

**ASSESSMENT OF AGRICULTURAL INFORMATION NEEDS IN  
AFRICAN, CARIBBEAN & PACIFIC (ACP) STATES FOR CTA'S  
PRODUCTS AND SERVICES**

**Phase II: Caribbean**

**Country Study: Belize**

**Final Report**

**Prepared by:**

Citrus Growers Association

Stephen Williams

Travis Marcotte

Bridget Cullerton

**on behalf of the**

**Technical Centre for Agricultural and Rural Cooperation (CTA)**

**Project: 4-7-41-206-5 / a**

**04 / 11 / 2005**

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## List of Acronyms

ACP	African, Caribbean and Pacific
BAHA	Belize Agricultural Health Authority
BEST	Belize Enterprise for Sustainable Development
BFCA	Belize Fishermen's Cooperative Association
BGA	Banana Growers Association
BSI	Belize Sugar Industries
CABI	Commonwealth Agricultural Bureau International
CARD	Community Initiated Agriculture and Rural Development Project
CARDI	Caribbean Agriculture Research & Development Institute
CARIBCAN	Canadian Programs for Commonwealth Caribbean Trade, Investment and Industrial Cooperation
CARICOM	Caribbean Community
CARIFORUM	Forum of the Caribbean ACP States
CARIRI	Caribbean Industrial Research Institute
CARTF	CARIFORUM Agribusiness Research and Training Fund
CATIE	Tropical Agricultural Research & Higher Education Centre
CBI	Caribbean Basin Initiative
CBO	Community Based Organization
CCAB-AP	Central American Council on Forests and Protected Areas
CCAD	Central American Commission for Environment and Development
CDB	Caribbean Development Bank
CET	Common External Tariff
CGA	Citrus Growers Association
CITES	Convention on International Trade in Endangered Species of Wild Flora and Fauna
CORECA	El Consejo Regional de Cooperación Agrícola
CPBL	Citrus Products of Belize Limited
CREC	Citrus Research & Education Centre
CREI	Citrus Research & Education Institute
CSO	Central Statistics Office
CTA	Technical Centre for Agricultural and Rural Cooperation
CZMA	Coastal Zone Management Authority
DFC	Development Finance Corporation
EIB	European Investment Bank
EU	European Union
FAO	Food & Agriculture Organization of the United Nations
GDP	Gross Domestic Product
GEF	Global Environmental Fund
GoB	Government of Belize
GSP	Generalized System of Preferences
HACCP	hazard Analysis and Critical Control Point
ICM	Information and Communication Management
ICT	Information and Communication Technology
IDB	Interamerican Development Bank
IICA	Inter-American Institute for Co-operation in Agriculture
IPM	Integrated Pest Management
IPPC	International Plant Protection Convention
IUCN	World Conservation Union
MAF	Ministry of Agriculture and Fisheries
MBC	Mesoamerican Biological Corridor
MBRS	Mesoamerican Barrier Reef System

MDC	Most Developed Countries
NAFTA	North American Free Trade Agreement
NAPPO	North American Plant Protection Organization
NDFB	National Development Foundation of Belize
NGO	Non-Government Organization
OIRSA	International Regional Organization for Plant and Animal Health
PACT	Protected Areas Conservation Trust
PREFIP	Surveillance System for Classical Swine Fever
PREPAC	Inland Fisheries and Aquaculture Regional Plan
QR	Quota Ratio
ROC	Republic of China (Taiwan) Technical Mission to Belize
SICTA	Integrated System of Science and Technology of Central America
UNDP	United Nations Development Programme
VIFINEX	[Pest] Surveillance System for Non-traditional Export Commodities
WTO	World Trade Organization

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## Key to Type and Role of Institution

(Abbreviations used in Annex III)

Type:	AS-F	Farmers' association (includes co-operatives)
	AS-W	Women's association
	AS-Y	Youth association
	BNK	Bank or credit institution
	CCI	Chamber of commerce and industry
	CHU	Church-base group
	EDU	Educational institution
	GOV	Government department / ministry
	NGO	Non-government organization
	PRV	Private enterprise, company
	REG	Regional organization, project or network
	STA	Statutory body
	STE	State enterprise
	OTH	Other
Role:	EX	Extension and outreach
	IN	Information services
	FS	Financial services
	PP	Policy and planning
	PS-E	Private sector – Exporter (fresh, frozen and dried produce)
	PS-M	Private sector – Manufacturer (e.g. tannery, bottler, refiner, roaster)
	PS-P	Private sector - Producer (e.g. commercial farm, fishing company)
	PS-S	Private sector – Supplier (e.g. agri. chemicals, equipment, seeds)
	RD	Research and development
	RG	Regulation (compliance, standards)
	TR	Training (at secondary, tertiary and vocational level)
	TM	Trade and marketing (including market development)
	RU	Rural development
	OT	Other



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## **Executive summary**

### *Introduction*

The Technical Centre for Agricultural and Rural Cooperation (CTA) works primarily through intermediary organizations and partners (non-governmental organizations, farmers' organizations, regional organizations) to promote agricultural and rural development in African, Caribbean and Pacific (ACP) States. The identification of appropriate partners and beneficiaries for CTA's programmes and services in Belize and an analysis of their information and capacity building needs is the focus of this study.

### *Objectives of the Study*

The objectives of this study are (i) to identify agricultural information needs of key actors / beneficiaries for CTA products and services; (ii) to identify needs of potential actors / beneficiaries of CTA activities and services in terms of building capacity for information and communication management; (iii) to identify potential partners / beneficiaries for CTA activities and services; (iv) to develop some baseline data to facilitate subsequent monitoring activities.

### *Methodology*

During the desk review, statistics for the country profile were obtained from various sources including the Ministry of Agriculture and the Central Statistics Office. Also, during the desk review, the list of institutions in the Belize agricultural sector (Annex III.1) was compiled (through consultation with telephone directories, lists available from the Ministry of Agriculture and personal contacts of the consultants) – and from this list (using the criteria in Annex III.2), key institutions were identified. Using the questionnaire provided by CTA (Annex V), the consultants interviewed 10 of the key agricultural organizations in Belize.

### *Findings*

Belize has a subtropical climate with a total land area of 22,960 sq km. Agricultural land covers 10% of the territory, with 79% forest. Agriculture, forestry and fisheries are important to the economy although tourism has grown significantly in recent years. Belize export trade is dominated by sugar (produced in the north), bananas (produced in the south) and citrus (produced in the central region) and is estimated to contribute 35% to the GDP. The fisheries (conch, lobster and shrimp) and forestry sectors are also important to the economy.

Belize does not have a policy or strategy for the management of agricultural information and communication, either at the institutional or national level. Many organizations do have the resources (equipment and software) required to make significant improvements in information and communication management (ICM) programmes but lack the human and financial capacity to designate personnel to do the work. Most obtain their information through personal affiliation or professional networks at the national and the international level - through email, telephone or personal contact. CTA nor the University of Belize, Agricultural Department Library (the only significant agricultural library in Belize) were quoted as a source of information. Some organizations reported that there was little demand for information from staff.

Information needs for day-to-day programme implementation included livestock husbandry, fisheries and livestock management, wildlife management, crop production, fruit-fly control, equipment sourcing, credit provision, Integrated Pest Management (IPM), quarantine provision and post-harvest handling. Information highlighted as “difficult to obtain” was that required for the organization to move to the next level of efficiency (such as case studies in community approaches to programme implementation, socioeconomic analysis, marketing information, agro-processing for ‘value-adding’). Institutions mainly required access to abstracts/executive summaries with the option of accessing full-documents in areas that were of particular interest. Capacity building would be then required in ‘translating’ and combining the information with local knowledge and experience into fact-sheets, videos, newsletters, etc. suitable for use by primary producers.

### *Conclusions*

The majority of “potential information and management problems” identified by CTA as likely to occur in ACP countries were found to be vital issues for Belize. Additionally, it was found that the limited demand for information from technicians and the lack of personnel dedicated to information management were key concerns that needed attention.

Capacity building needs identified for Belize included: (i) to develop a greater appreciation of the value of and uses for information (this is expected, in turn, to lead to a demand from agricultural technicians and managers for the development of information management and production systems); (ii) to develop a national information management and distribution strategy; (iii) to centrally coordinate, to collect, manage and disseminate Belize’s agricultural data and information; (iv) to more effectively use, interpret and analyse information (to increase the demand for timely and relevant information); and (v) to provide a source of agricultural abstracts and scientific papers.

### *Recommendations*

Of priority is the need to establish a national policy for information and communication management and to establish a programme to improve the capacity of technicians to value and use information.

In addition to addressing the information management capacity building needs of individual institutions, a complementary option would be to establish a national agricultural information unit to support the agricultural sector. The library facilities at Central Farm (Department of Agriculture, University of Belize) - currently the most significant collection of agricultural texts in the country could be enhanced to become such a national unit.

Three institutions are recommended as potential partners for CTA. They are: (i) the Department of Agriculture (University of Belize); (ii) the Belize Enterprise for Sustainable Technology; and (iii) the Citrus Growers Association / Citrus Research & Education Institute. All three organizations recommended, could form a Belize agricultural information network to partner with CTA; as opposed to selecting just one organization. This would compliment the idea of developing a national central unit, with each of the three institutions acting as an ‘information management node’ to serve the agricultural community (the beneficiaries) of the geographic area and the sector that is their mandate.

## **1. Introduction**

1. CTA works primarily through intermediary organisations and partners (non-governmental organisations, farmers' organisations, regional organisations) to promote agriculture and rural development. CTA was established in 1983 under the Lomé Convention between the ACP (African, Caribbean and Pacific) Group of States and the European Union Member States. Since 2000, it has operated within the framework of the ACP-EC Cotonou Agreement.

2. Through partnerships, CTA hopes to increase the number of ACP organisations capable of generating and managing information and developing their own information and communication management strategies. The identification of appropriate partners and beneficiary needs is of primordial importance and a focus of this study. Various national and regional partners with whom CTA has had a long-standing relationship have requested the current study which would serve to update the earlier studies done and allow them to provide more targeted assistance to their beneficiaries.

3. The objectives of this study are as follows:

- to identify agricultural information needs of key actors / beneficiaries for CTA products and services;
- to identify needs of potential actors / beneficiaries of CTA activities and services in terms of building capacity for information and communication management;
- to identify potential partners / beneficiaries for CTA activities and services;
- to develop some baseline data to facilitate subsequent monitoring activities.

4. The study aims to assist the three operational departments of the CTA as well as its local representatives to improve and better target interventions and activities aimed at potential partners and beneficiaries (including women, youth, private sector and civil society organisations); to have a more informed picture of their needs and thus aid in the development of a strategy and framework for action. The study also highlights where there are specific needs for CTA's products and services, knowledge that will enable more effective delivery.

5. Using the questionnaire provided by CTA (Annex V), the consultants interviewed 10 of the key agricultural organizations in Belize. The results of the discussions held during the interviews are analysed in the following pages.

6. This report begins with a profile of Belize and the agriculture, forestry and fishery sectors. This is followed by an analysis of the information needs reported by the ten key agricultural institutions interviewed and a discussion of what they stated to be their capacity building needs to more effectively collate, manage and disseminate agricultural information that will meet daily requirements for programme implementation.

7. In the Conclusions section, a discussion is held on the extent of key problems (identified by CTA as likely to occur) found to be present in Belize in addition to others not mentioned by CTA. In the section on Recommendations, proposals are made for developing institutional and sectoral capacity to meet the country's agricultural information needs.

8. The Annexes provide further detailed statistics for the agricultural (including the fisheries and forestry) sector, as well as a profile of the socioeconomic, media and telecommunication situation in the country. A profile of all organizations that serve the agricultural sector in Belize (including contact information) is also provided with further details on the selected key agricultural institutions with whom interviews were conducted.

9. Further background to the study can be found in the terms of reference (Annex I).

## **2. COUNTRY PROFILE**

### **2.1. Country Overview**

10. Belize is located on the Central American mainland and is bounded to the north by Mexico, to the west and south by Guatemala and to the east by the Caribbean Sea (Annex II, Fig. II.1). The total land area is 22,960 sq km (8,867 square miles) with 95% located on the mainland and 5% distributed over more than 1,060 islands. It has a sub-tropical climate with average temperatures between 23° and 30° centigrade. A coastal plain runs along the eastern border between the Caribbean Sea and the hilly terrain located to the west of Belize. The Maya Mountains run north to south through the central western part of Belize with more mountainous areas located in the south.

11. Although irrigated agricultural production is increasing, the considerable difference in rainfall from north to south has dictated the location of key agricultural commodity production. In the drier north, sugar cane dominates with citrus located more south and central either side of the Maya Mountains in Cayo, Stann Creek and northern Toledo districts. In the wetter south, banana and rice are produced. The most recent land use analysis (1989/92) indicated that agricultural land occupied 10% of land cover and forest and other woodlands accounted for 79%. The remaining 11% was classified as range land, unproductive land or situated in urban areas (Annex II, Table II.1.2.1).

12. The population in 2000 was 240,204 with roughly 11 persons per square kilometer. Belize is an ethnically diverse country comprised of 53.2% Mestizo, 25% Creole, 10.1% Maya, 6.9% Garifuna, and 4% other (including East Indian, Asian, White and other groups) in 2000 (Annex II, Table II.2.1.1). The population is also very young with 41% reported to be under the age of fourteen in 2000 (Table II.2.1.2). Mestizos comprised the largest ethnic group in the districts of Corozal (76%), Orange Walk (77%) and Cayo (63.7%) and were only slightly less (30.2% vs. 31%) than the Garifuna population in Stann Creek. In the Belize District, Creoles comprised the largest ethnic group (59%) and in the southernmost district of Toledo, the Maya (65.4%) outnumber all other ethnic groups (Annex II, Table II.2.1.1).

13. The working population in Belize was estimated to be 142,536 persons in 2000 and was divided equally between men and women (Annex II, Table II.1.1.1). Of this, approximately 21,296 persons were involved in agriculture, forestry and fishery related occupations with 90% of the workforce being male. Outside of the general non-export commodities classification, the sugar sector had the highest number of working persons with 5,456. This was followed by the banana sector (2,126) and the citrus sector (1,964). Fishing and associated processing accounted for 1,878 working persons and forestry employed 937 persons in 2000. Men comprise the bulk of workers in each productive sector – from 78% in bananas to 98% in sugar. However, of the 1,518 workers involved in the manufacture of food products, 36% were women.

14. Poverty remains a challenge in Belize. According to the 2002 Poverty Assessment, 33% of the population is below the poverty line and at risk of being food insecure. Furthermore, almost 11% of the population is indigent, or unable to meet the food requirements for healthy existence. In rural areas the level of indigent persons climbs to 17.4% nationally. By district, Toledo is the poorest with 79% of persons reported to be poor and 56% indigent. The Belize District was the least poor overall. Agriculturists are one of the poorest groups by occupation, with non-export commodity (NEC) producers and citrus growers reported to be most poor. The Maya have the highest levels of poor (77%) and indigent (54.8%). Mestizo, Creole, Garifuna and other groups had poverty levels at or below 30% and levels of indigence just below the national average of 11% in 2000.<sup>1</sup>

## **2.2 Agriculture, Fisheries and Forestry**

15. Belize's economy is generally characterized as a small open economy, heavily dependent on agriculture (including forestry and aquaculture) for its foreign exchange earnings and employment. Agriculture continues to form the foundation of the productive sector and the rural economy and contributed 14% to the GDP in 2003 (Annex II, Table II.1.4.1). The MAF estimates that with the inclusion of secondary and tertiary industries such as agro-processing and retail trade, the contribution of agriculture and its related activities to GDP is upwards of 35%.<sup>2</sup>

16. Belize export trade is dominated by agricultural commodities, particularly the traditional export products, sugar, bananas, citrus and in recent years, marine products. In 2002, agricultural exports accounted for 68.2% of exports. Traditional crops represented 84.5% of total agricultural exports while non-traditional exports (papayas, peanuts, black eye peas, cocoa beans, honey, and pepper products) accounted for 15.5% of total agricultural exports. In 2002, marine products represented 21.0% of total domestic exports, more than doubling since 1994.<sup>3</sup>

17. Belize benefits from a number of unilateral trade preferences granted under the African, Caribbean, and Pacific countries and the European Union (ACP-EU) Agreement; the Caribbean Basin Initiative (CBI); the Canadian Programs for Commonwealth Caribbean Trade, Investment, and Industrial Cooperation (CARIBCAN); and the Generalized System of Preferences (GSP). In addition, Belize's exports are granted preferential access to the EU market under the Cotonou Partnership Agreement signed between the ACP and the EU in 2000. Belize is also a beneficiary of numerous bilateral arrangements as a result of its membership of CARICOM (Annex II, Box II.1.7.1 and Table II.1.7.1).

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<sup>1</sup> For additional information on poverty in Belize and the methodology see: NHDAC (2004) "Belize 2002 Poverty Assessment Report". National Human Development Advisory Committee. Government of Belize. Belize.

<sup>2</sup> Ministry of Agriculture, Fisheries and Cooperatives (2003) National Food and Agriculture Policy. P. 15.

<sup>3</sup> WTO Trade Policy Review (2004). Report by the Government. WT/TPR/G/134. P. 8.



18. The Ministry of Agriculture and Fisheries is the primary Government agency responsible for agricultural and fishery policy development, regulation and support. The key export commodities are supported and represented by a series of producer associations and research related organizations. The Belize Cane Farmers Association and the Sugar Industry Research and Development Institute and the Belize Sugar Industries (the sugar processors) are responsible for sugar. The Citrus Growers Association, Citrus Growers and Workers Credit Union, Citrus Research and Education Institute, and Citrus Products of Belize Limited (the citrus processors) provide support to the citrus industry. The banana industry is represented by the Banana Growers Association (supervises the exportation of bananas through Fyffe and provide growers with technical support). The fishery sub-sector is represented by the Belize Fisherman Cooperative Association, associated Cooperatives and the Coastal Zone Management Authority (CZMA). The Shrimp Growers Association represents the shrimp aquaculture sub-sector. Commodity groups and associations most commonly represent smaller industries such as vegetable production, livestock and agroforestry. A number of organizations represent the interests of the forestry sector with the Forestry Department (of the Ministry of Environment and Natural Resources) being responsible for overall policy development, implementation and regulation. Other (mainly environmental) groups (such as PACT (Protected Areas Conservation Trust), Program for Belize and Belize Audubon Society) support programmes for protection and sustainable management of the forest resources.

### ***2.2.1 Agriculture***

19. The most recent population census estimated the number of persons working in agriculture to be 21,296 in 2000, an increase from 17,189 reported in 1991. Although 14 different farming systems have been defined for Belize (Annex II, Table II.1.3.2), four characterizations are being increasingly used to summarize Belize agriculture. These include: traditional or milpa farming systems; small commercial farms for domestic markets; small commercial farms for export; and large commercial farms and estates for domestic and export production. Most small farmers in Belize practice subsistence farming and often seek outside employment or other income-generating activities to supplement their farm income. Agricultural marketing systems in Belize are diverse and include domestic public and open-air markets, tourism related markets, supermarkets and grocery stores, agro-processing industries and the export market.

20. Sugar, citrus and bananas dominate Belize agricultural production and export with total sales of BZ\$68.6 (€27.4), BZ\$81.2 (€31.4) and BZ\$33.5 (€12.9) million respectively in 2002. Between 1990 and 2002 the value of sugar exports declined 25% while the value for citrus and bananas increased 83.5% and 107% respectively. Non-traditional exports were valued at BZ\$20.5 (€7.9) million in 2002 with significant gains of 373% since the 1990 export value of BZ\$4.34 (€1.7) million (Annex II, Table II.1.6.1).

### ***2.2.2 Fisheries***

21. Fishery production is for both domestic consumption and for frozen export and contributed an estimated 5% to GDP in 2003 (Annex II, Table II.1.4.1). The 2000 census reported 1,878 persons involved in fishing and related processing, up from 1,103 reported

in 1991 when the category did not specifically include processing.. Fishery exports (including lobster, conch and shrimp) contribute significantly to Belize's foreign exchange earnings. In 2003, lobster and shrimp exports accounted for BZ\$13.5 (€5.3) and BZ\$92.8 (€36.5) million in sales respectively with shrimp exports increasing almost BZ\$40 (€15.7) million from 2002 levels (Annex II, Table II.1.6.2). During the period between 1992 and 2003, the number of shrimp farms increased from 3 to 13 with an associated expansion in acreage from 533 acres to 6,788 acres (Annex II, Table II.1.2.3). Lobster and conch dominate the marine fishery with just less than 250 tonnes produced in 2003. Fish filet production for the domestic market ranged between 18 tonnes and 50 tonnes per year during the 1997 to 2003 period with an average of 25.7 tonnes per year (Annex II, Table II.1.5.4).

### **2.2.3 Forestry**

22. Total forested area in Belize is 4,250,365 acres and accounts for 79% of the land. Broadleaf forest covers 3,503,704 acres. Timber production in Belize has been declining steadily in recent years. From 1997 to 2000, total timber production fell from 2.1 million cubic feet to 1.2 million cubic feet. Pine production constitutes the bulk of output. In 2000, 710,243 cubic feet of pine were harvested and accounted for 57% of total output (up from 43% in 1997). In 2000, Yemeri, Santa Maria and Mahogany were the next most harvested with output of 109,737, 86,843 and 81,289 cubic feet respectively. Santa Maria and Mahogany experienced the largest annual declines over the 1997 to 2000 period (Annex II, Table II.1.5.6).

## **2.3 Information and Communication Management Capacity**

23. Interviews with senior managers of 10 key agricultural organizations (summaries of the results of which are included in Annex III.2) provided an account of the capacity in Belize for information and communication management. The information presented in the following sections of this report was obtained from the interviews held.

24. There is no policy or strategy in Belize for the management of agricultural information and communication, either at the national or the institutional level. Many organizations do have the resources (equipment and software) required to make significant improvements in their current information and communication management programmes – but lack the human and financial resources required to designate personnel to do the work. Additionally, there is no general demand for information from technicians (enhanced skills are needed to search for and analyze information) and so no urgency exists for developing information and communication management systems. Despite this limitation, there are some significant efforts to manage information, exchange it between technicians and communicate it to agricultural producers.

### **2.3.1 Agricultural Libraries**

25. There is one significant agricultural library in Belize (at the Department of Agriculture, University of Belize) but other organizations such as Belize Agricultural Health Authority (BAHA), the Citrus Research & Education Institute (CREI) and Belize Sugar Industries (BSI) have established small-scale libraries to meet their own needs.

