction of their work programmes.
6. *Information transfer*: PROCICARIBE with the assistance of the Caribbean Agricultural Information Service (CAIS) facilitates information gathering, packaging and dissemination amongst network members.

The step-wise process from policy interpretation and priority-setting to the transfer of appropriate technology to end-users is shown in Figure 5.

Towards Strengthening the PROCICARIBE System

To date the PROCICARIBE system has led to the development of national coordinating structures in each of the 18 member countries and national and regional programmes of work. Linkages to strategic alliance partners in Latin America, the USA, Europe, Africa and Asia (through the CGIAR and GFAR) have been established and projects are being implemented where network coordinators have shown a willingness to advance the process. However, in many countries, regional and national coordinators have been inactive due to a lack of personal commitment and institutional support. Also, financial support for project implementation has not been adequate.

To overcome these drawbacks, the following steps must be taken:

Regional Coordinators (RCs) should be full-time employees reporting to the PROCICARIBE Secretariat. At the moment, RCs are employees of various institutions – the PROCICARIBE Secretariat has very little control over their activities.

National Coordinators must develop work programmes that are not additional to their normal duties. Where activities pertaining to regional network projects fall within their national project domain, such activities must be counted within their national programme of work.

Financing of national projects must come from the national budgets of the institutions represented within the National Network Committees (NNCs). The PROCICARIBE Secretariat will assist with resource mobilisation for national programmes of work.

Financing of regional projects of the various networks is expected from the European Union under the 9th EDF of the Cotonou Agreement. The PROCICARIBE Secretariat intends to work closely with the CARIFORUM Secretariat to secure this funding of close to US\$6M beginning 2002. The EU

financing for the IPM network CIPMNET from 7th EDF funds must be pursued vigorously by the PROCICARIBE Secretariat.

The PROCICARIBE System cannot survive without strong institutional support from its Co-Sponsors CARDI and IICA. CARDI finances the Secretariat staffing and some national and regional activities of the networks while IICA supplies some operational funds for the Secretariat and regional projects. CARDI and IICA must maintain their support.

All networks (through their RCs) must proactively source funds from regional and international sources for their programmes of work. The PROCICARIBE Secretariat will continue to facilitate project development and assist in the preparation of project proposals for the sourcing of donor funds.

Member countries must offer financial support to their National Coordinators to attend the regional Annual Technical Meetings of the Networks. This is especially necessary since countries are not presently required to pay membership fees to the PROCICARIBE system.

RCs must actively monitor the implementation of national and regional programmes of work by travelling to member countries so as to view work on the ground and offer assistance to NCs and their NNC members. Then, they must report to the Executive Secretary in a timely fashion. In this way, the coordination of network activities will be assured.

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Figure 5: Scheme for Technology Generation, Validation and Transfer under the PROCICARIBE System