The Department of Agriculture library has a wide range of texts on general agriculture but is lacking more up to date books and, due to limited funding, subscriptions for many journals have not been renewed. Reports and scientific papers, when produced in Belize, are not systematically collected or stored and are thus difficult to locate when required for reference. This library primarily serves the needs of the agricultural students studying for the Associated Degree of the University.

### ***2.3.2 Publishing Capacity***

26. The Department of Agriculture of the Ministry of Agriculture and Fisheries has recently established its own information unit to serve the Belize agriculture sector. One person is seventy percent employed in this unit; currently compiling technical information, project reports, bulletins, newsletters, etc. that have been produced over the years by the Ministry and other institutions. There is plan to produce a regular newsletter with farmers as the target audience.

27. A number of agricultural institutions in Belize publish their own newsletters to highlight issues that are current in the industry they serve. The CREI, for example, produces a monthly industry bulletin (CitroScope) and a quarterly news magazine (CitriNews). CREI has experienced difficulties, due to limited staff, in producing the publications as regularly as intended. Newsletter and bulletin production for most organizations in Belize is fairly sporadic – being completed, in the majority of cases when staff (with other specific assigned duties) have the time.

### ***2.3.3 Data Collection and Management***

28. The Ministry of Agriculture and Fisheries has a Statistical Unit which collects and disseminates agricultural statistics (on production, acreage, crops produced, crops exported, etc.) for the entire sector and for the Central Statistics Office (CSO). Much of this data is reproduced in Annex II. The unit focuses on compiling data for Belize's non-traditional crops, leaving the collection of data for the 'traditionals' (citrus, sugar and banana) to the organizations that represent those industries. The Fisheries Department has a designated set of personnel to collect fisheries data mainly in order to ensure effective assessment of fish resources in order to make effective policing and policy decisions. The Land Information Centre (of the Ministry of Natural Resources and Environment) has become specialized in the collection and mapping of land use data (using satellite imagery, for example) and the development of geographic information systems (GIS).

29. The Citrus Growers Association holds production and acreage data on all the citrus growers in Belize and its research unit, CREI supplements this information with data (e.g. soil and leaf analysis results) collected from the field. Efforts are underway to expand the range of data collected to include records of extension visits and incidence of disease and production problems. The analysis of this data will allow for the development and the implementation of more effective extension and education strategies. At this time, no specific person is allocated to this work.

### ***2.3.4 Extension Services***

30. The Ministry of Agriculture has its own extension service with staff stationed in each of the (six) district offices providing advice and disseminating information to local producers of crops other than the traditional crops (citrus, sugar and banana). Producers of each of the traditional crops have established Associations with assigned responsibility for providing extension and other services to its members. The Banana Growers Association, for example, has seven field staff, each specialising in providing advice and information to their grower members on nutrition, quality and black sigatoka and nematode control. The emerging papaya and shrimp production industries are establishing organizations to provide similar services. The Extension service of the CREI holds monthly ‘Citrus Group’ meetings throughout the citrus growing areas of the country to provide information, industry up-dates and participatory workshops with small-scale growers. The extension officers of the Belize Sugar Industries (BSI) work with growers to promote the production of quality cane.

### ***2.3.5 Communication Capacity***

31. Agricultural information is disseminated to growers through the channels described above (publications, workshops and word-of-mouth (extension visits)) but among agricultural technicians information is normally exchanged by email (through professional networks and through personal affiliation) and through occasional press releases. However, in some cases email communication and Internet searches are limited due to inadequate access to computers and the high cost of Internet access in Belize.

32. Almost all agricultural institutions in Belize have some access to the Internet where searches for agricultural information are conducted on a general or specific basis, usually from regularly visited websites and some technicians use email as a regular form of communication.

33. Occasional appearances on morning phone-in radio shows (primarily Love FM or Krem FM, the two main stations with national coverage) by staff of agricultural institutions are used to convey specific or emerging issues of national interest; but the potential of using this medium for communication within the agriculture sector has not been adequately explored. Only one radio station (Power Mix) is known to conduct a regular (weekly) agricultural show (‘Agricultural Vibes’) targeted at the small-scale producer (in Dangriga and surrounding areas). This show provides ‘down-to-earth’ advice on crop production. There is a need to increase the available personnel and skills required to use media for the dissemination of agricultural information. There is limited local TV coverage (most stations originate from the US) and locally produced programmes rarely deal with agricultural issues.

## **2.4 Agricultural Information Services – Where People Go for Information**

34. Most institutions in Belize obtain their information through personal affiliation or professional networks; that is through contacts with organizations with which they are also collaborating (Table 2.3). Many of these institutional contacts are key players in the

agricultural sector, local ones such as BAHA, regional institutions (such as CARDI) and international organizations (such as IICA and OIRSA). In searching for information on a specific agricultural topic for programme implementation, the most common strategy employed is to identify specific persons or institutions that are believed to have expertise or that are able to answer a specific question or provide the required information. These contacts are pursued through email, telephone and complemented with Internet searches where appropriate. In a few instances, specific information is also obtained from specialist journals obtained through subscription or shared through professional affiliation.

35. While the Internet was not frequently highlighted as a source of information, it was apparent during interviews that the Internet is a regular part of day to day operations. Most referred to the sources of information, in terms of organizations, and these sources were accessed through the Internet, email or phone, whichever was most appropriate or convenient. Implied in the interviews was the limited time for Internet access, primarily because of cost and/or inadequate hardware.

36. CTA was not quoted as a significant source of information and some interviewed (those in forestry and fisheries) said that they had not heard of CTA. Those that did mention CTA as a source of information referred to ordering CTA's books, on specific topics of interest and relevance to their work programme, and receiving other publications "when they turn-up".

37. None of the organizations interviewed referred to the University of Belize, Agricultural Department library (the only agricultural library in Belize) as a source of information but several organizations mentioned that there was little demand for information from staff and the interview discussions often focused on the fact that there is a need to develop technicians' skills in accessing and using agricultural information.

38. In searching for information, therefore, there is limited use of the agricultural information collections already available in country. Additionally, there is no systematic approach to information acquisition and dissemination through libraries or organizations *specifically designed* to provide information services.

**Table 2.3.** Main sources of information for institutions interviewed

<b>INSTITUTION</b>	<b>SOURCES OF INFORMATION</b>
<b><u>Umbrella/Policy Organizations</u></b>	
1. Agriculture Dept (Min of Ag and Fish)	IICA, OIRSA, FAO CARDI, CTA, Internet. <sup>1</sup>
2. Fisheries Dept (Min of Ag and Fish)	CSO, Customs Dept, BAHA, independent research, Regional Counterparts
3. Forestry Dept (Min of Nat. Res. and Environ.)	CATIE, FAO, UnaSilva World Resource Inst, IUCN, GEF, MBC, Nature Conservancy
<b><u>Crop Specific / Research Organizations</u></b>	
4. Central Farm Research Station	GoB, International contacts, 80% Internet
5. Citrus Growers Association / Citrus Research & Education Institute	Internet, University of Florida, personal contacts, CTA, IICA, OIRSA, BAHA, Journals (but there is limited demand for information from staff)
6. Banana Growers Association	European Union, personal affiliation
7. National Fishermen Producers Co-operative Society Limited	Regional conferences and meetings, Univ of Miami, Univ of Belize (future), Min of Fisheries, Fisheries Advisory Board, other Foreign Universities, NGOs (e.g. Smithsonian)
<b><u>Educational Institution</u></b>	
8. Department of Agriculture (University of Belize)	FAO, CARDI, CATIE, IICA, CGA, BSI, HOARD's Dairymen, CTA, Min of Agric.
<b><u>NGO/Finance/Community Development</u></b>	
9. Belize Enterprise for Sustainable Development (BEST)	NGO's (especially credit ones), NDFB, Help for Progress, Internet, Min of Ag, CARDI.
<b><u>International Organization</u></b>	
10. International Regional Organization for Plant and Animal Health (OIRSA)	IPPC, FAO, NAPPO, MAF.

<sup>1</sup>Comment from interviewee: "There isn't any demand for information from staff". Thus, generally staff do not source information, those that do (mainly management) use the sources mentioned.

### **3. NEEDS ANALYSIS**

39. Table 3.0 provides a synthesis of the data obtained during the interviews with ten of the key agricultural institutions in Belize. It highlights what was reported to be the information: (i) needed for programme implementation; (ii) that was difficult to obtain; (iii) needed for future programmes; and (iv) format required. Table 3.0 also highlights the capacity building required to improve each institution's ability to manage information and thus achieve more effective programme implementation.

#### **3.1 Information Needs**

40. The institutions selected for interview, represented a broad cross-section of the agricultural sector. The information needs for each institution were also diverse; reflecting the wide range of programmes undertaken in Belize.

41. Table 3.0 identifies the information needed for programme implementation by each institution interviewed. This information (such as livestock husbandry, fisheries ecosystem management, wildlife management, crop production, fruit-fly control, equipment sourcing, credit provision, IPM, quarantine protocols, post-harvest handling) is obtained through the channels highlighted in section 2.3 - Agricultural Information Services.

42. Of note, is that the information highlighted by institutions as "difficult to obtain" is also that information required for the organization to move to the next level of efficiency or impact; whether to implement a new programme that would improve the institution's sustainability, to develop more effective policies or to make the management of the institution more efficient and effective. The link between these needs and the potential impact on improved capacity for programme implementation are discussed below.

43. The need for more information on agro-processing and value-adding was highlighted as being required by the Agriculture Department of the Ministry of Agriculture and Fisheries. Belize is mainly a primary agricultural producer and there is a potential for increasing the socio-economic status of many small-scale producers with the development of small-scale agro-manufacturing facilities.

44. The Forestry and Fisheries Departments of the Government required more information on community approaches to project implementation. The Forestry Department had noted that greater success had been achieved (in protecting forest reserves) when conservation projects were implemented in partnership with the local community but that there was a need for greater information and documented experiences of successful case-studies of similar approaches elsewhere. The lack of knowledge on how to collect and interpret socioeconomic data was brought-up several times in interviews with the Fisheries Department as being a limiting factor. While the collection and analysis of scientific data was well established, staff needed a better understanding

(through information and training) of the socioeconomics of fishing ground protection in order for Belize to effectively protect its fish resources. Additionally, the National Fishermen Producers Cooperative Society, reported that a socioeconomic pilot study is being implemented on one of the atolls (Glover's Reef) off the coast of Belize; but there was a need for further information and experiences from elsewhere to support these efforts.

45. The Citrus Research & Education Institute also had a desire to increase its emphasis on community approaches to implementing extension programmes. While they have made significant strides in this area in recent years, there was a need for more information in the form of the exchange of experiences.



**Table 3.0.** Needs identified by institutions in terms of information, and capacity building required to better manage information.

Q = Questionnaire question No.

<b>INFORMATION NEEDS</b>				<b>CAPACITY BUILDING NEEDS</b>
<u>For programme Implementation</u> (Q4, 7, 12)	<u>Difficult to obtain</u> (Q17)	<u>For future programmes</u> (Q19, 20)	<u>Format required</u>	(Q10, 11, 19, 20)
<b>1. Agriculture Department (Ministry of Agriculture and Fisheries)</b>				
<ul style="list-style-type: none"> <li>• Limited demand for information from staff</li> <li>• Livestock (nutrition, genetic improvement, husbandry practices)</li> <li>• Crop diversification (vegetables, seed production, potatoes)</li> <li>• Extension Methods</li> <li>• Irrigation</li> <li>• Agro-processing (value adding, commercialization)</li> <li>• Cashew production and processing (small-scale)</li> <li>• Soya bean production</li> </ul>	<ul style="list-style-type: none"> <li>• Policy development advice</li> <li>• Marketing intelligence Information</li> </ul>			<ul style="list-style-type: none"> <li>• Training for staff in use of information (to create a demand / appreciation of value for information)</li> <li>• Production of a compendium of documents available in Belize.</li> <li>• Full-time staff for Information Unit</li> <li>• Central depository for publication / distribution of publications</li> <li>• Improved linkages with other national and regional institutions</li> <li>• Updating of "Tech. packs" (to keep technicians and farmers abreast of current state-of-the-art)</li> <li>• National strategy/ policy for ICT</li> <li>• Development of library facilities at Central Farm</li> <li>• Publication production training</li> <li>• Mechanisms needed for improved transfer of information between Belmopan and the District offices</li> <li>• National library system</li> <li>• Management of library and information units</li> <li>• Production of graphics and publications</li> <li>• Skill-building in agriculture economic analysis</li> </ul>
<b>2. Fisheries Department (Ministry of Agriculture and Fisheries)</b>				
<ul style="list-style-type: none"> <li>• Fisheries resource assessment and management</li> <li>• Fisheries resource development</li> <li>• Capture fisheries</li> <li>• Water/fisheries ecosystem management</li> <li>• Aquaculture</li> <li>• Inland fisheries</li> <li>• Data collection and analysis</li> <li>• Socioeconomics of fisheries management</li> </ul>	<ul style="list-style-type: none"> <li>• Socioeconomic information</li> </ul>	<ul style="list-style-type: none"> <li>• Cage culture</li> <li>• Mari culture</li> <li>• Deep sea fishing</li> <li>• Value adding</li> <li>• New commodities (molluscs, crabs, invertebrates)</li> </ul>		<ul style="list-style-type: none"> <li>• Enhance data collection systems</li> <li>• Training in collection and use of socioeconomic data</li> <li>• Specific unit for information required to improve quality of information generated</li> <li>• Personnel with higher level of technical training</li> <li>• Industry assessment/analysis required</li> <li>• Improved integration with the private sector</li> </ul>

*Table 3.0 continued.* Needs identified by institutions in terms of information, and capacity building required to better manage information.

<b>INFORMATION NEEDS</b>				<b>CAPACITY BUILDING NEEDS</b> (Q10, 11, 19, 20)
<u>For programme Implementation</u> (Q4, 7, 12)	<u>Difficult to obtain</u> (Q17)	<u>For future programmes</u> (Q19, 20)	<u>Format required</u>	
<b>3. Forestry Department (Ministry of Natural Resources and Environment)</b>				
<ul style="list-style-type: none"> <li>• Forest reserve planning and management</li> <li>• National park management</li> <li>• Wildlife management</li> <li>• Law enforcement</li> <li>• Biodiversity management</li> <li>• Environmental convention implementation</li> <li>• Forest revenue generation</li> <li>• Forest exploitation control</li> <li>• Forest health</li> <li>• Equipment sourcing</li> <li>• Advice on Clearing House Mechanism</li> <li>• Environmental monitoring</li> <li>• Protected area management</li> <li>• Management of information</li> </ul>		<ul style="list-style-type: none"> <li>• Community forestry</li> <li>• Information management</li> <li>• GIS, mapping</li> </ul>	<ul style="list-style-type: none"> <li>• Combination of formats required</li> <li>• Websites</li> <li>• Abstracts - followed-up with access to full papers where required</li> </ul>	<ul style="list-style-type: none"> <li>• Improved forest revenue and exploitation control</li> <li>• Training in cataloguing and managing of documents</li> <li>• Improve collaboration with MBC</li> <li>• Training in Community Forestry Programmes</li> <li>• Information management</li> <li>• GIS, cartography</li> </ul>
<b>4. Central Farm Research Station (Ministry of Agriculture)</b>				
<ul style="list-style-type: none"> <li>• Livestock husbandry and breeding</li> <li>• Crop production and nutrition (vegetables and rice)</li> <li>• Agricultural engineering</li> <li>• Irrigation</li> <li>• Drainage</li> <li>• Research methodology</li> </ul>	<ul style="list-style-type: none"> <li>• Complete refereed papers on research &amp; development issues</li> <li>• Information which includes the research methodology employed</li> <li>• Relevant research from area of similar climate to Belize</li> </ul>	<ul style="list-style-type: none"> <li>• Information management</li> <li>• Effective dissemination methods to enhance usage</li> </ul>	<ul style="list-style-type: none"> <li>• Abstracts and complete research papers to be re-formatted into fact-sheets by information unit</li> </ul>	<ul style="list-style-type: none"> <li>• Strategic plan for the organization</li> <li>• Information management training</li> </ul>

*Table 3.0 continued.* Needs identified by institutions in terms of information, and capacity building required to better manage information.

<b>INFORMATION NEEDS</b>				<b>CAPACITY BUILDING NEEDS</b> (Q10, 11, 19, 20)
<u>For programme Implementation</u> (Q4, 7, 12)	<u>Difficult to obtain</u> (Q17)	<u>For future programmes</u> (Q19, 20)	<u>Format required</u>	
<b>5. Citrus Growers Association / Citrus Research &amp; Education Institute</b>				
<ul style="list-style-type: none"> <li>• Loan programme administration</li> <li>• International trade and market negotiation</li> <li>• Sourcing of agricultural equipment and machinery</li> <li>• Technical information on citrus production agronomy</li> <li>• Advice on the production of publications for maximum impact</li> <li>• Citrus post harvest technology</li> <li>• Certification systems</li> <li>• Fruit fly control</li> <li>• IPM</li> <li>• Organic citrus production</li> <li>• Nutrition and fertilization</li> <li>• Cost of production</li> <li>• Germplasm maintenance</li> <li>• Disease diagnosis</li> <li>• Programme impact assessment and evaluation</li> </ul>	<ul style="list-style-type: none"> <li>• Extension methodology/systems for effective impact – using participatory methods</li> <li>• Data-base development for programme impact evaluation</li> <li>• Abstracting journals and relevant full papers</li> <li>• Production of citrus in the humid tropics</li> </ul>	<ul style="list-style-type: none"> <li>• Composting citrus waste to produce fertilizer</li> <li>• Production of training videos</li> <li>• Environmental conscious citrus production</li> <li>• Small-scale library management</li> <li>• Agro-eco-tourism</li> <li>• Agricultural training methods</li> </ul>	<ul style="list-style-type: none"> <li>• Full reports</li> <li>• Through an established information unit develop newsletters, fact-sheets, videos etc to 'translate' the information into the Belize context prior to distribution to growers.</li> <li>• ICT access to market information regionally and internationally</li> </ul>	<ul style="list-style-type: none"> <li>• Application of communication technologies in extension</li> <li>• Editing of reports</li> <li>• Management of information within the organization</li> <li>• Management of library</li> <li>• Sourcing technical information</li> <li>• Production of publications</li> <li>• Use of media</li> <li>• Production of videos for training programmes</li> <li>• Development of agricultural curriculum</li> </ul>
<b>6. Banana Growers Association</b>				
<ul style="list-style-type: none"> <li>• Pest and disease control</li> <li>• Plant nutrition</li> <li>• Nematode control</li> <li>• Fruit quality</li> <li>• Waste utilization</li> <li>• Equipment sourcing</li> <li>• Technical advice on ICT</li> </ul>	<ul style="list-style-type: none"> <li>• Marketing information</li> <li>• Pest identification</li> <li>• Soil fertility</li> <li>• Disease identification</li> <li>• Industry regulation (international)</li> </ul>	<ul style="list-style-type: none"> <li>• Marketing diversification</li> <li>• Yield enhancement</li> </ul>		<ul style="list-style-type: none"> <li>• Computer network</li> <li>• Through the network, improvement of communications internally and externally</li> <li>• Access to market information</li> <li>• Improved understanding of EU regulations</li> <li>• Training in increasing yields</li> </ul>

*Table 3.0 Continued.* Needs identified by institutions in terms of information, and capacity building required to better manage information.

<b>INFORMATION NEEDS</b>				<b>CAPACITY BUILDING NEEDS</b> (Q10, 11, 19, 20)
<u>For programme Implementation</u> (Q4, 7, 12)	<u>Difficult to obtain</u> (Q17)	<u>For future programmes</u> (Q19, 20)	<u>Format required</u>	
<b>7. National Fishermen Producers Co-operative Society Limited</b>				
<ul style="list-style-type: none"> <li>• Marketing of lobster and conch</li> <li>• Marketing of fish fillet</li> <li>• Fishing equipment and supplies</li> <li>• Fish processing</li> <li>• Credit provision</li> <li>• Refrigeration equipment and management</li> <li>• Packaging</li> <li>• Equipment sourcing</li> <li>• Transportation</li> <li>• Waste utilization (lobster / conch)</li> <li>• Industrial profiles</li> <li>• Conservation of fishing grounds</li> <li>• Commodity profiles</li> <li>• Government and international regulations</li> </ul>	<ul style="list-style-type: none"> <li>• EU market information for lobster and conch</li> <li>• Trade fairs (for the small-scale producers)</li> </ul>	<ul style="list-style-type: none"> <li>• Mariculture</li> <li>• Cage culture</li> <li>• Co-management of fishing grounds (for environmental protection)</li> </ul>		<ul style="list-style-type: none"> <li>• Better access of EU market information</li> <li>• Training in Mariculture, cage culture</li> <li>• Training in co-management of fishing grounds</li> </ul>
<b>8. Department of Agriculture (Faculty of Science and Technology, University of Belize)</b>				
<ul style="list-style-type: none"> <li>• Agricultural training (for farmers and Associate Degree students)</li> <li>• Crop production</li> <li>• Livestock science</li> <li>• Agricultural engineering</li> <li>• Appropriate technology</li> <li>• Integrated pest management</li> <li>• Agroforestry</li> <li>• Safe use of pesticides</li> </ul>	<ul style="list-style-type: none"> <li>• Information in audio visual format</li> <li>• Information in power-point format</li> <li>• Electronic copies of research papers</li> </ul>	<ul style="list-style-type: none"> <li>• Revenue generation</li> <li>• Human resource management</li> <li>• Running other agricultural training programmes</li> <li>• Curriculum development</li> </ul>	<ul style="list-style-type: none"> <li>• Audio-visuais</li> <li>• Power-point</li> <li>• Electronic</li> </ul>	<ul style="list-style-type: none"> <li>• Librarian training</li> <li>• Enhance website to provide more information on the institution</li> <li>• Cataloguing research papers</li> <li>• Establishment of training and revenue generation unit</li> <li>• Upgrade programme from Associate to Bachelor Degree</li> <li>• Diversification of programmes offered</li> <li>• Revision of curriculum</li> </ul>

*Table 3.0 continued.* Needs identified by institutions in terms of information, and capacity building required to better manage information.

<b>INFORMATION NEEDS</b>				<b>CAPACITY BUILDING NEEDS</b> (Q10, 11, 19, 20)
<u>For programme Implementation</u> (Q4, 7, 12)	<u>Difficult to obtain</u> (Q17)	<u>For future programmes</u> (Q19, 20)	<u>Format required</u>	
<b>9. Belize Enterprise for Sustainable Development (BEST)</b>				
<ul style="list-style-type: none"> <li>• Credit and rural development</li> <li>• Institutional capacity building</li> <li>• Credit software</li> <li>• Management of credit portfolios</li> <li>• Arrears management</li> <li>• Management of guarantee funds</li> <li>• Management and evaluation of projects</li> <li>• Project design and implementation – the use of ICT to maximize impact and efficiency</li> <li>• Running small-scale profit making enterprises</li> </ul>	<ul style="list-style-type: none"> <li>• Best practices for small-scale organizations</li> </ul>	<ul style="list-style-type: none"> <li>• Increasing capacity to manage information</li> <li>• Improving human and technical resource capacity</li> <li>• Governance and policy development</li> <li>• Efficient approaches to information distribution</li> </ul>	<ul style="list-style-type: none"> <li>• Executive summaries with option of getting full documents</li> <li>• Newsletters</li> <li>• Abstracts</li> <li>• Electronic sources</li> </ul>	<ul style="list-style-type: none"> <li>• Improved inter-office communications (client and credit information) with high level of security</li> <li>• Use of ICTs for increased efficiency</li> <li>• Training in areas mentioned in Information Needs</li> <li>• Improve speed and distribution of information</li> <li>• Management system that use evaluation indicators</li> <li>• Improved understanding of networking</li> </ul>
<b>10. International Regional Organization for Plant and Animal Health (OIRSA)</b>				
<ul style="list-style-type: none"> <li>• Animal health</li> <li>• Plant health</li> <li>• Food safety</li> <li>• Quarantine</li> </ul>	<ul style="list-style-type: none"> <li>• Pest risk analysis</li> </ul>		<ul style="list-style-type: none"> <li>• Full documents</li> </ul>	<ul style="list-style-type: none"> <li>• Need for a Belize (OIRSA) unit to collect and compile data, especially for projects funded by OIRSA</li> <li>• Increase technical areas of cooperation</li> <li>• Availability of finance</li> </ul>

46. For the Central Farm Research Station, the Citrus Research & Education Institute and for the Forestry Department there was a need for increased access to and management of scientific abstracts with follow-up mechanisms to access the original scientific papers.

47. The Citrus Research & Education Institute, the Banana Growers Association and the National Fisherman's Cooperative Society required further information on waste utilization. For the Citrus Research, for example, options for the production of fertilizer or animal feed from citrus waste and the development of agro-ecotourism programmes were being explored as opportunities to increase the financial sustainability of the institution and alternative income possibilities (through the sale of these by-products) for small-scale farmers.

48. Market information was highlighted as an important need by the Banana Growers Association, the Agriculture Department and the National Fishermen Producers Cooperative. The latter, for example, stated that they found it difficult to find information on how to access the lobster and conch markets in the EU. Attempts to enter this market had been made in the past, but were abandoned due to lack of adequate information.

49. Along similar lines, the National Fisherman's Cooperative Society highlighted the need for information on trade fairs that were specifically targeted at the small-scale producer. The majority of Belize's export commodity is destined to high value, niche markets but there is a need for Belizean's representatives to participate in trade fairs specifically targeted at these kinds of market. It was reported that most trade fairs are dominated by large-scale producers with the needs of the small-scale producer becoming marginalized at such meetings.

50. More information on "best practices for running small-scale NGOs" was required by the Belize Enterprise for Sustainable Technology (BEST), as this kind of information was reported as being difficult to obtain. Information on project design and implementation using ICTs to improve the effectiveness of small-scale credit provision was also required. There is need to design ICT systems to improve the efficiency and security of data transfer between and within offices. This was a significant problem that BEST had, for which they have not found an appropriate solution.

#### *Information Formats Required*

51. For most respondents it was difficult to be specific on the preferred information format. Interviewees explained how the format required would depend on the information type and target audience. However, most respondents indicated that initially they would prefer data in the electronic format but at some stage would probably require the information in 'all format types' to allow for flexibility in tailoring information presentations to a range of audiences.

52. Some reported that they would prefer information in the form of executive summaries with opportunities to access the full document if the summary appeared to be of interest. At least two institutions reported that better access to abstracting journals is required and not having access to them (in order to keep abreast of latest scientific developments) was a

problem. There is also a need to be able subscribe to a “free” Internet service that alerts the user to new information, identified of interest by the subscriber, as it becomes available.

53. Many organizations interviewed wanted access to full documents which would then be converted (through the organization’s information/publications unit - which almost all did not have) to produce locally appropriate (in combination with local knowledge and experience) fact-sheets, videos, newsletters, etc. To achieve this, training (and personnel to be trained) would be required. This is further discussed in the section on capacity building needs which follow.

### **3.2 Capacity Building Needs**

54. Table 3.0, as well as summarizing the agricultural information needs reported as being required for Belize, provides further details of what each institution reported to be their capacity building requirement for better information management.

55. All institutions reported a limited capacity to manage information effectively and a number mentioned that staff made little demand for information. Many technicians, it appears, have not been trained in searching for information, analyzing information and indeed have not developed a culture of literature research and information usage. The lack of attributing value to information limits the motivation for the institutions (or indeed the country) to develop the capacity for effective provision and management of information. Thus the first stage in capacity building would be to create a demand or an understanding of the value of information - from technicians, producers, farm managers, etc. An environment needs to be created that values and benefits from information and where the information available is useful to a range of audiences. Further analysis is required to identify the key to increasing the use of information among technicians.

56. Nearly all institutions interviewed reported that they do not have a designated information unit, although some members of staff were designated to perform information management duties. One respondent suggested the lack of personnel assigned to information management would limit the capacity for the institution to produce or manage information and data that was of the required quality. One organization interviewed, the Department of Agriculture (Ministry of Agriculture and Fisheries), had recently established an information unit, but this was a one-person unit and the staff member had 30% of his time designated to other duties. This lack of dedicated time for information management is a consistent problem throughout Belize. The Citrus Research and Education Institute, for example, established a one person information unit several years ago. This resulted in a significant improvement in the organization’s ability to manage information (such as industry statistics for the production of the national fruit forecast) and ensured that publications were produced in timely manner. The person responsible for the unit resigned and funding has not been available to fill the position.

57. This sporadic approach to information management was acknowledged to be a constraint to development of the sector. Many reported on past research that has not been

appropriately documented or if it was documented, reported that the information has not been collated in one place for easy reference or shared with other appropriate institutions. There is need to overhaul the whole system.



## 4.0 CONCLUSIONS AND RECOMMENDATIONS

### 4.1 Conclusions

#### *4.1.1 Extent of 'Key Problems' in the Field*

58. CTA's experience is that the same key information and communication management problems consistently occur in ACP countries. All of these problems were found to be vital issues for Belize (Table 4.1.1) but additional problems were also identified as key, two of which are in need of addressing if programmes aimed at tackling the other issues were to be effective. Firstly, it was reported that there is a limited demand for information from technicians in the field. It was hypothesized that this was due to a limited understanding of the value for and capacity to appropriately use information. Secondly, of key concern was the lack of personnel dedicated to information management in Belize. The limited capacity of institutions to effectively collate (in library catalogue collections or electronically), manage (to efficiently retrieve) and disseminate information (through publications or media outlets, for example) was recognized as significant in limiting the development of the agriculture sector in Belize. See Table 4.1.1 for further details.

#### *4.1.2 Information Needs*

59. Table 3.0 provides details of the information needs for the organizations interviewed in Belize. Information is required in abstract / executive summary format with potential to access the full papers. Needs cover the whole range of information related to agriculture and can be divided into the following broad categories:

##### 1. For day-to-day/future programme implementation:

- Livestock management (ex. Central Farm Research Station, Ministry of Agriculture, Belize Livestock Producers Association);
- Crop management (ex. Central Farm Research Station, Ministry of Agriculture and crop specific organizations such as Banana Growers Association);
- Fisheries management (ex. Department of Fisheries, fisheries cooperatives);
- Forestry management (ex. Department of Forestry, environmental NGOs);
- Extension / rural community co-management methodology (ex. Ministry of Agriculture, Citrus Research and Education Institute, Department of Forestry, Department of Fisheries, fisheries cooperatives);
- Research methodology (ex. Central Farm Research Station, Citrus Research and Education Institute);
- Agricultural engineering (ex. Central Farm Research Station);

**Table 4.1.1.** The extent of key CTA identified information and communication management problems in Belize

POTENTIAL INFORMATION AND COMMUNICATION MANAGEMENT (ICM) PROBLEMS IDENTIFIED BY CTA	COMMENTS ON EXTENT OF THESE ICM PROBLEMS REPORTED DURING INTERVIEWS IN BELIZE
<u>Under CTA's Information Products and Services department:</u>	
<ul style="list-style-type: none"> <li>• limited availability of publications that support decision-making in the agricultural sector</li> <li>• shortage of relevant published information on agriculture and rural development, because of weak local publishing structure</li> <li>• limited access to locally and externally published information on agriculture and rural development, due to weak distribution infrastructure</li> <li>• limited awareness of the existing local and external sources of information and the type of products and services available</li> </ul>	<ul style="list-style-type: none"> <li>• All of these issues were identified as needing critical attention if information management in Belize was to be enhanced.</li> </ul>
<ul style="list-style-type: none"> <li>• Not identified by CTA</li> </ul>	<ul style="list-style-type: none"> <li>• Lack of services to enhance skills in efficient use of agricultural information</li> </ul>
<u>Under CTA's Communication Channels and Services department:</u>	
<ul style="list-style-type: none"> <li>• limited contacts among ACP stakeholders and between the latter and experts from other countries and regions</li> </ul>	<ul style="list-style-type: none"> <li>• Generally there is good networking (exchange of information and experiences) between stakeholders in the country and the region although collaboration (on joint projects) is limited</li> </ul>
<ul style="list-style-type: none"> <li>• weak networking services, such as newsletters, web sites, etc.</li> </ul>	<ul style="list-style-type: none"> <li>• Networking is fairly advanced but there is limited opportunity to take full advantage of it due to limited staff numbers</li> </ul>
<ul style="list-style-type: none"> <li>• limited first-hand experience of pertinent developments in other countries and regions</li> </ul>	<ul style="list-style-type: none"> <li>• The level of experience varies between programmes but this could be a critical area for development. This issue is often 'not the lack of opportunities' but the 'lack of staff to follow-up'</li> </ul>
<ul style="list-style-type: none"> <li>• limited use of ICTs for networking and dialogue</li> </ul>	<ul style="list-style-type: none"> <li>• ICTs are widely used for networking and communication although for at least one organization (BEST) it was felt that there was a need for greater awareness (training) of the potential of ICTs to increase organizational efficiency.</li> <li>• Most organizations have access to the Internet and use email as a daily means of communication.</li> </ul>
<ul style="list-style-type: none"> <li>• failure to take full advantage of opportunities for using radio, TV and other non-print media in communicating agricultural information and knowledge.</li> </ul>	<ul style="list-style-type: none"> <li>• This area – for agriculture – is very weak in Belize (there is only one local radio station that holds a regular programme focused on agriculture). There is a great potential for increasing skills in this area, although a reluctance of organizations to specifically designate staff to information management would be a significant limitation.</li> </ul>

Table 4.1.1. The extent of key CTA identified information and communication management problems in Belize (continued)

POTENTIAL INFORMATION AND COMMUNICATION MANAGEMENT (ICM) PROBLEMS IDENTIFIED BY CTA	COMMENTS ON EXTENT OF THESE ICM PROBLEMS REPORTED DURING INTERVIEWS IN BELIZE
<u>Under CTA's ICM Skills and Systems department:</u>	
<ul style="list-style-type: none"> <li>• lack of expertise in the area of information and communication management (ICM) skills</li> </ul>	<ul style="list-style-type: none"> <li>• This is an important issue in Belize, there is a shortage of skills in document (e.g. library) and information management</li> </ul>
<ul style="list-style-type: none"> <li>• limited opportunities to acquire relevant information and communication technology (ICT) skills</li> </ul>	<ul style="list-style-type: none"> <li>• Most staff has access to and use ICTs but there is limited capacity to set-up and use them with maximum effect. Further opportunities are required to develop skills in these areas.</li> </ul>
<ul style="list-style-type: none"> <li>• weak ICM policies and strategies</li> </ul>	<ul style="list-style-type: none"> <li>• There is a need to develop a national policy and strategy for improving ICMs. This need was identified by at least one of the respondents (Agriculture Department of the Ministry of Agriculture and Fisheries)</li> </ul>
<ul style="list-style-type: none"> <li>• limited knowledge of the design of cost-effective and participatory ICM systems</li> </ul>	<ul style="list-style-type: none"> <li>• There is a general limitation in this area</li> </ul>
<ul style="list-style-type: none"> <li>• limited management techniques for the implementation of ICM projects and services.</li> </ul>	<ul style="list-style-type: none"> <li>• There is a general limitation in this area</li> </ul>
<ul style="list-style-type: none"> <li>• Not identified by CTA</li> </ul>	<ul style="list-style-type: none"> <li>• <u>Limited demand/understanding-of-the-value for information from technicians.</u> Information sources that are available are not used by many or not used effectively. It is likely that lack of demand for information has resulted in lack of infrastructure. To address this problem mechanisms are needed to increase demand for information. This could include training on how to use information and libraries, and training on how to use and interpret information. Without attention being paid to these areas, all efforts in the other areas identified above will be wasted.</li> <li>• <u>Lack of personnel designated to information management.</u> This was a key problem for all organizations in Belize. There was often more opportunity for training and access of information than there were personnel designated to take advantage of the opportunities. Many technicians are sent on training programmes but do not have the capacity (in terms of time) to implement what they have learnt. Senior managers and policy makers need to be convinced of the need and advantages of having personnel specifically designated for information management. Unless this issue is addressed, addressing any of the other issues identified above will be wasted effort.</li> <li>• <u>Limited skills in systematically compiling agricultural information</u> from the "grass roots" to add to body of knowledge. There is need to blend local experience and knowledge with that documented in the international literature</li> </ul>

- Small-enterprise development (ex. Central Farm Research Station, Belize Enterprise for Sustainable Development);
- Loan programme administration for rural development and agricultural development (ex. Belize Enterprise for Sustainable Development, Citrus Growers Association);
- International trade and market access (ex. Fisheries cooperatives, Citrus Growers Association);
- Quarantine systems (ex. Citrus Research & Education Institute, Belize Agriculture Health Authority)
- Germplasm maintenance (ex. Citrus Research & Education Institute, Inter-American Institute for Cooperation in Agriculture).

2. For programme/institutional enhancement (“i.e. difficult to obtain” information):

- Value adding through agro-processing (ex. Ministry of Agriculture, Central Farm Research Station);
- Community/participatory approaches to project implementation (ex. Citrus Research & Education Institute, Forestry Department, Fisheries Department);
- Policy development (ex. Ministry of Agriculture);
- Waste utilization (ex. Citrus Research and Education Institute, fisheries cooperatives)
- Marketing information (especially targeted at small-scale, high quality, niche markets);
- Best practices for maximizing organizational efficiency (ex. Belize Enterprise for Sustainable Technology and other organizations);
- Market feasibility studies (ex. Ministry of Agriculture);
- Agricultural business plan development (ex. BEST);
- Production cost analysis (ex. Citrus Growers Association).

#### ***4.1.3 Capacity Building Needs***

60. The following capacity building needs were identified as being required by the institutions interviewed (see Table 3.0 for further details):

- To develop a national information management and distribution strategy;
- Central coordination, collection, management and dissemination of Belize’s agricultural data and information;
- Greater appreciation of the value of and uses for information (to develop support for development of information management and production systems);
- More effective use, interpretation and analysis of information (to increase the demand for timely and relevant information);
- More effective information collection, management and dissemination for each agricultural institution (for the development of library collections);
- The provision of a source of agricultural abstracts and scientific papers;

- Better use / awareness of the possibilities of ICTs for improving organizational efficiency;
- More effective collection of ‘grass-roots’ information to add to in-country ‘body of knowledge’;
- More appropriate / wider range of publications (newsletters, brochures, fact-sheets etc.) targeted at local producer groups (for ‘translation’ of international literature into local context);
- Need for better review of the effectiveness / comprehension of information produced for agricultural / fisheries / forestry producers in order for a continuous improvement of publications;
- Enhancing the use of media and video productions for training and extension programmes;
- Establishing a system for improved access to market information.

#### ***4.1.4 Potential Beneficiaries and Partners***

61. As specified in CTA Draft Programme of Activities (2005), CTA’s beneficiaries and partners are selected from among:

- Farmers’ organizations, women’s groups, trade unions, consumer groups and training institutions;
- Exporters, chambers of commerce, processors, distributors;
- Researchers, extension services, rural broadcasters;
- Ministries and policy-makers;
- Local service providers;
- ACP regional organizations.

#### Beneficiaries

62. Potential beneficiaries for CTA are the majority of institutions listed in Annex III.1.

#### Potential Partner Institutions

63. Potential partners for the provision of CTA’s services in Belize and comments on their capacity to meet CTA’s partner criteria can be found in Table 4.1.4. Three potential partners were selected as having the greatest capacity to assist CTA in meeting the agricultural information needs for Belize. Firstly, the Department of Agriculture for the University of Belize is the highest level agricultural learning institution in Belize, providing Associate Degree (sixth form) education to the future agricultural technicians of the country. While the capacity of the Department of Agriculture to manage and distribute agricultural information is limited, with some targeted capacity building and due to its geographic location and client base, this institution is ideally suited to become one of the main agricultural information providers in Belize. Secondly, the Belize Enterprise for Sustainable Technology (BEST) has a dynamic staff and provides credit services (with some agronomic support) to many rural communities. There is a need and a willingness to further develop its information management capacity and so BEST would be an ideal partner for CTA.

Thirdly, the Citrus Growers Association provides a wide range of services (from credit provision, to agronomic advice) to the most significant agricultural sector in Belize. Its research facility, CREI has gained substantial experience in developing its information management and distribution capacity and has a good appreciation of where further capacity building is required for the organization to more effectively serve its client base.

**Table 4.1.4** Potential partners for CTA and their capacity to meet CTA's partner criteria.

<b>CTA'S CRITERIA FOR SELECTING PARTNERS</b>	<b>POTENTIAL CTA PARTNERS</b>		
	<b>Department of Agriculture (University of Belize)</b>	<b>Belize Enterprise for Sustainable Technology (BEST)</b>	<b>Citrus Growers Association (CGA) / Citrus Research &amp; Education Institute (CREI)</b>
<i>The relevance of the partner's work to CTA's ultimate beneficiaries (i.e. resource-poor farmers)</i>	This organization is the most significant tertiary level education institute in Belize. At the present time it does not train farmers directly but trains the technicians that are destined to train resource-poor farmers and to be senior policy makers for the sector	One of the leading NGOs in Belize providing credit and agronomic services to small-scale agricultural producers. Women and youth make up a significant percentage of BEST's client base. Most of these are community based organizations in agricultural small-enterprise development.	The Citrus Growers Association, of which CREI is the research and education arm, has over 800 members, 80% of whom are small-scale farmers.
<i>Strong representation of women, the young and resource-poor farmers among potential beneficiaries</i>	Primary aim is to educate the young and future agricultural technicians of the country	Specifically targets resource-poor farmers and works with many women's groups. These groups attend to be mostly rural and of indigenous heritage.	The organization is an Association for grower members and has strong representation from resource-poor farmers. Over 100 of whom are female farmers.
<i>The degree of complementarity with CTA's programmes (i.e. ICM and thematic focus*)</i>	High emphasis on production intensification and optimization, strengthening national agricultural systems.  Recent strategic plan developed. Places focus on natural resource management and niche market development for value added agricultural products.	Works to develop national markets for the small-scale producer, production intensification and optimization and mobilization of civil society. Is especially interested in enhancing its ICM capacity.  The role of women and youth in country's development is pervasive in programme implementation	The Association promotes the interests of all citrus growers (lobbying with the government and at international meetings) works to develop national, regional and international markets for the citrus industry (the largest agricultural foreign exchange earner in the country). CREI works on production intensification and optimization and aims to increase its focus on environmental protection and natural resource management.

Table 4.1.4 Potential partners for CTA and their capacity to meet CTA's partner criteria (*continued*).

CTA'S CRITERIA FOR SELECTING PARTNERS	POTENTIAL CTA PARTNERS		
	Department of Agriculture (University of Belize)	Belize Enterprise for Sustainable Technology (BEST)	Citrus Growers Association (CGA) / Citrus Research & Education Institute (CREI)
<i>The level of financial and/or technical contribution to the venture</i>	Might have limited capacity to support in this area unless financial support is obtained from elsewhere.	Has the technical ability to make a significant contribution and the ability to source additional funding from outside sources.	Has the technical ability to support such a venture.
<i>The likelihood of a multiplier effect</i>	Significant opportunity for multiplier effect as this is the main agricultural education institution in Belize	Although this NGO works with a relatively small number of producers (compared to the national scale) would have a significant multiplier effect in the communities it serves. The community based organizations and civil society groups it serves tend to have great influence, particularly in rural areas and among indigenous populations.	The research and extension unit (CREI) serves the largest agricultural industry in the country, already has and is currently enhancing its information services but has the potential to become the information supply centre for the entire south of Belize. The majority of growers (especially small-scale) produce a range of crops other than citrus.
<i>The ability to deliver services in a timely and effective manner</i>	Capacity building in this area would be required	This NGO has the technical ability to deliver such services efficiently but the availability of staff time would need to be carefully considered.	This NGO has the technical ability to deliver the services but careful attention will need to be paid to ensure sustainability – mainly in terms of having sufficient resources to maintain staff and equipment required to continue the work. CREI is currently working on programmes to improve its financial sustainability.
<i>The ability to maintain the services after CTA's exit</i>	The sustainability of a partnership programme would need careful consideration in its initial design	The sustainability of a partnership programme would need careful consideration at the initial design phase.	

\*CTA thematic focus: - Conquering international, regional and national markets  
 - Production intensification and optimization  
 - Environmental protection and natural resource management  
 - Strengthening National Agricultural Systems  
 - Mobilization of civil society: promotion of farmer's associations, the role of women

## 4.2 Recommendations

### 4.2.1 Capacity Building Needs

64. Recommendations to address the capacity building needs for information and communication management in Belize are detailed in Table 4.2. These recommendations are linked to the corresponding needs (as described in section 4.1.3). The CTA operational department responsible for implementation is highlighted for each recommendation.

65. Of priority, there is firstly a recommendation to establish a national policy for information and communication management and secondly a recommendation to establish a programme to improve the capacity of technicians to value and use information.



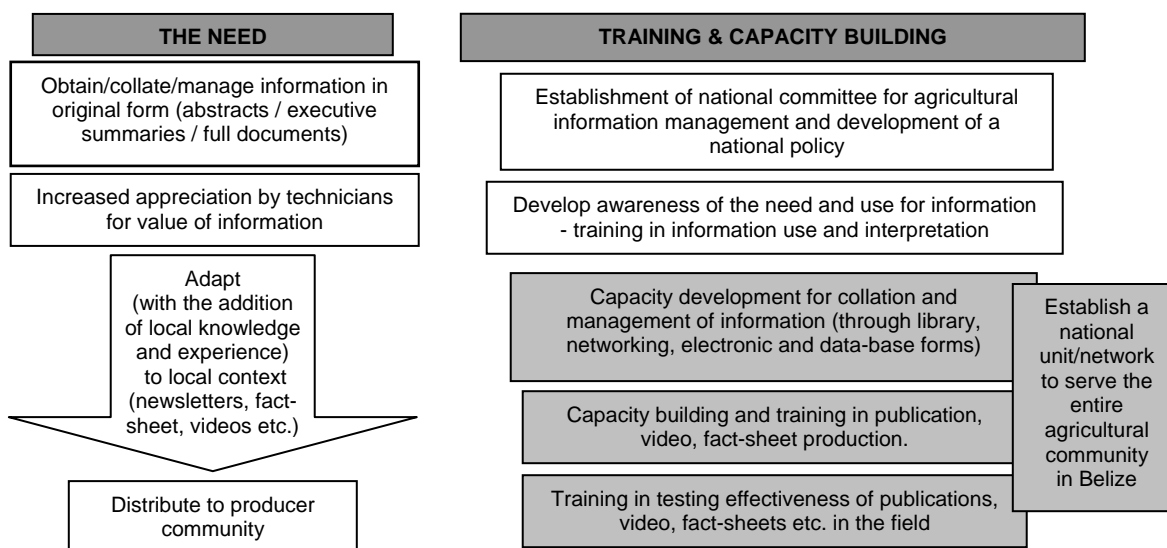
**Table 4.2.** Capacity building and information needs identified in Belize and corresponding recommendations

<b>NEEDS</b>	<b>RECOMMENDATIONS</b> According to the Responsible CTA Operational Department	<b>Priority</b>		
		Immediate	2 years	5 years
<b><u>Capacity Building</u></b>				
Establishment of a national information management and distribution policy and strategy	<u>Information &amp; Communication Management Skills &amp; Systems Dept.</u> 1. Development of a national policy and strategy for ICM	X		
Central coordination, collection, management and dissemination of Belize's agricultural data and information.	<u>Information &amp; Communication Management Skills &amp; Systems Dept.</u> 2. Establish a National Agricultural Information Centre which would include the Belize Agricultural Statistics Service	X		
Greater appreciation of the value of and the uses for information (to develop support for the development of information management and production systems)	<u>Information &amp; Communication Management Skills &amp; Systems Dept.</u> 3. Evaluate the reason for limited demand for information and establish a training programme to increase the perceived value of information.	X		
More effective use and interpretation of information (to increase the demand for timely and relevant information)	<u>Information &amp; Communication Management Skills &amp; Systems Dept.</u> 4. Establish training programmes for technicians on the use and analysis of information.		X	
More effective information collection, management and dissemination (for the development of library collections)	<u>Information &amp; Communication Management Skills &amp; Systems Dept.</u> 5. Improve capacity for document collection, management and distribution (focusing on the information needs highlighted in Table 3.0).		X	
Better use / awareness of the possibilities of ICTs for improving organizational efficiency.	<u>Communication Channels and Services Dept.</u> 6. Improve capacity for more effective use of ICTs for improving organization efficiency.		X	
More effective collection of 'grass-roots' information to add to in-country 'body of knowledge'.	<u>Information &amp; Communication Management Skills &amp; Systems Dept.</u> 7. Improve capacity for field "grass roots" data acquisition, management, analysis and use (for policy and programme design). This would include data-base use and design.		X	
More appropriate / wider range of publications targeted at local producer groups (for translation of international literature into local context). Enhancing the use of media and video productions for training and extension	<u>Information &amp; Communication Management Skills &amp; Systems Dept.</u> 8. Training and capacity building in production of publications, videos and fact sheets, use of media etc. (i.e. making information obtained in (5) relevant to Belize).		X	

Table 4.2 continued. Information and communication management needs identified in Belize and corresponding recommendations

<u>NEEDS</u>	<u>RECOMMENDATIONS</u> According to the CTA Operational Department Responsible	Priority		
		Immediate	2 years	5 years
<u>Capacity Building continued</u>				
Need for better review of the effectiveness / understanding of information produced for agricultural / fisheries / forestry producers.	<u>Information &amp; Communication Management Skills &amp; Systems Dept.</u> 9. Training in testing effectiveness of publication use with farmers/producer communities.		X	
Establishing a system for improved access to market information	10. Detailed assessment of market information needed to make appropriate decision and establishment of system to provide that information		X	
<u>Information</u>				
Better access to information for implementation of day to day programmes (see Table 3.0).	<u>Information Products &amp; Services Dept.</u> 10. As part of (5), improve access to abstracts and whole documents		X	
Access to information in the "difficult to obtain" area - for programme enhancement. Such as: value adding (through agro-processing); community/ participatory approaches to project implementation; marketing information; best practices etc. (see Table 3.0).	<u>Information Products &amp; Services Dept.</u> 11. Provide / identify sources of information/consultancies		X	

Figure 4.2. Agricultural information needs, and required training and capacity building needs for Belize – summarized.



66. In addition to addressing the capacity building needs of individual institutions that serve the agricultural sector, a complementary option would be to establish a national agricultural information unit that would serve the entire agricultural sector of the country. This unit would not only catalogue national collections for all the institutions and provide a library service for agricultural researchers and technicians in the country, but would also provide a national publications centre, producing fact-sheets, flyers, newsletters and videos on behalf of the agricultural organizations in Belize. The centre could also become the Belize Agricultural Statistics Service – with experts on the collection and analysis of agricultural statistics - for use by technicians and policy makers. With a number of institutions requiring this kind of service it might be feasible to secure financial contributions from interested organizations.

67. Many interviewees suggested that an option for improving the capacity of the Belize agricultural sector to manage information would be to enhance facilities at the library at Central Farm (Department of Agriculture, University of Belize; the only agricultural library in Belize); this is currently the most significant collection of agricultural texts in the country and could ultimately serve as the national unit referred to above.

#### ***4.2.2 Information Needs***

68. Recommendations to address the agricultural information needs for Belize are detailed in Table 4.2., and are linked to the corresponding needs in suggested order of priority. The CTA operational department responsible for implementation is highlighted for each recommendation. There is a recommendation to provide access to abstracts/executive summaries with the opportunity for follow-up with full papers in the range of topics highlighted in Table 3.0. Additionally there is a need to identify sources of information or provide consultancies in the areas identified as “difficult to obtain”. The latter activity, it is believed, will significantly enhance each organization’s capacity to have greater impact on their target clients.

#### ***4.2.3. Potential Partner Institutions and Beneficiaries***

69. Three institutions are recommended as potential partners for CTA. They are the Department of Agriculture, University of Belize, the Belize Enterprise for Sustainable Technology and the Citrus Growers Association / Citrus Research & Education Institute. The capacity of each organization to meet CTA’s partnering criteria is discussed in Table 4.1.4.2.

70. All three organizations recommended as potential CTA partners, could conceivably form a Belize agricultural information network to partner with CTA, rather than selecting just one organization as a partner for CTA. This would compliment the idea of developing a national central unit, with each of the three institutions acting as an ‘information management node’ to serve the agricultural community (the beneficiaries) of the geographic area and the sector that is their mandate. For example, the Department of Agriculture could serve the needs of training programmes targeted at young agronomists and agricultural institutions in the west and the north of Belize. The Belize Enterprise for Sustainable Technology would

serve the information needs of some significant rural producers, women's groups and the central area of the country. The south of the country and the citrus industry would be served by the Citrus Growers Association and its research unit.

71. These proposals should be elaborated further with the institutions concerned.

72. Figure 4.2 summarizes these capacity building needs and recommendations for Belize.

**ANNEXES**

## ANNEX I. TERMS OF REFERENCE

### ASSESSMENT OF AGRICULTURAL INFORMATION NEEDS IN AFRICAN, CARIBBEAN & PACIFIC (ACP) STATES Phase 2: Caribbean

#### 1. Introduction

The Technical Centre for Agricultural and Rural Cooperation (CTA) was established in 1983 under the Lomé Convention between the ACP (African, Caribbean and Pacific) Group of States and the European Union Member States. Since 2000, it has operated within the framework of the ACP-EC Cotonou Agreement.

CTA's tasks are to develop and provide services that improve access to information for agricultural and rural development, and to strengthen the capacity of ACP countries to produce, acquire, exchange and utilise information in this area. CTA's programmes are organised around three principal activities: providing an increasing range and quantity of information products and services and enhancing awareness of relevant information sources; supporting the integrated use of appropriate communication channels and intensifying contacts and information exchange (particularly intra-ACP); and developing ACP capacity to generate and manage agricultural information and to formulate information and communication management (ICM) strategies, including those relevant to science and technology. These activities take account of methodological developments in cross-cutting issues (gender, youth, information & communication technologies – ICTs, and social capital), findings from impact assessments and evaluations of ongoing programmes as well as priority information themes for ACP agriculture<sup>4</sup>.

In January 2002, CTA's Strategic Plan (2001-2005) was implemented and CTA's activities were distributed among three operational programme areas / departments:

- Information Products and Services
- Communication Channels and Services
- Information and Communication Management Skills and Systems

These operational departments are supported by Planning Corporate Services (P&CS) which is charged with the methodological underpinning of their work and monitoring the ACP environment in order to identify emerging issues and trends and make proposals for their translation into programmes and activities. This current exercise, therefore, falls within the mandate of P&CS.

#### 2. Background

A comprehensive regional information needs assessment was undertaken in the Caribbean region, by CTA and the Caribbean Agricultural Research and Development Institute (CARDI), over the period 1995-1997. This study detailed the information needs, habits and priorities, of eleven sub-groups of users relevant to the agricultural and rural development sector, presented in sixteen national reports and a regional overview. The results of the studies were followed by a series of national consultations, missions and regional meetings, as well as pilot studies in information and communications management all aimed at arriving at or designing a strategy to meet information needs within the sector. The strategy proposed the development of a Caribbean Agricultural Information Service (CAIS) with a two pronged approach to improving access to information within the Caribbean region:

- Working with institutions at the national level to improve capacity in various aspects of information and communication management (e.g. network development, training, sensitisation).
- Developing information products and services to meet specific information needs identified.

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<sup>4</sup> Priority information themes for ACP agriculture have formed the basis of various several studies, workshops and seminars bringing together various stakeholders, organisations and institutions active in the field of agriculture and rural development. The documents (or extracts thereof) will be provided to the consultants.

The CAIS strategy has been implemented since 2001. A number of capacity building exercises were executed including workshops and training courses; provision of technical assistance; network development, policies and systems. Since the implementation of this strategy in 2001, there have also been a number of changes within institutions in the region with respect to their awareness and use of information and communications tools and technologies.

## **2. Main issues**

CTA works primarily through intermediary organisations and partners (non-governmental organisations, farmers' organisations, regional organisations, ...) to promote agriculture and rural development. Through partnerships, CTA hopes to increase the number of ACP organisations capable of generating and managing information and developing their own information and communication management strategies. The identification of appropriate partners is therefore of primordial importance.

The "Evaluation of the Implementation of the Mid-Term Plan (1997 – 2000)" emphasised the need for CTA to develop a more pro-active approach and elaborate criteria for decision-making with regard to the choice of partner organisations and beneficiaries. Based on this evaluation, the "Strategic Plan and Framework for Action – 2001 – 2005" identifies strategic issues for CTA being: improved targeting (including partnerships and beneficiaries), geographical coverage, decentralisation, regionalisation and thematic orientation. The Plan also expresses concern about: the extent to which CTA's activities are relevant to and reach the poor, gender awareness and how to identify potential partners especially in the independent sectors.

Besides partner identification and selection issues, the observation has also been made that, the Caribbean region could benefit further from CTA's programme and activities.

Finally, various national and regional partners with whom CTA has had a long-standing relationship have requested the current study which would serve to update the earlier studies done and allow them to provide more targeted assistance to their beneficiaries.

## **3. Objectives and scope of the study**

The objectives of the study are as follows:

- to identify agricultural information needs of key actors / beneficiaries for CTA products and services;
- to identify needs of potential actors / beneficiaries of CTA activities and services in terms of building capacity for information and communication management;
- to identify potential partners / beneficiaries for CTA activities and services;
- to develop some baseline data to facilitate subsequent monitoring activities.

The study should assist the three operational departments of the CTA as well as its local representatives to improve and better target interventions and activities aimed at potential partners and beneficiaries (including women, youth, private sector and civil society organisations); to have a more informed picture of their needs and aid in the elaboration of a strategy and framework of action. The study should also highlight where there are specific needs for CTA's products and services thereby enabling improvement in the delivery of the same.

## **4. Methodology**

The consultant will use a combination of qualitative and quantitative rapid appraisal methods including:

- the desk review of available literature and information sources including the findings of programme evaluations;
- the conduct of face-to-face interviews with relevant stakeholders / concerned parties;
- the limited use of questionnaires.

The rapid appraisal approach will allow a general overview of the key issues and company / organisational profiles on a per country<sup>5</sup> basis and may give rise to more in-depth studies as and when needed in the future.

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<sup>5</sup> Out of 16 countries comprising the Caribbean ACP, only selected number will initially be the subjects of studies, with domestic consultants conducting country-specific assessments. Country selection will be done by CTA on the basis of specific criteria.

## 5. Expected outcomes / output

One main report per country not exceeding 20 pages according to the following table of contents:

### Main report

1. Executive summary
2. Introduction
3. Country profile – summary structure and economic characteristics with particular attention to agricultural sector (includes fisheries and forestry):
  - Summary of how agriculture, fisheries and forestry is organised in the country
  - Summary of the information and communication management capacity
  - The current source of agricultural information and services (synthesise Annex 3)
4. Needs analysis
  - Information needs
  - Capacity building needs (skills, training, media, ICT, equipment)
5. Conclusions and recommendations
6. References

### Annexes

1. *Terms of reference*
2. *Country profile*
  - 2.1 General agricultural profile (from available documentation)
    - Size of agricultural population (male / female / youth)
    - Farmed land, forests, fishing areas
    - Agricultural systems
    - Agriculture in the economy (percentage GDP)
    - Main agricultural produce and secondary products
    - Main export markets
    - Trade agreements that include agriculture
    - Sectoral policy related to agriculture, fisheries and forests
  - 2.2 Socio-economic profile (from available documentation)
    - Total active population, demographic breakdown
    - Literacy level and languages
    - Access to services (health, schools, electricity)
    - Rural urban drift
  - 2.3 Media and telecommunications (update / check)
    - Newspapers, periodicals, magazines, radio stations, television channels,
    - Telecommunication services (fixed, mobile, etc.)
    - Computers and Internet access
3. *Profile of institutions*
  - List of all institutions involved in agriculture and rural development activities, including private sector and civil society organisations, with name, contact details, type and role of institution
  - Select list of key institutions involved in agriculture and rural development, with extensive data and information on the institution, the problems faced and why it is considered a key actor

It is also expected that the results of this study will lead to identification / update of some priority agricultural information themes which will feed into a possible priority-setting exercise in the region in 2004.

## 6. Reporting

The country reports will not exceed 20 pages (excluding annexes). The annexes should include a list of acronyms, of persons/institutions interviewed with addresses, phone, fax numbers, e-mail addresses (if any) as well as bibliography.



## **7. Timing**

- Draft final report is to be submitted within three months after contract signature by CTA
- Final report due two weeks after receipt of comments from CTA.

## **8. Expertise needed**

The expert should have a university degree or equivalent by experience. In addition, he/she should have at least 10 years experience in field of agriculture, rural development or social / economic sciences. He/she must have in-depth knowledge of the agricultural sector in his/her country and be able to identify key players and institutions / organisations active in this area. The ability to communicate and write clearly in English is essential, while knowledge of at least one of the local languages for communication / interview purposes is an added advantage.

The overall coordination will be carried out by Ms Christine Webster, Deputy Head, Planning and Corporate Services CTA, assisted by Mrs Lola Visser-Mabogunje, Project Assistant.

## **9. Implementation schedule (CTA)**

- Preparation/Finalisation of ToR; Identification/ short-listing of (potential) consultants; Call for offers: January – February 2005;
- Selection of consultants & contractual arrangements: January - February 2005
- Briefing: February 2005
- Start date of contract: 15 February 2005
- Implementation period 15 February – 30 June 2005
- End date of contract: 30 June 2005

## **10. Key documents to be made available to consultants**

Documents include:

- Cotonou Framework Agreement
  - Excerpts of relevant sections of CTA's Strategic Plan and Plan of Action (2001-2005)
  - Annual Reports
  - Documents on priority information themes identified for the Caribbean region
  - Documents on products & services provided by CTA
  - Information Needs Relevant Country and Regional Reports 1997
  - CAIS Stakeholders Meeting Reports
-

## **ANNEX II. COUNTRY PROFILE – BELIZE**

### **II.1 General Agricultural Profile**

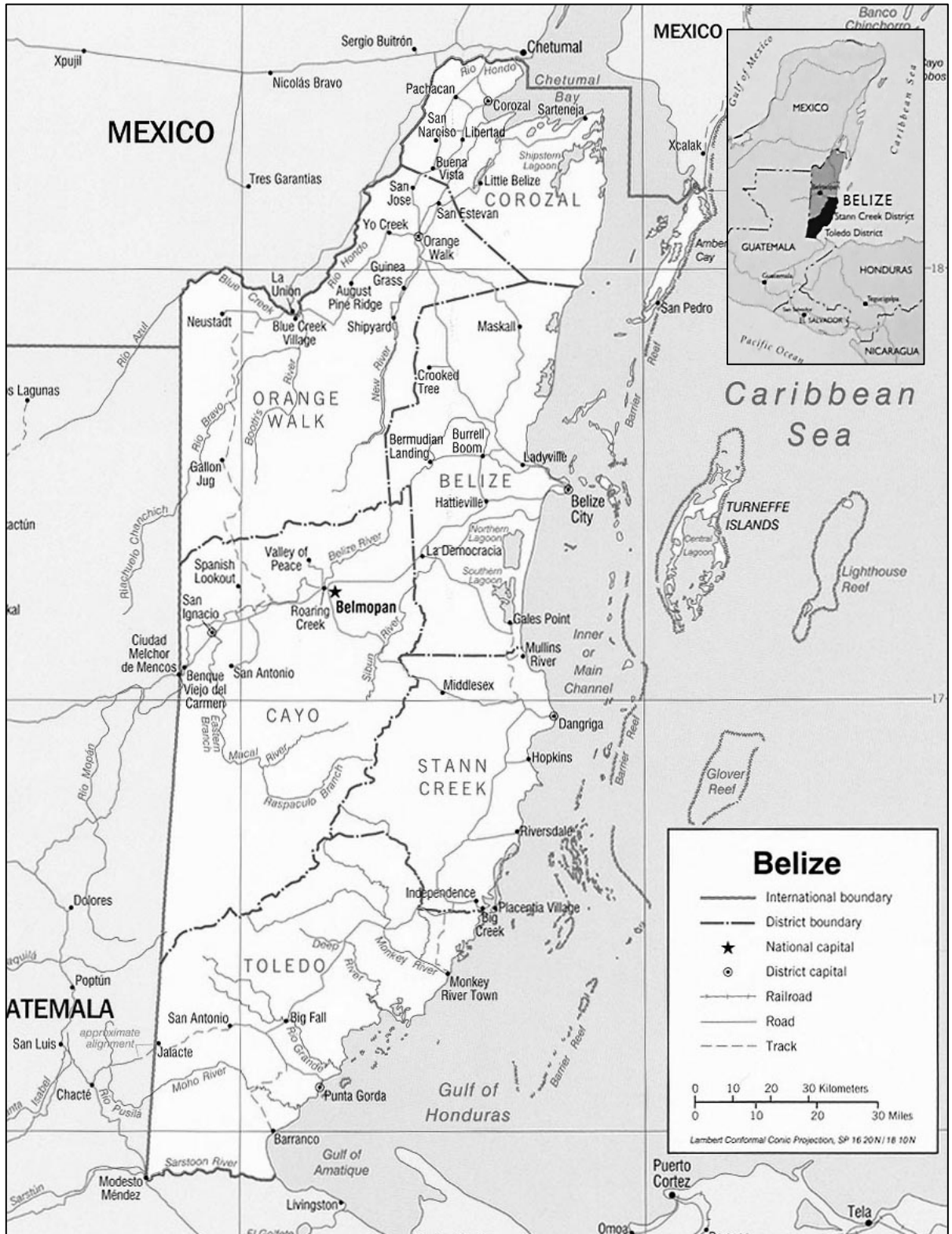
Belize is located on the Central American mainland between 15° 45' and 18° 30' north latitude and 87° 30' and 89° 15' west longitude. It is bounded to the north by Mexico, to the west and south by Guatemala and to the east by the Caribbean Sea. The total land area is 22,960 sq km (8,867 square miles) of which 95% is located on the mainland, and 5% is distributed over more than 1060 islands. It has a sub-tropical climate with average temperatures between 23° and 30° centigrade. It is six hours behind GMT, and the capital is Belmopan. Total national territory (including territorial sea) is 46,620 sq km (18,000 square miles).

The population in 2000 was 240,204 with roughly 10 people per square kilometer. Belize is an ethnically diverse country comprising 53.2% Mestizo, 25% Creole, 10.1% Maya, 6.9% Garifuna, and 4% other (including East Indian, Asian, White and other groups). The population is also very young with 41% under the age of fourteen in 2000.

Belize consists of six districts. From north to south, they are: Corozal, Orange Walk, Belize, Cayo, Stann Creek and Toledo. The northern districts of Corozal and Orange Walk are predominantly Mestizo (76% and 77% Mestizo in Orange Walk and Corozal respectively). Sugar cane production and processing for export is the dominant agricultural activity in the north. Livestock, rice, papaya, hot pepper and vegetables also contribute to production in the northern districts. The Belize district comprises primarily English-speaking Creole. Agricultural production is situated in the Belize River Valley and the northernmost part of the district. A mix of agricultural activities can be found throughout the district with more intensive vegetable production in the northernmost region. Belize district also contains the major cashew acreage for backyard and commercial processing. The Cayo district, located in the center-west of the country consists of a majority Mestizo (63%). The largest Mennonite community is in Cayo and contributes significantly to national poultry, dairy, bean, corn and vegetable production. Commercial crops such as citrus are also found in Cayo alongside small annual crops of corn, beans and groundfruits primarily for home consumption. Stann Creek district has the largest Garifuna population in Belize (36.2%) with increasing numbers of Maya migrating into the southern part of the district. Citrus production for export is the main agricultural activity in the Stann Creek district often on mixed farms of groundfruit, vegetables and small numbers of livestock. The southernmost, and poorest district is Toledo. It consists of more than 60% Ketchi and Mopan Maya. Agriculturally, Toledo produces a significant amount of rice for the domestic market with more recent investments in organic cacao for export. Corn, beans and rice contribute significantly to household consumption with increasing amounts reportedly traded with Guatemala.

In 2003, the Ministry of Agriculture and Fisheries released the National Food and Agricultural Policy for 2002 – 2020. In 2001, a National Food and Nutrition Security Policy has also been prepared. Currently, Belize is developing a national organic agriculture policy. The Forest Department is completing a strategic planning process and aims to release the new forest policy in the coming weeks.

**Figure II.1. Map of Belize**



### II.1.1 Size of Agricultural Population (Male / Female / Youth)

**Table II.1.1.1. Working population in Agricultural Employment; 1991 and 2000 Census**

<b>2000 Census</b>				
<i>By occupation</i>	<i>Total</i>	<i>Male number (%)</i>	<i>Female number (%)</i>	
Total working age population*	142,536	71,431 (50%)	71,105 (50%)	
Employed population	70,538	49,641 (70)	20,897 (30)	
	-	-	-	
Sugar	5,456	5,360 (98)	96 (2)	
Citrus	1,964	1,781 (91)	183 (9)	
Bananas	2,126	1,658 (78)	468 (22)	
Agriculture (NEC**)	7,417	6,921 (93)	496 (7)	
Forestry/sawmills	937	901 (96)	36 (4)	
Fishing/processing	1,878	1,636 (87)	242 (13)	
Manufacture of food products	1,518	976 (64)	542 (36)	
Total in agricultural related occupations	21,296	19,233 (90)	2,063 (10)	
<b>1991 Census</b>				
Total working age population	108,788	54,893 (50%)	53,895 (50%)	
Employed population	52,372	40,305 (77)	12,067 (23)	
By occupation***	-	-	-	
Agriculture/hunting/forestry	16,086	15,648 (97)	438 (3)	
Fishing	1,103	1,071 (97)	32 (3)	
Total in agricultural related occupations	17,189	16,719 (97)	470 (3)	

Source: Belize Central Statistical Office (2000) National Population Census.

\*The CSO includes all persons 14 years and older in the definition of working population.

\*\*Although not reported by CSO, NEC is assumed to mean non-export commodities. Although sugar, citrus and bananas are the key agricultural export commodities, non-traditional crops such as red beans, organic cacao and papayas also contribute to export earnings.

\*\*\*Data reported in the 1991 Census was not disaggregated by occupation in the same fashion as 2000.

**Table II.1.1.2. Total number of households involved in agricultural activity; 2002 by district**

<b>Agricultural Activity</b>	<b>District</b>						<b>Total</b>
	<b>Corozal</b>	<b>Orange Walk</b>	<b>Belize</b>	<b>Cayo</b>	<b>Stann Creek</b>	<b>Toledo</b>	
Crops, livestock & aquaculture	10,977	11,341	2,636	8,514	4,501	13,271	51,240

Source: MAFC/UNFAO (2002) Belize Farmer Registry. Available at: [www.belizefarmregistry.bz](http://www.belizefarmregistry.bz)

**Table II.1.1.3. Total number of holdings by age group; 2002**

Age Group	District						Total
	Corozal	Orange Walk	Belize	Cayo	Stann Creek	Toledo	
Less than 15 Yrs	0	0	0	0	0	11	11
15 - 24	1,410	2,473	425	1,244	362	2,834	8,748
25 - 60	38,305	122,048	11,665	54,390	15,558	27,728	269,695
61 - 80	10,836	30,295	9,752	13,382	8,365	3,785	76,415
81 - 100	751	386	596	157	155	265	2,309
Not Specified	592	2,102	4,776	1,458	1,630	173	10

Notes: The Registry does not provide additional details on the definition of holdings. It is likely that an individual owned, leased, rented or squatted on several separate holdings.

Source: MAFC/UNFAO (2002) Belize Farmer Registry. Available at: [www.belizefarmregistry.bz](http://www.belizefarmregistry.bz)

### II.1.2 Farmed Land, Forests, Fishing Areas

**Table II.1.2.1. Land use categories and area; 1989/92**

Land Use Category	Acres	Square miles	% of land cover
Agricultural Land	535,778	837	10
Forest and other wooded areas	4,250,366	6,641	79
Range land	474,917	742	8.8
Unproductive land	98,707	154	1.8
Urban areas	20,646	32	.4
Total	5,380,414	8,407	100

Notes: Does not include land area for the cayes and does not account for sub-classes in agriculture and forest categories.

Source: The Land Use of Belize 1989/92, LIC MNREI in: Central Statistical Office (2001) Belize Environmental Statistics.

**Table II.1.2.2. Size of agricultural land use by district; 2002**

Land Use (acres)	District						Total
	Corozal	Orange Walk	Belize	Cayo	Stann Creek	Toledo	
Permanent Crop	26,056	23,330	5,464	4,598	14,229	5,743	79,420
Temporary Crop	10,661	22,003	536	12,473	1,703	10,090	57,466
Pastures	2,875	43,815	4,087	31,196	1,397	2,695	86,065
Fallow	4,160	20,790	1,784	10,632	3,788	9,568	50,722
Forest	7,505	40,885	14,272	8,914	4,560	6,149	82,285
Non Agricultural Land	639	6,682	1,072	1,918	331	551	9

Notes: The Registry does not provide a definition of permanent crops temporary crops or forest (land use).

Source: MAFC/UNFAO (2002) Belize Farmer Registry. Available at: [www.belizefarmregistry.bz](http://www.belizefarmregistry.bz)

**Table II.1.2.3. Shrimp farm number and acreage; 1992-2002**

Year	Number of Farms	Acres
1992	3	533
1993	4	1,000
1994	5	1,000
1995	6	1,100
1996	6	1,100
1997	6	1,370
1998	6	1,394
1999	8	3,100
2000	12	5,188
2001	11	5,818
2002	12	6,588
2003	13	6,788

**Table II.1.2.4. Forest classes, area and percentage for mainland Belize; 1994**

Forest Class	Acres	Square miles	% of land area
Broadleaf forest	3,503,704	5,479	65.1
Open broadleaf forest	29,705	47	0.6
Pine forest	142,283	223	2.6
Open pine forest	18,041	28	0.3
Thicket and other degenerated broadleaf	209,477	328	3.9
Herbaceous and scrub	46,564	73	0.9
Bamboo and riparian vegetation	28,462	45	0.5
Coastal strand vegetation	6,131	10	0.1
Mangrove (medium and tall)	19,308	30	0.4
Mangrove (dwarf)	57,925	91	1.1
Saline swamp vegetation, with palmetto and mangrove	85,152	133	1.6
Marsh swamp	103,613	162	1.9
Total forest area	4,250,365	6,649	79.0

Notes: The CSO does not provide additional information regarding forest class.

Source: Deforestation in Belize 1989/92 – 1994/96, LIC, Ministry of Natural Resources and Environment. In: Central Statistical Office (2001) Belize Environmental Statistics.

### II.1.3 Agricultural Systems

**Table II.1.3.1. Production of select agricultural commodities; 1997-2004**

	1997	1998	1999	2000	2001	2002	2003	2004
<b>Crops</b>								
Sugar cane ('000 L tons)	1,180	1,156	1,153	1,103	1,063	1,175	1,150	1,149
Oranges ('000 90 lb boxes)	4,550	3,880	4,455	5,630	5,589	5,572	4,046	4,947
Grapefruit ('000 80 lb boxes)	1,418	1,236	1,328	1,458	1,407	1,245	1,078	1,479
Corn ('000 lb)	82,363	82,908	89,593	80,423	93,278	84,652	78,474	67,150
Rice ('000 lb)	36,877	20,838	27,819	21,710	26,722	24,139	28,114	23,018
R.K. Beans ('000 lb)	9,357	6,905	8,044	11,021	14,665	4,939	9,667	6,630
Bananas ('000 40 lb boxes)	2,905	2,856	3,097	4,127	3,073	2,660	4,351	4,768
Cocoa, dry beans (lb)	184,556	197,993	49,640	81,710	72,090	65,536	91,200	175,554
<b>Livestock</b>								
Cattle (number slaughtered)	8,316	8,150	8,297	7,602	9,305	9,076	10,006	13,020
Dressed weight ('000 lb)	3,326	3,260	3,315	3,041	3,233	4,066	4,896	5,859
Pigs (number slaughtered)	13,378	13,807	14,862	13,978	16,433	17,905	19,003	14,325
Dressed weight ('000 lb)	1,686	1,740	1,873	1,532	2,403	2,149	2,280	1,179
Poultry (number slaughtered)*	3,918	4,504	5,614	5,414	7,850	9,210	8,168	8,588
Dressed weight ('000 lb)	16,521	15,856	18,399	19,157	27,499	30,801	30,048	30,741
Milk ('000 lb)	2,511	2,492	2,606	2,697	5,230	7,796	7,584	7,975
Honey ('000 lb)	133	98	193	143	93	105	117	84
Eggs ('000 doz.)	2,362	2,523	2,633	2,774	2,881	2,153	2,665	2,851

\*The Central Bank reports the number of head as presented in table II.1.3.1, however poultry numbers are likely to require an additional '000.

Source: Central Bank of Belize online at: <http://www.centralbank.org.bz>.

**Table II.1.3.2. Overview of major agricultural systems**

<i>Production System</i>	<i>Major Characteristics</i>
<p><b>1.</b> <b>Rice and Corn Milpa</b> <b>(Toledo, Stann Creek,</b> <b>Belize)</b></p>	<ul style="list-style-type: none"> <li>• Slash and burn land clearing, cropping for 2-3 years on plot, several years fallow to recover soil fertility</li> <li>• No mechanization, rain-fed, no improved seed, few/no purchased inputs, high post harvest losses</li> <li>• Rice planted in pure stand, corn is intercropped (beans)</li> <li>• Majority of rice is for sale, remainder for home consumption</li> <li>• Majority of corn is for home consumption, any surplus is sold at farmgate</li> <li>• Remote locations and poor road make access difficult to and from farm</li> </ul>
<p><b>2.</b> <b>Cassava and Fishing</b> <b>(Toledo, Stann Creek)</b></p>	<ul style="list-style-type: none"> <li>• Majority of work is manual, occasionally plots are tilled mechanically</li> <li>• Plots are worked manually by both men and women, no improved inputs</li> <li>• Cassava is the main crop, plantain and yams also produced for the home</li> <li>• Fish constitutes other main protein source for the home</li> <li>• Cassava processing is done by women</li> </ul>
<p><b>3.</b> <b>Corn Milpa (Stann Creek,</b> <b>Cayo, Belize, Orange Walk,</b> <b>Corozal)</b></p>	<ul style="list-style-type: none"> <li>• Slash and burn corn, interplanted with root crops, black beans, RK beans may follow</li> <li>• No mechanization, no improved inputs</li> <li>• Primarily for subsistence, small surpluses sold by women</li> <li>• Acreage is limited to manpower (family labour plus community labour)</li> <li>• Some backyard small livestock production</li> <li>• Mostly inland, relatively inaccessible areas</li> </ul>
<p><b>4.</b> <b>Vegetable Production</b> <b>(Belize, Cayo, Orange</b> <b>Walk, Corozal)</b></p>	<ul style="list-style-type: none"> <li>• Small and medium scale farmers</li> <li>• Mechanically prepared land (if not preparation is by men), all other production practices done manually by family, women responsible for marketing</li> <li>• Land is typically rented from the government, immigrant farmers are significant producers</li> <li>• Improved seeds and inputs are widespread, irrigation is by hand (irrigation systems are increasing among more commercialized)</li> <li>• Cabbages, tomatoes, sweet peppers, some peanuts, carrots, potatoes</li> <li>• Backyard pigs and chickens</li> <li>• Commercial ventures, benefits from technical support</li> <li>• Located near lakes and river for water</li> </ul>
<p><b>5.</b> <b>Fruit Trees</b> <b>(Corozal, Orange Walk,</b> <b>Belize)</b></p>	<ul style="list-style-type: none"> <li>• Permanent cropping, no improved inputs, husbandry is almost non-existent</li> <li>• Manual weed control at bearing or main harvest of dominant species by men</li> <li>• Manual harvesting and marketing by women</li> <li>• Avocado, mango, sour sop, annona, guava, cashew, etc.</li> <li>• Often can farmers, part-time, or full-time off-farm employees</li> <li>• Output is staggered to provide small but steady stream of income</li> <li>• Located near roads, increase access to transportation</li> </ul>
<p><b>6.</b> <b>Transitional Mixed</b> <b>(Cayo, Orange Walk,</b> <b>Corozal)</b></p>	<ul style="list-style-type: none"> <li>• Transition between milpa and mechanized production or cattle ranching</li> <li>• Various levels of milpa and mechanization, primarily family labour (occasionally hired seasonal labour)</li> <li>• Cash crops, corn, beans, rice, sugar, peanuts, some plantain after fallows</li> <li>• Cattle may be raised on fallows</li> </ul>
<p><b>7.</b> <b>Mechanized Mixed</b> <b>(Cayo, Orange Walk,</b> <b>Corozal)</b></p>	<ul style="list-style-type: none"> <li>• Small to large scale farmers</li> <li>• Primarily mechanized (some Mennonites use horse power very effectively)</li> <li>• Improved and modern inputs widely used</li> <li>• Combination of commercial and home food crops (corn, rice, beans, fruits)</li> </ul>



<b>Production System</b>	<b>Major Characteristics</b>
<b>8. Mechanized Rice (Toledo, Stann Creek, Orange Walk, Belize)</b>	<ul style="list-style-type: none"> <li>• Mechanical land preparation, planting (occasionally), and harvesting</li> <li>• Small (up to 4 ha) and large-scale (20 – 120 ha plots) farmers</li> <li>• Improved inputs used (primarily on medium and large farms)</li> <li>• Toledo farmers move after 3-4 years, weed infestation (mechanized milpa)</li> <li>• Commercial production may be done by part-time farmers</li> </ul>
<b>9. Banana Production by Large Scale Farmers (Stann Creek)</b>	<ul style="list-style-type: none"> <li>• Mechanical land clearing, drainage, spraying, transportation, etc.</li> <li>• Farms developed and handed over to ‘tenant’ farmers (mangers)</li> <li>• Export production</li> <li>• Recent drainage improvements for increased efficiency</li> <li>• Predominance of Central American migrant workers</li> </ul>
<b>10. Citrus Farming (Stann Creek, Cayo)</b>	<ul style="list-style-type: none"> <li>• Small and large scale farmers</li> <li>• Land clearing done manually on small farms (Toledo)</li> <li>• Production for processed concentrate for export</li> </ul>
<b>11. Beef Cattle (Cayo, Belize, Orange Walk, Stann Creek)</b>	<ul style="list-style-type: none"> <li>• Small and large scale producers</li> <li>• Mostly natural pasture; improved pasture increasing</li> <li>• Mostly free grazing; limited rotational grazing</li> <li>• Limited use of improved inputs and veterinary services</li> </ul>
<b>12. Dairy Production (Cayo, Orange Walk)</b>	<ul style="list-style-type: none"> <li>• Small (1-5 head) and medium scale (6-20 head) producers</li> <li>• Mennonites dominate dairy production and processing</li> <li>• Limited farm management to vertically integrated systems</li> <li>• Complications due to mastitis</li> </ul>
<b>13. Poultry Farming (Cayo, Belize, Orange Walk)</b>	<ul style="list-style-type: none"> <li>• Mennonite farms vertically integrated and large scale</li> <li>• Non-Mennonite production is small scale and less intensive</li> <li>• Marketing and distribution dominated by Mennonites</li> </ul>
<b>14. Sugarcane (Orange Walk, Corozal)</b>	<ul style="list-style-type: none"> <li>• Predominately monocrop</li> <li>• Commercialized, large scale production</li> <li>• Regular use of inputs</li> <li>• Field work done with hired labour; seasonal and manual</li> </ul>

Source: Adapted from The Inter-American Institute for Cooperation on Agriculture (1995) Belize Agriculture Sector Study. Appendix B - Characteristics of the Major Agriculture Production Systems

## II.1.4 Agriculture in the Economy

**Table II.1.4.1. Structure of GDP 1997-03; % of current GDP**

	1997	1998	1999	2000	2001	2002	2003
Agriculture and forestry	12.5%	11.5%	11.6%	11.1%	9.6%	9.3%	9.2%
Fishing	2.4	2.8	3.4	3.7	3.4	3.4	5.0
Mining and quarrying	0.5	0.5	0.5	0.5	0.5	0.5	0.5
Manufacturing	9.6	9.4	9.0	9.6	9.0	8.5	8.2
Electricity and water supply	3.4	3.7	3.2	3.4	3.5	3.3	3.1
Construction	4.0	3.7	4.0	5.0	4.7	4.7	3.9
Wholesale and retail trade, repairs	15.3	15.4	16.1	16.3	16.6	16.3	16.0
Hotels and restaurants	3.1	3.4	3.6	3.5	3.9	3.7	4.0
Transport, and communication	8.4	8.3	8.7	8.5	9.2	10.1	9.3
Financial intermediation (less financial services measured indirectly)	2.3	2.6	3.2	3.9	3.3	3.3	3.8
Real estate, renting and business services	7.0	6.6	6.8	5.9	6.5	6.7	7.0
Community, social and personal services	6.8	6.8	6.6	6.1	6.1	5.9	6.1
General government services	10.5	10.7	10.4	9.9	10.1	10.0	10.3
Taxes less subsidies on products	14.1	14.7	12.8	12.5	13.7	14.2	13.8
Total	99.9	100.1	99.9	99.9	100.1	99.9	100.2

Notes: Although tourism is not given a single line in table II.1.4.1, individual activities such as hotels, restaurants, construction, transportation, real estate etc. can contribute to its significance in the economy. Annual figures include taxes less subsidies on products and result in lower annual percentage estimates than reported by the MAF. For example, 2003 estimates for Agriculture, Forestry and Fisheries result in a 19.78% contribution to GDP. MAF estimates

Source: Data provided by the Central Bank of Belize.

## II.1.5 Main Agricultural Produce and Secondary Products

**Table II.1.5.1. Traditional commodity production and estimated value; 2002 and 2003**

Commodity	Quantity 2002	Quantity 2003	Value (BZ\$) 2002	Value (BZ\$) 2003
<b>Sugarcane</b> (tonne)	1,150,656	1,073,247	43,816,980	44,571,947
<b>Bananas</b>				
(40 lb boxes)	1,281,169	3,137,223	19,473,769	40,972,132
(28 lb boxes)	364,952	388,449	3,883,089	3,550,423
(33 lb boxes)	976,826	466,707	12,249,398	5,026,434
(26 lb boxes)	37,162	221,268	365,302	1,902,904
(31 lb boxes)	0	110,272		551,360
(28 lb boxes other)	0	27,440		128,968
Domestic consumption. (40 lb boxes)	394,755	543,920	1,184,265	1,631,760
<b>Citrus</b>				
Grapefruit (80lb boxes)	1,230,942	1,078,137	5,834,665	4,937,867
Orange (90 lb boxes)	4,122,594	4,046,295	24,240,853	23,873,140
Fresh Lime Export (lbs)	126,905	274,725	7,614	16,483
Fresh Orange Export (90 lb boxes)	148,499	114,128	2,004,735	1,540,729
Fresh Grapefruit Export (80 lb boxes)	2,841	2,841	56,824	56,823
Domestic Lime Consumption. (lbs)	309,500	437,500	154,750	218,750
Domestic Grapefruit Consumption. ( 80 lb boxes)	12,309	10,781	73,854	64,686
Domestic Orange Consumption. (90 lb boxes)	206,129	202,314	1,442,903	1,618,512

Notes: The use of the estimated value is a very interesting indicator of the contribution of agriculture to the economy of Belize. However, how it is determined is not clearly stated in the MAFC annual report.

Source: Ministry of Agriculture, Fisheries and Cooperatives (2003) Annual Report.

**Table II.1.5.2. Non-traditional commodity production and value; 2002 and 2003**

Commodity (in lbs unless stated otherwise)	Quantity 2002	Quantity 2003	Value (BZ\$) 2002	Value (BZ\$) 2003
Papayas (export)	23,783,560	31,200,010	8,324,246	14,040,005
Apple Banana (30 lb bunches)	5,700	20,840	17,100	62,520
Cowpeas	8,225,356	6,902,400	2,878,875	3,106,080
Hot peppers (export)	217,906	328,454	174,325	262,763
Hot peppers (local)	228,532	251,385	228,532	251,385
Cocoa	56,131	91,200	112,262	182,400
RK beans	4,939,496	9,667,940	3,951,597	7,250,955
Black Beans	3,283,920	2,581,640	2,955,528	2,065,312
Other Beans	831,690	684,300	665,352	547,440
Corn	73,610,658	78,474,112	14,722,132	15,694,822
Rice paddy	24,139,125	28,113,893	5,310,608	6,185,056
Sorghum	26,651,225	20,180,400	4,530,708	2,825,256
Soybean	2,058,225	3,515,808	740,961	1,195,375
Cabbage	4,221,693	2,469,900	2,490,799	1,852,425
Cucumber	416,600	546,838	208,300	273,419
Okra	549,680	239,070	357,292	155,395
Squash	197,748	202,701	59,324	91,215
Pumpkin	733,692	493,700	183,423	197,480
Sweet Pepper	1,183,190	930,284	2,934,311	2,325,710
Tomatoes	3,154,500	2,766,660	3,596,130	2,766,660
Irish Potato	1,387,440	1,055,050	1,012,831	685,783
Onion	1,181,010	1,798,065	791,277	1,078,839
Carrots	231,584	502,886	164,425	301,732
Cassava	12,686,800	2,706,130	3,806,040	1,353,065
String Beans	20,000	20,350	15,000	16,280
Lettuce	9,000	37,438	13,500	28,079
Chinese Cabbages	229,000	308,350	160,300	246,680
Broccoli	13,675	16,950	34,188	25,425
Celery	20,000	6,500	50,000	13,000
Cho-cho	137,000	158,892	116,450	119,169
Sweet Corn (ears)	480,000	285,800	336,000	200,060
Cauliflower	1,900	6,000	4,750	9,000
Cocoyam	1,882,225	1,034,737	1,129,335	517,369
Sweet Potato	335,399	399,800	187,823	159,920
Yam	42,600	81,650	23,856	32,660
Yampi	30,800	101,000	26,180	40,400
Jicama	92,600	68,200	41,670	34,100
Mangoes	2,431,000	2,651,000	1,215,500	1,325,500
Local Papaya	435,780	581,258	230,963	308,067
Peanuts	306,950	181,400	340,715	201,354
Pineapple	4,208,727	3,655,287	2,651,498	1,279,350
Pitahaya	29,000	16,400	58,000	32,800
Plantain (bunches)	879,770	611,420	4,398,850	3,057,100
Watermelon	4,564,760	3,793,026	1,369,428	1,137,908
Coconuts (nuts)	3,746,522	3,075,843	1,648,470	1,537,922
Cotton	131,985	60,125	1,055,880	481,000
Cantaloupe	799,300	564,700	623,454	225,880

<b>Commodity (in lbs unless stated otherwise)</b>	<b>Quantity 2002</b>	<b>Quantity 2003</b>	<b>Value (BZ\$) 2002</b>	<b>Value (BZ\$) 2003</b>
Annatto	21,300	41,300	21,300	37,170
Coffee	500,000	502,800	675,000	678,780
Avocado	410,000	396,400	348,500	297,300
Cashew (raw nut)	300,500	240,800	300,500	240,800
Ginger	154,000	138,000	115,500	103,500
Nutmeg	400	500	4,000	75,000
Grapes	2,400	3,500	7,200	12,250
Craboo	161,000	175,000	64,400	131,250
Guava	102,000	127,400	204,000	191,100
Soursop	22,800	22,025	22,800	44,050
Other Fruit (sapodilla, mamey, etc.)			125,000	137,500
Other Vegetables (radish, cilantro, etc.)			100,000	110,000

Notes: \*The use of the estimated value is a very interesting indicator of the contribution of agriculture to the economy of Belize. However, how it is determined is not clearly stated in the MAFC annual report. Blank cells indicate where data was not reported by MAF in the annual report.

Source: Ministry of Agriculture, Fisheries and Cooperatives (2003) Annual Report.

**Table II.1.5.3.** Livestock production and estimated value; 2002 and 2003

<b>Commodity</b>	<b>Quantity 2002</b>	<b>Quantity 2003</b>	<b>Value (BZ\$) 2002</b>	<b>Value (BZ\$) 2003</b>
Beef (dress weight in lbs)	4,066,048	4,896,000	10,165,120	12,240,000
Beef Export (on the hoof) (lbs)	1,278,700	1,126,700	1,342,635	1,239,370
Pigs (dress weight in lbs)	2,148,600	2,280,360	5,371,500	6,841,080
Sheep (dress weight in lbs)	37,200	40,950	111,600	122,850
Poultry (dress weight in lbs)	30,800,751	30,048,504	48,665,187	46,274,696
Turkey (dress weight in lbs)	396,990	353,511	1,190,970	1,060,533
Milk (lbs)	7,422,148	7,584,352	2,449,309	2,426,993
Spent hens (No. Heads)	139,500	139,000	418,500	417,000
Eggs (dozen)	2,153,322	2,664,928	3,229,983	3,997,392
Honey (lbs)	104,500	117,343	470,250	528,044

Notes: The use of the estimated value is a very interesting indicator of the contribution of agriculture to the economy of Belize. However, how it is determined is not clearly stated in the MAFC annual report.

Source: Ministry of Agriculture, Fisheries and Cooperatives (2003) Annual Report.

**Table II.1.5.4. Artisanal fishery production; 1997-2003**

Products (tonnes)	1997	1998	1999	2000	2001	2002	2003
Fish fillet	22.0	23.0	18.0	50.0	19.0	23.0	25.0
Lobster meat	17.0	17.0	22.0	23.0	21.0	21.0	23.0
Lobster tail	284.0	235.0	277.0	252.0	197.0	267.0	249.0
Conch	258.0	253.0	141.0	233.0	263.0	188.0	241.0
Conch fillet	..	..	..	..	..	..	15.3
Stone crab claws	53.0	6.0	7.0	4.0	2.0	1.0	0.4
Sea shrimp	43.0	41.0	35.0	45.0	69.0	83.0	52.0
Farmed shrimp	1,232.0	1,646.0	3,170.0	3,637.0	4,460.0	4,354.0	10,118.0
Whole fish	80.0	88.0	83.0	13.0	37.0	66.0	9.6
Squid	..	..	..	0.25	..	0.20	0.27

Source: Fisheries Department, Ministry of Agriculture and Fisheries. In: WTO (2004) Trade Policy Review Report by the Secretariat. WT/TPR/S/134.

**Table II.1.5.5. High seas production; 1997-2001**

Products (tonnes)	1997	1998	1999	2000	2001	Annual average growth 1997-01
Shark, ray, chimaera	1	0	521	54	201	276.5%
Cod, hake, haddock	30	29	261	2,442	634	114.4%
Shrimp, prawn	1,273	2,233	4,487	4,872	4,581	37.7%
Squid, cuttlefish, octopus	612	3,344	11,974	10,146	1,712	29.3%
Crustaceans	2,048	2,726	5,068	5,391	4,983	24.9%
Marine fish not identified	493	1,744	3,335	7,169	919	16.8%
Misc. pelagic fish	2,700	2,677	6,310	12,469	4,487	13.5%
Molluscs	2,538	5,235	13,025	11,891	3,692	9.8%
Abalones, winkles, conch	1,926	1,891	1,051	1,745	1,980	0.7%
Herring, sardine, anchovy	4,826	4,896	8,158	13,124	3,643	-6.8%

Source: FAO database <http://www.fao.org>. In: WTO (2004) Trade Policy Review Report by the Secretariat. WT/TPR/S/134.

**Table II.1.5.6. Timber production by major types; 1997 – 2000, cubic feet**

Common Name	1997	1998	1999	2000*
Banak	3,978	10,013	13,705	14,558
Barba Jolote	14,176	17,559	12,498	2,896
Billy Webb	5,754	14,331	13,287	1,901
Bitterwood	9,185	21,930	13,108	8,067
Black Cabbage Bark	38,970	43,640	15,238	27,344
Bullet Tree	29,469	27,637	22,669	8,881
Cedar	29,932	34,879	20,137	5,530
Cotton	38,529	38,815	23,687	11,418
Ironwood	9,655	8,010	8,933	7,352
Mahogany	274,564	226,641	140,320	81,289
Male Bullhoof	25,403	36,605	21,555	7,559
Mylady	60,471	54,275	25,701	28,214
Nargusta	80,190	53,418	32,552	25,676
Pine	950,385	869,621	833,044	710,243
Quam Wood	26,079	42,333	44,038	32,462
Santa Maria	294,442	237,736	160,162	86,843
Sapodilla	27,900	19,641	8,453	10,573
Tambran	19,719	19,470	14,335	2,039
Yemeri	174,329	173,529	191,626	109,732
Monkey Apple	5,239	9,597	10,340	3,398
Prickly Yellow	5,007	6,169	9,462	5,376
White Breadnut	787	9,782	8,858	7,853
<b>Subtotal</b>	<b>2,124,159</b>	<b>1,975,631</b>	<b>1,643,707</b>	<b>1,199,203</b>
Other timber	63,943	103,286	38,599	39,598
<b>Grand Total</b>	<b>2,188,102</b>	<b>2,078,917</b>	<b>1,682,306</b>	<b>1,238,801</b>

Notes: \*Does not include production data from the Belize or Belmopan Forest Offices.

Species names were not reported by Forest Department and CSO.

Source: Ministry of Natural Resources and the Environment, Forest Department. In: Central Statistical Office (2001) Belize Environmental Statistics.

Additional production figures are anticipated to be available in the 2004 version of the Belize Environmental Statistics due out in May/June. This will address the missing Belize and Belmopan office figures for 2000 and possibly add figures for '01-'03.

## II.1.6 Main Export Markets

**Table II.1.6.1. Overview of export markets; 1990 and 2001/02**

<i>Category</i>	<b>1990 (BZ\$)</b>	<b>2002 (BZ\$)</b>	<b>% Change</b>
<b><u>Agriculture GDP (1984 constant price)</u></b>	\$104,806,000	\$202,552,000	93%
Food/Agriculture Exports	177,830,000	278,198,000	56%
Food/Agriculture Imports*	106,402,000	159,236,000**	49%
Net Agriculture Trade Surplus	71,428,000	123,000,000 **	73%
Sugar Exports	92,064,000	68,689,000	-25%
Citrus Exports	43,588,000	81,171,000	86.2%
Banana Exports	19,736,000	33,499,000	69.7%
Marine Exports	18,172,000	70,363,000	287.2%
Non-Traditional Agriculture Exports	4,340,000	20,530,000	373%
Other Non-Agriculture Exports	39,010,000	42,449,000	8.8%
<b>Total Exports</b>	<b>216,910,000</b>	<b>316,671,000</b>	<b>46%</b>

Source: Ministry of Agriculture, Fisheries & Cooperatives, Policy Unit and Central Statistical Office.

\*Includes agriculture inputs (agro-chemical & animal feed)

\*\*Refers to 2001 since data on 2002 not yet available



**Table II.1.6.2. Breakdown of main export markets ('000 BZ\$); 1999-2004**

Commodities <sup>a</sup>	1999	2000	2001	2002	2003	2004
<b>Sugarcane Sector:</b>						
Sugar (Long Ton)	86,616	74,232	59,370	65,981	71,227	81,534
Molasses (gals)	436	268	1,649	2,678	2,476	1,766
Sugar/Molasses	87,052	74,500	61,019	68,659	73,703	83,300
<b>Bananas</b>	56,834	65,816	42,804	40,990	52,579	52,991
<b>Citrus Sector:</b>						
Orange Concentrate (gal)	45,569	87,392	71,116	50,101	65,538	55,489
Orange Squash (gal)	15,731	18,791	4,584	3,642	1,793	2,222
Orange Oil (lbs)	223	240	385	751	566	2,093
Grapefruit Concentrate (gal)	9,317	7,180	17,439	13,901	12,516	23,817
Grapefruit Squash (gal)	3,172	6,086	1,946	11,294	381	1,792
Grapefruit Oil (lbs)		231	94	305	24	1,573
Fresh Lime (lbs)	nd	nd	nd	8	16	9
<b>Marine Products</b>						
Lobster	16,750	18,765	12,973	13,236	13,598	15,412
Conch	2,557	4,858	4,644	3,440	3,741	5,810
Shrimp	36,064	47,831	48,933	53,563	92,762	85,153
Whole Fish	96	161	0	124	30	5
Other fish	100	64	15	nd	26	1,263
<b>Other</b>						
Pepper Sauce	369	662	409	469	607	1,122
Papayas	7,464	12,754	10,283	15,879	16,608	22,818
Red Kidney Beans	3,872	2,433	3,276	2,048	1,659	2,138
Black Eye Peas	1,945	3,021	2,739	2,427	3,410	2,015
Mangoes	106	31	nd	nd	1	0
Cocoa Beans	nd	116	117	29	94	69
Honey	41	nd	nd	nd	0	12
Peanuts	13	nd	nd	nd	0	0

Notes: nd indicates where data was not reported by the MAFC in the annual report.

Source: Ministry of Agriculture, Fisheries and Cooperatives (2003) Annual Report.

## *II.1.7 Trade Agreements that Include Agriculture*

### **Box II.1.7.1. Summary of Belize agricultural trade agreements**

NAFTA went into effect as of January 1994 and it is expected that its implementation will last between 1-15 years. NAFTA will ensure that Mexico has free access to the USA market for sugar, citrus and fruits/vegetables within the coming 6 years. This will mean that preferential access for Belizean exports to the USA such as papayas, peppers, citrus, sugar and all other exports will slowly see their preferential market eroded. Mexico as an exporter of citrus products will gradually experience a competitive advantage over other exporters of citrus products since tariffs on its produce will go down. Mexico is still a net importer of sugar, nevertheless, the fact that it also exports sugar should be kept in mind in the sense that the potential is there for it to convert into a net exporter of sugar. Thus the Belize agricultural sector will need to improve its competitive vis-à-vis other Latin-American countries which may obtain preferential access to the USA under NAFTA. Implementation of NAFTA will also mean that new commodities developed by Belize will no longer enjoy large preferential access as compared to Mexico who is a major producer of winter fruits/vegetables; consequently, higher efforts in terms of efficiency will be demanded.

Implementation of the US-CAFTA-TR Free Trade Agreement will not constrain Belize exports to the US market in the short term. However, certain agro-based commodities (sugar and citrus) have been special dispensation under the FTA. Interestingly, Belize will compete directly with the Dominican Republic - a CARIFORUM-Member country. The US market will become increasingly competitive for Belize products and there is need to assess competitiveness of traditional sectors.

It is expected that reforms to the Lomé Regime will occur sometime after the year 2007. However, reforms to the Banana protocol is already taking place since it has been successfully challenged by the USA to be “Not In Conformity” with WTO. These coming reforms will affect Belize exports of bananas, citrus and sugar to the EU market which represents the most important export market for these commodities. The EU is responsible for purchasing all banana export from Belize and also for buying over 54% of all sugar exports at preferential price which exceeds the world market price by over 100%.

Under the Caribbean Basin Initiative Belize enjoys duty free access for all exports to the US market; Belize also receives similar treatment for exports to Canada under a similar agreement called CARIBCAN. However, it is expected that with the entrance of Mexico and other Latin-American countries into NAFTA, these benefits will be eroded in long run. Commodities such as papayas, citrus, peppers, fish products, dried fruits and other niche commodities will undergo an erosion of trade benefits relative to producers of these commodities not presently belonging to CBI.

Belize is a signatory to the WTO agreement which requires that all existing non-tariff barriers to trade such as import licensing to be tariffed. The agreement also specifies that each country must provide minimum access to imported commodities into their domestic market. Therefore, Belize will need to explore avenues acceptable under WTO which could be used to support/protect agriculture such as grades, standards, and sanitary/phytosanitary requirements for human, animal and plant health.

Belize is a signatory to the Common External Tariff (CET) as a member of the Caribbean Community (CARICOM); tariff schedules under CET arrangements are generally below what would be required to compensate for removal of import licenses. Therefore, removal of QRs and replacement by CET commitments would impact on the agriculture sector from two sides. Exports to CARICOM (fish commodities, citrus, beans, cowpeas, peanut etc) would see their preferential treatment eroded since some of the MDCs (Jamaica & Trinidad) are pushing for further reductions in the CET for agriculture products. The domestic sector will face greater competition from cheaper imports of agriculture produce due to lower import tariffs.

**Source:** Adapted from Ministry of Agriculture (2003) National Food and Agricultural Policy: 2002-2020, with additional input/update from personnel of the Ministry of Agriculture and Ministry of Foreign Trade.

**Table II.1.7.1. Summary of agricultural trade preferences for the three major export commodities.\***

<b>Export Product</b>	<b>Destination</b>	<b>Preference</b>	<b>Prospect</b>
<b>Sugar</b>	EU - 54%**	EU Sugar Protocol Quota under the Lomé Convention: 39,400 metric tons, US \$0.30/lb (€0.23)	Extended to July 2006
	US – 14 %	US Sugar Quota: 14,910 metric tons, US\$0.227/lb (€0.175)	Vulnerable to being reduced
	World - 32%	World Price: US\$0.115/lb (€0.0887), Duty-free entry into Canada under CaribCan	Requires WTO waiver
<b>Citrus</b>	US – 70%	US: Caribbean Basin Initiative: Duty-free	Will be phased out as NAFTA is fully implemented by 2010
	EU – 15%	EU – Lomé Convention, Duty-Free	Extended to 2007
	Caricom – 15%	Common market: duty-free	Not threatened
	Guatemala (Insignificant at this moment but could potentially grow to 10%-20% in 5 years)	Duty Free – Partial Scope Agreement (Tentatively Scheduled for implementation on April 1, 2006)	2006 and Beyond (Preference of 5-15% depending on tariff line)
<b>Bananas</b>	EU – 100%	EU Lomé Convention: up to 55,000 metric tons, duty-free	Extended to December 2005 via WTO Waiver

**Source:** Ministry of Agriculture (2003) National Food and Agricultural Policy: 2002-2020, with additional input from personnel of the Ministry of Agriculture and Ministry of Foreign Trade.

\*For further details of agricultural products exported from Belize see Table II.1.6.2.

\*\*At time of writing it was not possible to confirm this figure. Some data from Belize Sugar Industries suggested that special preference market to the EU was 51% but information from the Ministry of Agriculture suggested that the EU purchased 46% of all sugar exports at preferential price.

### *II.1.8 Sectoral Policy Related to Agriculture, Fisheries and Forests*

Belize's development strategy aims at achieving sustainable development, ensuring that all segments of the population benefit as the country implements sound and comprehensive socio-economic strategies to achieve broad-based economic growth. Poverty reduction forms the centrepiece of the Government's economic development strategy, which is seeking to bring vulnerable groups into the mainstream of economic activity.

In this context, the policy agenda of the Government includes the following five elements and objectives:<sup>6</sup>

1. **Enhancing and sustaining economic growth:** through establishing and maintaining a stable macroeconomic climate for investment, improving fiscal management, developing an enabling framework for increased private sector participation and modernising economic infrastructure in order to stimulate development in the urban and rural areas of the country. Economic growth will focus on diversification in agriculture, tourism, financial services, data processing and aquaculture farming. The aim is to achieve a real GDP growth of 5%.
2. **Improving access to quality social services:** through investment and reform in education, healthcare; targeting safety nets for the poor; improving land titling, housing and essential infrastructure in the rural area.
3. **Modernising the State and improving governance:** through political and public sector reforms, decentralisation of political and management authority, improving the regulatory framework and law enforcement on money laundering and drug trafficking, as well as improving the judiciary.
4. **Implementing policies and measures for environmentally sustainable development:** through improving natural resources management (land, water and forestry), expansion of sustainable tourism and improving natural disaster prevention and management.
5. **Ensuring safety and security in Belize:** through establishing peaceful relations with all neighbours, ensuring respect of human rights, improving security and reducing criminality.

### **Ministry of Agriculture, Fisheries and Cooperatives policy related activities<sup>7</sup>**

The MoA 2002-2020 National Food and Agricultural Policy outlines sector objectives and presents related programmes that are intended to address the constraints identified during the development of the national policy. These strategic objectives are presented below and are

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<sup>6</sup> Ministry of Agriculture, Fisheries and Cooperatives (2003) National Food and Agricultural Policy: 2002-2020. P. 21.

<sup>7</sup> Ministry of Agriculture, Fisheries and Cooperatives (2003) National Food and Agricultural Policy: 2002-2020. P. 27.

followed by an outline of goods and services and specific policy objectives for the agricultural and fisheries sectors specifically.

1. Formulation, implementation and coordination of sectoral policies, programs and projects that are designed to achieve the GoB's policy objectives.
2. Design and execute strategies and programs associated with sub-sector and commodity specific activities.
3. Monitoring, evaluation and periodic review of policy and program impacts at the sector and sub-sector levels.
4. Provide policy guidance and recommendations to the GOB on issues of the sector.
5. Coordinate the Gob's policy initiatives with development and other technical assistance from regional and international organizations.

**Provision of goods and services will include:<sup>8</sup>**

1. Applied research and development in non-traditional crops and livestock activities;
2. Provision of extension services;
3. Design and management of the regulatory framework relating to agricultural health.
4. Education and training;
5. Support to the provision of physical infrastructure such as feeder roads, irrigation, transport, storage, drying and marketing facilities;
6. Data collection and information management to support planning and decision-making.
7. Provision of information on technical matters and market opportunities.
8. Facilitate linkages and networking between national institutions and with regional and international organizations.
9. Develop an annual planning, programming and budgeting cycle to execute the above responsibilities.

**Agriculture sector policy:<sup>9</sup>**

1. Accelerate the diversification of both local and export-oriented agriculture;
2. Promote agro-processing and value adding as a means of expanding opportunities and increasing the income of the rural sector;
3. Support the establishment and development of an Organic Agriculture Industry in Belize;
4. Actively promote market and trade expansion both locally and internationally;
5. Increase the efficiency, profitability and competitiveness of agro-businesses;
6. Improve and conserve the natural and productive resource base to ensure long-term sustainable productivity and viability;
7. Improve access to productive resources and services and create economic opportunities for small farmers, women and young farmers, and indigenous people, particularly in poor, marginal areas;
8. Strengthen the institutional capacities to provide effective support in marketing and trade, research and extension, as well as relevant education and training.

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<sup>8</sup> Ministry of Agriculture, Fisheries and Cooperatives (2003) National Food and Agricultural Policy: 2002-2020. P. 27.

<sup>9</sup> Ministry of Agriculture, Fisheries and Cooperatives (2003) National Food and Agricultural Policy: 2002-2020. P. 33-35.

### **Fisheries sector policy:<sup>10</sup>**

1. Encourage and promote sustainable fish production systems in both sea areas and inland fisheries;
2. Diversify production of the underutilized fish species in traditional waters so as to reduce pressure on high valued fish;
3. Encourage deep-sea fishing to take advantage of the 12-mile zone;
4. Increase value added activities in the production system, fish processing and prepared fish food;
5. Improve management of the ecological systems and marine environment of fish habitats;
6. Expand production of non-traditional fish species;
7. Retain product quality and remain competitive in export markets;
8. Improve the economic and social well being of fishers and their communities.

### **Capture fisheries policy:<sup>11</sup>**

1. Managing the fisheries resources in a sustainable manner:
  - a. Development of a data collection programme to collect data relevant to the management of the resources;
  - b. Constant evaluation of the status of fisheries resources in Belize through frequent analysis of the data collected;
  - c. Management recommendations to the Minister based on the information collected and analyzed, including such things as closure of sensitive areas, quotas, limited entry fishing for selected species such as lobster, licenses for recreational fishing, bag limits for recreational fishing and size limits.
  - d. Development of a list of priority areas for research to provide additional information on the status of the fisheries resources, and the means by which the research can be done.
  - e. Identification of the resources required to undertake all the various activities associated with management of the sector, and the mobilization of those resources through various means.
2. Including the resources users in the management process:
  - a. Extension and public education/awareness programmes that targets the resource users in, particular, and the Belizean public in general;
  - b. Establishment of close working relationships with the fishermen's organizations to discuss matters that is of importance to the sector;
  - c. Involvement of fishermen and other resource users in the public consultation process;

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<sup>10</sup> Ministry of Agriculture, Fisheries and Cooperatives (2003) National Food and Agricultural Policy: 2002-2020. P. 43.

<sup>11</sup> Ministry of Agriculture, Fisheries and Cooperatives (2003) National Food and Agricultural Policy: 2002-2020. P. 44-46.

- d. Enhancement of the Fisheries Advisory Board model to ensure its continuity and continued effectiveness through some form of legislative process.
3. Improving the efficiency and profitability of the sector through the identification of new methods and markets:
  - a. Identification of alternative commercially exploitable species such as shellfish (oysters, clams etc), blue crabs, pelagic fish species (tunas, mackerels, jacks) and squids;
  - b. Training of fishermen in the harvesting and handling of target species;
  - c. Improvements in methods of handling for all species caught to reduce post harvest losses and increase value through increased quality. Close cooperation with agencies such as BAHA will be a must;
  - d. Identification and assistance in the identification and development of new markets both locally and regionally for new target species;
  - e. Training and assistance with development of processing and packaging methods to add value to the harvested products, whether traditional or new. Such things as seasoned ground conch or seasoned lobster head meat packaged in one or two pound packets, or crab meat in the back, or salting and smoking or dry salting and packaging will be some of the options explored.
4. Improving on the human resource base of the management agencies:
  - a. Development and implementation of a programme to monitor the human resources needs of the sector and to match available resources to those needs. This should be multi-agency in scope since it might be necessary to 'share' expertise between agencies;
  - b. Development of a training programme that would incorporate in-service and academic training, both in country and abroad, with specific emphasis being placed on the areas of greatest need as identified;
  - c. Utilization of existing partnerships with countries that offer development aid, such as Japan, Korea, Taiwan, the European Union and the USA, to develop mechanisms for training and development of human resources;
  - d. Development of a system for the 'sharing' of expertise between agencies to alleviate the shortage of trained persons in the short term or on a needs basis.
5. Develop and foster linkages between the various regional and local organizations and institutions involved in natural resources management.
  - a. Development of co-management arrangements with local CBOs and NGOs for the management of selected fisheries or areas;
  - b. Maintenance of close cooperation with sister Government agencies, such as the Cooperative and Forestry Departments, that are involved in natural resources management;
  - c. Maintenance of close contacts and active participation in the regional initiatives such as CRFM and MBRS.

## **Aquaculture Policy:**<sup>12</sup>

1. Maximizing Biological Production:
  - a. Creating and strengthening institutions to improve the role of science in shrimp farming;
  - b. Application of Best Management Practices (BMP) in aquaculture production.
2. Optimizing Biological Carrying Capacity:
  - a. Expanding shrimp production with a view of remaining within the ecological limits or “carrying capacity” of the environment;
  - b. Promoting environment-friendly aquaculture technologies and production practices to optimize yields and production;
  - c. Conservation of mangroves and other wetland systems as buffer between farms;
  - d. Implementation of coastal area zoning and other mechanisms of Integrated Coastal Zone Management.
3. Minimizing Crop Failure:
  - a. Diversifying aquaculture from its unidirectional focus on shrimp Mariculture;
  - b. Promoting the use of disease resistant species and genetic lines;
  - c. Developing institutions and processes to guard against the introduction and proliferation of diseases.
4. Sustaining the Competitive Position of Belize:
  - a. Maximizing economic returns from shrimp farming in an effort to instill investor confidence;
  - b. Guarding against the threat of over-development of shrimp farming;
  - c. Improving self-sufficiency in the production of critical inputs (seed stocks and feed) for shrimp farming and other aspects of aquaculture;
  - d. Strengthening the legal basis of the rules and procedures adopted by various regulatory institutions.
5. Expanding the Benefits Derived From Aquaculture:
  - a. Optimizing the use of primary resources in shrimp farming and other aspects of aquaculture;
  - b. Improving the participation of small-scale operators, and groups requiring special attention;
  - c. Expanding employment, training and other social benefits of shrimp farming and other aspects of aquaculture;
  - d. Improving planning and coordination to anticipate, preclude, circumvent and resolve user conflicts.

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<sup>12</sup> Ministry of Agriculture, Fisheries and Cooperatives (2003) National Food and Agricultural Policy: 2002-2020. P. 47-48.



**Marine Protected Areas Policy; Objectives and support services:**<sup>13</sup>

1. Conserving of marine biodiversity by protecting important ecosystems, habitats, and species;
2. Supporting marine scientific research by providing a natural laboratory;
3. Enhancing capacity through education, public awareness and collaboration;
4. Mobilizing financial and technical resources for the sector.
5. Deriving benefits from the tourist sector.

**These Objectives will be facilitated through the following support services:**

1. Providing harvest refuge;
2. Protecting habitats, especially those critical to lifecycle stages such as spawning, juvenile rearing and feeding;
3. Protecting spawning stocks and spawning stock biomass, thus enhancing reproductive capacity;
4. Protecting areas of species, habitats, and ecosystems restoration and recovery;
5. Enhancing local and regional fish stocks through increased recruitment and spillover of adults and juveniles into adjacent areas;
6. Assisting in conservation-based fisheries management regimes;
7. Providing opportunities for scientific research.

**Belize Forest Policy:**<sup>14</sup>

1. Achieve an equilibrium between conservation of forest related natural resources (biodiversity, water, soil, and oxygen) with the productive development of the forest sector, within the framework of sustainable development;
2. Adapt forestry administration to focus on promotion and support, making the technical and administrative procedures efficient, in order to enhance the productive process;
3. Conserve and support the increase of natural forest products and establish and regulate protected forests. At the same time, increase the national forest inventory through the recuperation of areas with good forest potential, based upon technical criteria;
4. Develop a forest management plan which will demarcate conservation areas for forest reserves and facilitate the transfer of land, where this is appropriate between forestry and agriculture and for agro-forestry uses;
5. Examine ways to assist in the development of more efficient and competitive forest industry through modernization of the industrial process, adequate methods of commercialization, forest pricing, the elimination of restrictive barriers and the gradual elimination of industry protectionism;

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<sup>13</sup> Ministry of Agriculture, Fisheries and Cooperatives (2003) National Food and Agricultural Policy: 2002-2020. P. 49.

<sup>14</sup> Extracted from an undated document entitled 'Forest Policy' provided by Forest Department, Ministry of Natural Resources and the Environment.

6. Raise the value of forest resource by promoting the establishment of industries, such as furniture production and veneers;
7. Increase the capacity of forest management through investigation, training and forestry extension; accomplished in coordination with the public and private sectors with universities through mechanisms of technological transfer;
8. Establish long-term sustainable forest licenses which are governed by comprehensive management plans;
9. Ensuring that environmental considerations are taken into account in the formulation and implementation of forest management practices;
10. To raise public awareness on forest conservation practices and regeneration methods.

## **II.2 Socio-Economic Profile**

### ***II.2.1 Demographics***

In 2000, the population of Belize was 240,204. The largest ethnic group in the country is the Mestizo (48.7%) followed by the Creole (24.9%). The 2000 Census results indicate that the percentage of Mestizos has increased by over five percent since 1991. In 1991, Creoles (44%) were the dominant ethnic group in the urban areas, and Mestizos (50.2%) in the rural parts. In 2000, however, both urban (43%) and rural (53.4%) areas were predominantly Mestizo.

In 2000, Mestizos were the largest ethnic group in the districts of Corozal (76%), Orange Walk (77%), Cayo (63.7%) and, were only slightly less (30.2% vs. 31%) than the Garifuna group in Stann Creek. In the Belize District, Creoles (59%) are the largest group, and in Toledo, the Mayas (65.4%) outnumber all other ethnic groups. In 1991, the Mestizos also dominated the Corozal (74.1%), Orange Walk (71.7%) and Cayo (58%) Districts, but the Garifuna ethnic group was the largest (36.2%) in the Stann Creek District. Just as in the year 2000, in 1991, Creoles (67.9%) outnumbered all other ethnic groups in the Belize District, and the Mayas (62.6%) also dominated the Toledo District.

**Table II.2.1.1. Country and District Population; 1980, 1991 and 2000**

	1980	1991	2000
<b>Country</b>	145,353	189,392	240,204
<i>Urban</i>	76,277	90,005	114,541
<i>Rural</i>	69,076	99,387	125,663
<b>Cayo District</b>	22,837	37,693	52,564
<i>San Ignacio</i>	5,616	8,962	13,260
<i>Belmopan</i>	2,935	3,558	8,130
<i>Rural</i>	11,851	21,593	25,086
<b>Corozal District</b>	22,902	28,464	32,708
Corozal Town	6,899	7,062	7,888
Rural	16,003	21,402	24,820
<b>Orange Walk District</b>	22,870	30,681	38,890
Orange Walk Town	8,439	11,014	13,383
Rural	14,431	19,667	25,407
<b>Belize District</b>	50,801	57,030	68,197
Belize City	39,771	44,087	49,050
Rural	9,905	11,094	14,648
<b>Stann Creek District</b>	14,181	18,085	24,548
Dangriga	6,661	6,435	8,814
Rural	11,851	11,650	15,734
<b>Toledo District</b>	11,762	17,439	23,297
Punta Gorda	2,396	3,458	4,329
Rural	9,366	13,981	18,968

Notes: Population is reported for the district as a total and broken down by main urban/town areas and rural.  
Source: Central Statistical Office (2000) National Population and Housing Census

**Table II.2.1.2. Population by age group; 1991 and 2000**

Age Group	1991		2000	
	Total	% of Total	Total	% of Total
Total	184,722	100	232,111	100
0-4	29,710	16.1	33,470	14.4
5-14	51,445	27.9	61,632	26.6
15-24	37,047	19.7	46,213	19.9
25-34	26,246	14.2	33,819	14.6
35-44	15,776	8.7	24,639	10.6
45-54	9,392	5.3	14,317	6.2
55-64	7,326	4.1	8,277	3.6
65 and over	7,780	4.1	9,744	4.2

Source: Central Statistical Office (2000) National Population and Housing Census

## II.2.2 Literacy Level and Languages

**Table II.2.2.1. Literacy rates by district; 1991 & 2000**

District	Illiterate	Literate	Total	% Literate
<b>1991</b>				
Corozal	6,196	10,410	16,606	62.7%
Orange Walk	6,052	11,262	17,314	65.0%
Belize	4,756	28,958	33,714	85.9%
Cayo	7,665	13,124	20,789	63.1%
Stann Creek	3,691	6,288	9,979	63.0%
Toledo	3,519	5,410	8,929	60.6%
<b>Total</b>	<b>31,879</b>	<b>75,452</b>	<b>107,331</b>	<b>70.3%</b>
<b>2000</b>				
Corozal	5,620	14,475	20,095	72.0%
Orange Walk	5,918	17,367	23,285	74.6%
Belize	4,279	36,737	41,016	89.6%
Cayo	9,093	21,050	30,143	69.8%
Stann Creek	3,712	11,126	14,838	75.0%
Toledo	4,732	7,673	12,405	61.9%
<b>Total</b>	<b>33,354</b>	<b>108,428</b>	<b>141,782</b>	<b>76.5%</b>

Notes: CSO definition of literate includes all persons who are 14+ years of age and have completed at least 7 years of primary education. Illiterate includes all persons 14+ years of age and have completed at most 6 years of primary education.

Source: Central Statistical Office 1991 and 2000 Population and Housing Census

**Table II.2.2.2. Literacy rates by gender and age; 1991 & 2000**

Age group	Male			Female			Total			
	Illiterate	Literate	Total	Illiterate	Literate	Total	Illiterate	Literate	Total	% Literate
<b>1991</b>										
Age 14	543	1,671	2,214	551	1,676	2,227	1,094	3,347	4,441	75.4%
15-19	2,052	7,978	10,030	1,977	8,253	10,230	4,029	16,231	20,260	80.1%
20-24	1,978	6,327	8,305	1,920	6,546	8,466	3,898	12,873	16,771	76.8%
25-29	1,842	5,288	7,130	1,883	5,381	7,264	3,725	10,669	14,394	74.1%
30-34	1,597	4,303	5,900	1,573	4,160	5,733	3,170	8,463	11,633	72.7%
35-39	1,303	3,282	4,585	1,247	3,067	4,314	2,550	6,349	8,899	71.3%
40-44	1,115	2,331	3,446	1,057	2,216	3,273	2,172	4,547	6,719	67.7%
45-49	852	1,638	2,490	857	1,463	2,320	1,709	3,101	4,810	64.5%
50-54	944	1,400	2,344	915	1,209	2,124	1,859	2,609	4,468	58.4%
55-59	870	1,122	1,992	829	1,014	1,843	1,699	2,136	3,835	55.7%
60-64	889	908	1,797	837	786	1,623	1,726	1,694	3,420	49.5%
65-69	699	661	1,360	726	627	1,353	1,425	1,288	2,713	47.5%
70-74	547	458	1,005	567	437	1,004	1,114	895	2,009	44.5%
75+	809	548	1,357	900	712	1,612	1,709	1,260	2,969	42.4%
<b>All ages</b>	<b>16,040</b>	<b>37,915</b>	<b>53,955</b>	<b>15,839</b>	<b>37,547</b>	<b>53,386</b>	<b>31,879</b>	<b>75,462</b>	<b>107,341</b>	<b>70.3%</b>
<b>2000</b>										
Age 14	987	1,861	2,848	722	1,957	2,679	1,709	3,818	5,527	69.1%
15-19	2,066	10,714	12,780	1,923	10,830	12,753	3,989	21,544	25,533	84.4%
20-24	1,611	8,442	10,053	1,691	8,936	10,627	3,302	17,378	20,680	84.0%
25-29	1,684	7,182	8,866	1,884	7,389	9,273	3,568	14,571	18,139	80.3%
30-34	1,683	6,020	7,703	1,815	6,161	7,976	3,498	12,181	15,679	77.7%
35-39	1,643	5,240	6,883	1,659	5,200	6,859	3,302	10,440	13,742	76.0%
40-44	1,426	4,190	5,616	1,276	4,005	5,281	2,702	8,195	10,897	75.2%
45-49	1,131	3,149	4,280	1,086	2,932	4,018	2,217	6,081	8,298	73.3%
50-54	921	2,219	3,140	800	2,079	2,879	1,721	4,298	6,019	71.4%
55-59	776	1,557	2,333	696	1,396	2,092	1,472	2,953	4,425	66.7%
60-64	782	1,335	2,117	649	1,086	1,735	1,431	2,421	3,852	62.9%
65-69	728	998	1,726	657	1,012	1,669	1,385	2,010	3,395	59.2%
70-74	592	729	1,321	586	734	1,320	1,178	1,463	2,641	55.4%
75+	948	817	1,765	931	1,012	1,943	1,879	1,829	3,708	49.3%
<b>All ages</b>	<b>16,978</b>	<b>54,453</b>	<b>71,431</b>	<b>16,375</b>	<b>54,729</b>	<b>71,104</b>	<b>33,353</b>	<b>109,182</b>	<b>142,535</b>	<b>76.6%</b>

Notes: CSO definition of literate includes all persons who are 14+ years of age and have completed at least 7 years of primary education. Illiterate includes all persons 14+ years of age and have completed at most 6 years of primary education.

Source: Central Statistical Office 1991 and 2000 Population and Housing Census

**Table II.2.2.3. Fluency of English and Spanish; 2000**

COUNTRY	2000					
	Total		Male		Female	
	#	%	#	%	#	%
<b>Fluency of English</b>						
Total	205,123	100.0%	103,045	100.0%	102,078	100.0%
Very well	109,902	53.6%	56,156	54.5%	53,746	52.7%
Not so well	53,276	26.0%	26,898	26.1%	26,378	25.8%
Barely/not at all	40,755	19.9%	19,397	18.8%	21,358	20.9%
DK/NS	1,190	0.6%	594	0.6%	594	0.6%
<b>Fluency of Spanish</b>						
Total	205,123	100.0%	103,045	100.0%	102,078	100.0%
Very well	106,795	52.1%	54,569	53.0%	52,226	51.2%
Not so well	21,848	10.7%	11,808	11.5%	10,040	9.8%
Barely/not at all	73,385	35.8%	35,127	34.1%	38,258	37.5%
DK/NS	3,095	1.5%	1,541	1.5%	1,554	1.5%
<b>RURAL</b>						
<b>Fluency of English</b>						
Total	110,835	100.0%	57,128	100.0%	53,707	100.0%
Very well	43,212	39.0%	23,147	40.5%	20,065	37.4%
Not so well	35,532	32.1%	18,344	32.1%	17,188	32.0%
Barely/not at all	31,387	28.3%	15,284	26.8%	16,103	30.0%
DK/NS	704	0.6%	838	1.5%	351	0.7%
<b>Fluency of Spanish</b>						
Total	110,835	100.0%	57,128	100.0%	53,707	100.0%
Very well	64,253	58.0%	34,000	59.5%	30,253	56.3%
Not so well	9,915	8.9%	5,854	10.2%	4,061	7.6%
Barely/not at all	35,208	31.8%	16,571	29.0%	18,637	34.7%
DK/NS	1,459	1.3%	703	1.2%	756	1.4%

Notes: The census questionnaire asked of all respondents four years old and over, whether they spoke English and/or Spanish "Very Well", "Not So Well", or "Not At All". Other languages were not included in the census analysis. DK/NS indicates where a respondent or enumerator reported 'don't know' or 'not sure'

Source: Central Statistical Office (2000) Population and Housing Census.

### II.2.3 Access to Services (health, schools, electricity)

**Table II.2.4.1. Percentage of households reporting electricity, radio, television, telephone and computer; 2000.**

	Electricity	Radio	Television	Telephone	Computer
<i>Country</i>	79	86.2	70.2	40.7	8.2
<i>Urban</i>	95	91.6	86	58.7	12.5
<i>Rural</i>	63.1	80.8	54.5	22.8	4.0
<i>Cayo</i>	71.8	88.0	63.4	37.6	9.2
<i>Corozal</i>	85.6	82.8	76.8	39.5	4.5
<i>Orange Walk</i>	80.6	81.7	73.0	34.8	4.6
<i>Belize</i>	93.4	92.0	86.2	57.1	13.3
<i>Stann Creek</i>	71.6	85.3	56.7	30.5	5.6
<i>Toledo</i>	41.3	74.7	31.7	14.9	2.9

Source: Central Statistical Office (2000) National Population and Housing Census

### II.2.4 Rural Urban Drift

**Table II.2.4.1. Total enumerated population and percent change; 1980, 1991 and 2000 by major divisions**

	1980	1991	2000	Percent change 1980-1991	Percent change 1991-2000
<i>Country</i>	145,353	189,392	240,204	30.30	26.83
<i>Urban</i>	76,277	90,005	114,541	18.00	21.42
<i>Rural</i>	69,076	99,387	125,663	43.88	26.44
<i>Cayo</i>	22,837	37,693	52,564	65.05	39.45
<i>San Ignacio</i>	5,616	8,962	13,260	59.58	47.96
<i>Belmopan</i>	2,935	3,558	8,130	21.23	128.50
<i>Rural</i>	11,851	21,593	25,086	82.20	20.81
<i>Corozal</i>	22,902	28,464	32,708	24.29	14.90
Corozal Town	6,899	7,062	7,888	2.36	11.70
Rural	16,003	21,402	24,820	33.74	15.90
<i>Orange Walk</i>	22,870	30,681	38,890	34.15	26.76
Orange Walk Town	8,439	11,014	13,383	30.51	22.40
Rural	14,431	19,667	25,407	36.28	29.20
<i>Belize</i>	50,801	57,030	68,197	12.26	19.58
Belize City	39,771	44,087	49,050	10.85	11.26
Rural	9,905	11,094	14,648	12.00	32.04
<i>Stann Creek</i>	14,181	18,085	24,548	27.53	35.74
Dangriga	6,661	6,435	8,814	-3.39	36.97
Rural	11,851	11,650	15,734	54.92	35.06
<i>Toledo</i>	11,762	17,439	23,297	48.27	33.59
Punta Gorda	2,396	3,458	4,329	44.32	25.19
Rural	9,366	13,981	18,968	49.27	35.67

Source: Central Statistical Office (2000) National Population and Housing Census

## II.3 Media and Telecommunications

### II.3.1 Newspapers, Periodicals, and Broadcast Media

*Table II.3.1 Newspapers, periodicals, and broadcast media*

NEWSPAPERS (all weekly – no daily newspapers in Belize)	
Name: <u>Alliance</u> Ownership: Private Circulation: 1,000 Weekly Agric and RD Focus: Limited Website: - Delivery outlets: Shops, gas stations nationwide and international subscribers	
Name: <u>Amandala*</u> Ownership: Private Circulation: 10,000 Weekly Agric and RD Focus: None regular Website: <a href="http://www.amandala.com.bz">www.amandala.com.bz</a> Delivery outlets: Shops, gas stations nationwide and international subscription	
Name: <u>Ambergris Today</u> Ownership: Private Circulation: 1,200 Weekly Agric and RD Focus: Limited Website: <a href="http://www.ambergistoday.com">www.ambergistoday.com</a> Delivery outlets: Stores on the islands and Belize City	
Name: <u>Belize Times*</u> Ownership: Private Circulation: 45,000 Weekly Agric and RD Focus: Weekly Website: <a href="http://www.belizetimes.bz">www.belizetimes.bz</a> Delivery outlets: Shops, gas stations nationwide and international subscribers	
Name: <u>Chinese Journal</u> Ownership: Private Circulation: 1,000 Weekly Agric and RD Focus: Limited Website: - Delivery outlets: Stores nationwide	
Name: <u>Guardian*</u> Ownership: Private Circulation: 4,000 Weekly Agric and RD Focus: Limited Website: <a href="http://www.guardian.bz">www.guardian.bz</a> Delivery outlets: Shops, gas stations nationwide and international subscribers	
Name: <u>Placencia Breeze</u> Ownership: Private Circulation: 2,000 Monthly Agric and RD Focus: Limited Website: <a href="http://www.placenciabreeze.com">www.placenciabreeze.com</a>	



NEWSPAPERS (all weekly – no daily newspapers in Belize)	
Delivery outlets:	Stores in the Placencia area and International subscribers.
Name:	<u>Reporter*</u>
Ownership:	Private
Circulation:	5,000 Weekly
Agric and RD Focus:	None regular
Website:	<a href="http://www.reporter.bz">www.reporter.bz</a>
Delivery outlets:	Shops and gas stations nationwide
Name:	<u>San Pedro Sun</u>
Ownership:	Private
Circulation:	3,000 Weekly
Agric and RD Focus:	Limited
Website:	<a href="http://www.sanpedrosun.net">www.sanpedrosun.net</a>
Delivery outlets:	Stores and gas station on the islands and Belize City
Name:	<u>The Liberator</u>
Ownership:	Private
Circulation:	--
Agric and RD Focus:	--
Website:	--
Delivery outlets:	Stores in the Stann Creek District

RADIO	
Name:	<u>BFBS</u> (British Forces Broadcasting Service) Radio
Ownership:	British Ministry of Defence
Broadcast hours:	24 per day
Agric and RD Focus:	None
Website:	--
Reach of broadcast:	20 miles around Belize City
Name:	<u>Centaur Radio</u>
Ownership:	Private
Broadcast hours:	24 hrs per day
Agric and RD Focus:	Limited
Website:	<a href="http://www.centaurcablenetwork.com">www.centaurcablenetwork.com</a>
Reach of broadcast:	Northern districts of Belize
Name:	<u>FM 2000</u>
Ownership:	Private
Broadcast hours:	6am to 12 mid-night
Agric and RD Focus:	Limited
Website:	<a href="http://www.fm2000.bz">www.fm2000.bz</a>
Reach of broadcast:	North to south
Name:	<u>Hamalali</u>
Ownership:	Private
Broadcast hours:	8am to 8pm
Agric and RD Focus:	weekly
Website:	--
Reach of broadcast:	Stann Creek District.
Name:	<u>KREM FM*</u>
Ownership:	Private
Broadcast hours:	5am to 12 mid-night
Agric and RD Focus:	Limited
Website:	<a href="http://www.krem.bz">www.krem.bz</a>
Reach of broadcast:	From Belize City to some northern & southern villages

RADIO	
Name:	<u>Love FM*</u>
Ownership:	Private
Broadcast hours:	24 hrs per day
Agric and RD Focus:	Limited
Website:	<a href="http://www.lovefm.com">www.lovefm.com</a>
Reach of broadcast:	Countrywide
Name:	<u>More FM*</u>
Ownership:	Private
Broadcast hours:	24 hrs per day
Agric and RD Focus:	Limited
Website:	<a href="http://www.morefm.com">www.morefm.com</a>
Reach of broadcast:	Belize City & some Northern and Southern Communities.
Name:	<u>My Refuge</u>
Ownership:	Private
Broadcast hours:	24 hrs per day
Agric and RD Focus:	Weekly
Website:	<a href="http://www.myrefugebelize.org">www.myrefugebelize.org</a>
Reach of broadcast:	Belmopan and surrounding communities.
Name:	<u>Power Mix</u>
Ownership:	Private
Broadcast hours:	6am to 10pm
Agric and RD Focus:	Weekly on Sundays
Website:	<a href="http://www.powermix.belize.com">www.powermix.belize.com</a>
Reach of broadcast:	Stann Creek District.
Name:	<u>PR FM</u>
Ownership:	Private
Broadcast hours:	6am to 12 mid-night
Agric and RD Focus:	Limited
Website:	--
Reach of broadcast:	Belize City
Name:	<u>Radio Vision</u>
Ownership:	Private
Broadcast hours:	5am to 10pm
Agric and RD Focus:	Upon request
Website:	--
Reach of broadcast:	San Ignacio to Belmopan.
Name:	<u>Reef Radio</u>
Ownership:	Private
Broadcast hours:	5:30am to 12 midnight
Agric and RD Focus:	None
Website:	--
Reach of broadcast:	San Pedro and Caye Caulker
Name:	<u>Wamalali</u>
Ownership:	Private
Broadcast hours:	9am to 9pm
Agric and RD Focus:	Limited
Website:	<a href="http://www.peini.com">www.peini.com</a>
Reach of broadcast:	Toledo District.

RADIO	
Name:	<u>WAVE Radio</u>
Ownership:	Private
Broadcast hours:	24 hrs per day
Agric and RD Focus:	Limited
Website:	--
Reach of broadcast:	Belize City, Orange Walk and some western communities
TELEVISION	
Name:	<u>Cable TV</u> : all major channels (60-70) from US and some other countries (e.g. China and UK)
Ownership:	Private
Agric and RD Focus:	90% of urban houses
Website:	Limited
Reach of broadcast:	All Major towns and some rural areas
Name:	<u>Channel 3 Centaur</u>
Ownership:	Private
Agric and RD Focus:	Limited
Website:	<a href="http://www.centaurcablenetwork.com">www.centaurcablenetwork.com</a>
Reach of broadcast:	Northern Districts of Belize.
Name:	<u>Channel 5*</u>
Ownership:	Private
Agric and RD Focus:	Limited
Website:	<a href="http://www.channel5belize.com">www.channel5belize.com</a>
Reach of broadcast:	Country wide
Name:	<u>Channel 7*</u>
Ownership:	Private
Agric and RD Focus:	Upon request
Website:	<a href="http://www.7newsbelize.com">www.7newsbelize.com</a>
Reach of broadcast:	Belize City, some Northern and Southern Communities.
Name:	<u>CBC Channel 8</u>
Ownership:	Private
Agric and RD Focus:	--
Website:	--
Reach of broadcast:	Belize City & Nearby Villages.
Name:	<u>KREM TV Channel 39</u>
Ownership:	Private
Agric and RD Focus:	Limited
Website:	<a href="http://www.krem.bz">www.krem.bz</a>
Reach of broadcast:	Belize City and surrounding Communities.
Name:	<u>Love Belize</u>
Ownership:	Private
Agric and RD Focus:	Upon request
Website:	<a href="http://www.lovefm.com">www.lovefm.com</a>
Reach of broadcast:	Belize city
BROADCAST PRODUCTION HOUSES	
Name:	<u>AEAU Productions</u>
Ownership:	Private
Agric and RD Focus:	Limited
Email:	<a href="mailto:jespjo@mycuz.net">jespjo@mycuz.net</a>
Name:	<u>Bel-Caribe Communications</u>
Ownership:	Private
Agric and RD Focus:	Limited
Email:	<a href="mailto:belcaribe@btl.net">belcaribe@btl.net</a>

BROADCAST PRODUCTION HOUSES	
Name:	<u>Blue Lunar Productions</u>
Ownership:	Private
Agric and RD Focus:	Limited
Email:	<a href="mailto:rtstaines@btl.net">rtstaines@btl.net</a>
Name:	<u>Fer de Lance</u>
Ownership:	Private
Agric and RD Focus:	Limited
Email:	<a href="mailto:fdlproductions@yahoo.com">fdlproductions@yahoo.com</a>
Name:	<u>Great Belize Productions</u>
Ownership:	Private
Agric and RD Focus:	Limited
Email:	<a href="mailto:gbtv@btl.net">gbtv@btl.net</a>
Name:	<u>Kungo Production</u>
Ownership:	Private
Agric and RD Focus:	Limited
Email:	-
Name:	<u>Kriol Gyal Prodokshans</u>
Ownership:	Private
Agric and RD Focus:	Limited
Email:	<a href="mailto:silvana@btl.net">silvana@btl.net</a>
Name:	<u>Shamax Productions</u>
Ownership:	Private
Agric and RD Focus:	Limited
Email:	<a href="mailto:shamaxproductions@hotmail.com">shamaxproductions@hotmail.com</a>
Name:	<u>13 Productions</u>
Ownership:	Private
Agric and RD Focus:	Limited
Email:	<a href="mailto:A13pro_office@yahoo.com">A13pro_office@yahoo.com</a>

\*Main newspapers, radio stations and national TV channels (limited local programming – mainly re-broadcast programmes from the US) in Belize

Agric and RD Focus: Agriculture and Research and Development Focus

### ***II.3.2 Telecommunication Services***

There are two telecommunication companies presently operating in Belize; BTL (Belize Telecommunications Ltd.) and Speednet. At the time of writing Speednet (a private company) has just began operating in Belize and is providing only a mobile communications service.

BTL is the original national telecommunications operator, its ownership being shared between the Government of Belize, two private individuals and a minority of share holders. According to BTL, there are more than 30,000 wireline customers (regular phone), 60,000 mobile subscribers and more than 10,000 internet customers. These numbers are increasing significantly each month. BTL continues to expand its network with recent focus on increasing service to rural areas. The most recent expansion has been to Maskall and Lucky Strike with other areas coming on stream shortly.

### ***II.3.3 Computers and Internet***

Computers are now widely used in the work place in Belize, with 8.2% (12.5% urban and 4.0% rural) of households reporting a computer in their home in 2000 (Table II.2.4.1.).

Internet is provided through the national telecommunications provider in Belize (BTL) in all major towns (through 'dial-up' and DSL (Digital Subscriber Line)), through some cable TV operators in some of the towns and (especially in rural areas) through subscription to satellite services.

#### Belize Telecommunications Limited

- 10,000 subscribers
- First 8 hours of dial-up internet is free and 10 cents per minute there after
- Cost of DSL / month: 128KB Bz\$100 (€38.69); 256KB Bz\$179 (€69.25); 512KB Bz\$300 (€116.07); 1 MB Bz\$500 (€193.45)

#### Channel Broadcasting Cable (CBC)

- 500-650 subscribers
- Offer only unlimited internet access
- Cost for monthly service: Residential: 128KB Bz\$117.72 (€45.54); 256KB, Bz\$182.52 (€70.62); 512KB, Bz\$290.52 (€112.40). Business: 128KB, Bz\$138.32 (€53.52); 256 KB, Bz\$214.92 (€83.15); 512KB, Bz\$322.92 (€124.94).

## ANNEX III. PROFILE OF INSTITUTIONS

### Annex III.1 List of Institutions in the Belize Agricultural Sector

Name and contacts	Type	Role
Name (acronym): <u>Agricultural Development &amp; Services Limited</u> . (ADS) Postal address: PO Box 132, Dangriga Town. Tel: 522-2110 / 2113 Fax: 520-2095 Email: <a href="mailto:agdevser@direcway.com">agdevser@direcway.com</a> Web site: -	PRV	PS-M
Name (acronym): <u>Agriculture and Natural Resources Institute</u> (ANRI) Postal address: Canada Hill Road, PO Box 203, Dangriga. Tel: 520-2085 Fax: 520-2085 Email: - Web site: -	EDU	TR, RD
Name (acronym): <u>Agriculture Department</u> , Faculty of Science and Technology, University of Belize Postal address: Department of Agriculture, Central Farm, Cayo District. Tel: 824-3775 / 4952 / 4934 Fax: 824-4933 Email: <a href="mailto:gcanto@ub.edu.bz">gcanto@ub.edu.bz</a> Web site: -	EDU	EX, IN, RD, TR
Name (acronym): <u>Agro-Vet Jiron</u> Postal address: Savannah Street, San Ignacio Tel/Fax: 824-3853 Email: <a href="mailto:agrovetjiji@btl.net">agrovetjiji@btl.net</a> Web site: -	PRV	PS-S
Name (acronym): <u>Association of National Development Agencies</u> (ANDA) Postal address: c/o Belize Enterprise for Sustainable Technology, 54 Miles, Hummingbird Highway, PO Box 35, Belmopan City. Tel: 822-3510 Fax: 822-2563 Email: - Web site: -	NGO	EX, IN
Name (acronym): <u>Banana Growers Association</u> (BGA) Postal address: Big Creek, Independence Village, Stann Creek District. Tel: 523-2000 / 2001 Fax: 523-2112 Email: <a href="mailto:banana@btl.net">banana@btl.net</a> Web site: -	AS-F	PS-E, EX, IN, PP, RD, RG, TR, TM.
Name (acronym): <u>Bel-Car</u> Postal address: PO Box 397, Belize City. Tel: 823-0318 / 0271 Fax: 823-0136 Email: <a href="mailto:bel-car@btl.net">bel-car@btl.net</a> Web site: -	PRV	
Name (acronym): <u>Belfertico / Banana Enterprise Limited</u> Postal address: Big Creek, Independence Village, Stann Creek District. Tel: 523-2166 / 2236 Fax: 523-2201 Email: <a href="mailto:bananaentp@btl.net">bananaentp@btl.net</a> Web site: -	NGO	EX, IN, PP, RG, TR
Name (acronym): <u>Belize Agricultural Health Authority</u> (BAHA) Postal address: Corner Forest Drive / Hummingbird Highway, Belmopan City. Tel: 822-0197 / 0818 / 1378 Fax: 822-0271 Email: <a href="mailto:baha@btl.net">baha@btl.net</a> Web site: <a href="http://www.baha.bz">www.baha.bz</a>	STA	RG, EX, IN, PP, TM

<b>Name and contacts</b>	<b>Type</b>	<b>Role</b>
Name (acronym): <u>Belize Aquaculture</u> Postal address: Blairatol, Placencia Rd., Stann Creek District. Tel: 521-2101 Fax: 521-2190 Email: <a href="mailto:micheal.bowen@balshrimp.com">micheal.bowen@balshrimp.com</a> Web site: -	PRV	PS-P, PS-M, PS-E
Name (acronym): <u>Belize Audubon Society (BAS)</u> Postal address: 12 North Front St., PO Box 1001, Belize City. Tel: 223-4987 / 4988 / 5004 Fax: 223-4985 Email: <a href="mailto:bas@btl.net">bas@btl.net</a> Web site: <a href="http://www.belizeaudubon.org">www.belizeaudubon.org</a>	NGO	EX, IN, PP, RG, TR
Name (acronym): <u>Belize Business Bureau (BBB)</u> Postal address: 69 Albert Street, 2 <sup>nd</sup> Floor, PO Box 1881, Belize City Tel: 227-0164 Fax: 227-0190 Email: <a href="mailto:bzbusbureau@btl.net">bzbusbureau@btl.net</a> Web site: <a href="http://www.belizebusinessbureau.org">www.belizebusinessbureau.org</a>	NGO	PP, RG, TM, IN
Name (acronym): <u>Belize Cane Farmers Association (BCFA) Corozal</u> Postal address: 19, 7 <sup>th</sup> Avenue, Corozal Town. Tel: 422-2092 Fax: 422-2611 Email: <a href="mailto:bcfaczl@btl.net">bcfaczl@btl.net</a> Web site: -	AS-F	EX, IN, PP, RG, TR
Name (acronym): <u>Belize Cane Farmers Association (BCFA)</u> Orange Walk Postal address: San Antonio Road, PO Box 20, Orange Walk. Tel: 322-3871 Fax: 322 3171 Email: - Web site: -	AS-F	EX, IN, PP, RG, TR
Name (acronym): <u>Belize Chamber of Commerce and Industry (BCCI)</u> Postal address: 63 Regent St., Belize City. Tel: 227-3148 / 0068 Fax: 227-4984 Email: <a href="mailto:bcci@btl.net">bcci@btl.net</a> Web site: -	CCI	EX,IN,PP,RG,TM
Name (acronym): <u>Belize Credit Union League</u> Postal address: PO Box 397, Belize City. Tel: 227-2510 / 0523 Fax: 227-1929 Email: <a href="mailto:bcul@btl.net">bcul@btl.net</a> Web site: -	BNK	EX,IN,FS.
Name (acronym): <u>Belize Enterprise for Sustainable Technology (BEST)</u> Postal address: PO Box 35, Belmopan City. Tel: 822-3034 / 3150 Fax: 822-2563 Email: <a href="mailto:best@btl.net">best@btl.net</a> Web site: <a href="http://www.best.org.bz">www.best.org.bz</a>	NGO	EX,IN,FS,TR,RU.
Name (acronym): <u>Belize Farm Center Limited</u> Postal address: 1 North Front St., Belize City. Tel: 223-5786 / 0619 Fax: 223-3256 Email: <a href="mailto:belizefarm@btl.net">belizefarm@btl.net</a> Web site: -	PRV	PS-S
Name (acronym): <u>Belize Fishermen Cooperative Association (BFCA)</u> Postal address: PO Box 751, Belize City. Tel: 223-2450 Fax: 223-3982 Email: <a href="mailto:bfca@btl.net">bfca@btl.net</a> Web site: <a href="http://www.bfca.bz">www.bfca.bz</a>	AS-F	PP, EX, IN

<b>Name and contacts</b>	<b>Type</b>	<b>Role</b>
Name (acronym): <u>Belize Fruit Packers</u> Postal address: San Andres Export Processing Zone, PO Box 94, Corozal Town. Tel: 442-2924 / 3937 / 2511 Fax: 442-2765 Email: <a href="mailto:Santiago@belizefruitpackers.com">Santiago@belizefruitpackers.com</a> Web site: -	PRV	PS-E
Name (acronym): <u>Belize Institute of Management</u> Postal address: PO Box 1156, Belize City. Tel: 223-3055 Fax: 223-3060 Email: <a href="mailto:bimbze@btl.net">bimbze@btl.net</a> Web site: -	EDU, OTH	TR, IN
Name (acronym): <u>Belize Livestock Producers Association (BLPA)</u> Postal address: PO Box 183, Belmopan City. Tel: 822-3883 Fax: 822-3883 Email: <a href="mailto:blpa@btl.net">blpa@btl.net</a> Web site: -	AS-F	EX, IN, PP, RG, TR, TM
Name (acronym): <u>Belize Marketing and Development Corporation (BMDC)</u> Postal address: 117 North Front St., PO Box 479, Belize City. Tel: 227-2585 / 7402 / 3409 Fax: 227-7656 Email: <a href="mailto:bmdcchqbze@btl.net">bmdcchqbze@btl.net</a> Web site: -	STA	EX, IN, PP, RG, TR, TM
Name (acronym): <u>Belize Mills Limited</u> Postal address: PO Box 911, Belize City. Tel: 223-2924 / 2925 Fax: 223-2175 Email: <a href="mailto:bzemills@btl.net">bzemills@btl.net</a> Web site: -	PRV	PS-M
Name (acronym): <u>Belize Minerals / Punta Gorda Dolomite</u> Postal address: PO Box 30, Punta Gorda Town Tel: 722 2477 Fax: 722 2483 Email: <a href="mailto:dolomite@btl.net">dolomite@btl.net</a> Web site: <a href="http://www.belizeminerals.com">www.belizeminerals.com</a> (under construction)	PRV	PS-M, PS-S
Name (acronym): <u>Belize Organic Producers Association (BOPA)</u> Postal address: 9 Miles Stann Creek Valley Rd., PO Box 7, Dangriga Town. Tel: 522-3535 / 3585 Fax: 522-3511 / 2686 Email: <a href="mailto:crei@belizecitrus.org">crei@belizecitrus.org</a> Web site: -	AS-F, NGO	EX, IN, PP, RD, RG, TR, TM, RU
Name (acronym): <u>Belize Poultry Association</u> Postal address: 9 Far West St. , San Ignacio, Cayo District. Tel: 824-3221 Fax: 824-3235 Email: <a href="mailto:bpa2003@btl.net">bpa2003@btl.net</a> Web site: -	AS-F	EX, IN
Name (acronym): <u>Belize Sugar Industries (BSI)</u> Postal address: PO Box. 29, Tower Hill, Orange Walk. Tel: 322-2150 / 3319 / 3320 Fax: 322-3249 Email: <a href="mailto:bsil@btl.net">bsil@btl.net</a> Web site: -	PRV	EX, IN, PS-M, RD, TR, TM, PS-E



<b>Name and contacts</b>	<b>Type</b>	<b>Role</b>
Name (acronym): <u>Belize Tourism Board (BTB)</u> Postal address: PO Box 325, Belize City. Tel: 223-1913 / 1910 Fax: 223-1943 Email: <a href="mailto:info@travelbelize.org">info@travelbelize.org</a> Web site: <a href="http://www.travelbelize.org">www.travelbelize.org</a>	GOV	RG, TR, IN, PP
Name (acronym): <u>Belmaize</u> Postal address: PO Box 13, San Ignacio, Cayo District. Tel: 824-3353 Fax: 824-3353 Email: <a href="mailto:palmsspring@btl.net">palmsspring@btl.net</a> Web site: -	PRV	PS-E
Name (acronym): <u>BELTRAIDE</u> (Belize Trade and Investment Development Service) Postal address: 14 Orchid Garden St., Belmopan City. Tel: 822-3737 / 0175 / 0177 / 0178 Fax: 822-0595 Email: <a href="mailto:beltraide@belize.gov.bz">beltraide@belize.gov.bz</a> Web site: <a href="http://www.belizeinvest.org.bz">www.belizeinvest.org.bz</a>	STA	EX, IN, PP, RG, TR, TM
Name (acronym): <u>Bureau of Standards</u> Postal address: 16 Regent Street, PO Box 1647, Belize City Tel: 227-2314 Fax: 227-0711 Email: <a href="mailto:bbs@btl.net">bbs@btl.net</a> Web site: -	STA	PP, RG
Name (acronym): <u>Cayo Tropical Fruits Ltd. / Big H</u> Postal address: 35 Buena Vista St., Sam Ignacio, Cayo District. Tel: 824-2646 / 2444 Fax: 824-3075 Email: <a href="mailto:inquiries@bighjuices.com">inquiries@bighjuices.com</a> Web site: <a href="http://www.bighjuices.com">www.bighjuices.com</a>	PRV	PS-M, PS-E
Name (acronym): <u>Brodies, James and Co Ltd., Agrochemicals Retail</u> Postal address: 2.5 Miles Northern Highway, PO Box 365, Belize City. Tel: 227-7070 Fax: 227-5593 Email: <a href="mailto:brodies@btl.net">brodies@btl.net</a> Web site: -	PRV	EX, IN, PP, RG, TR, TM
Name (acronym): <u>Caribbean Agricultural Research Development Institute (CARDI)</u> Postal address: PO Box 2, Belmopan City. Tel: 824-2934 Fax: 824-2634 Email: <a href="mailto:cardi@btl.net">cardi@btl.net</a> Web site: <a href="http://www.cardi.org">www.cardi.org</a>	REG	EX, IN, RD, TR, RU
Name (acronym): <u>Caribeña Producers Cooperative Society</u> Postal address: PO Box 12, San Pedro, Belize District Tel: 226-2011 Fax: 226-2035 Email: - Web site: -	AS-F	EX, IN, TM
Name (acronym): <u>Caricom Fisheries Unit</u> Postal address: PO Box 642, Belize City. Tel: 223-4443 Fax: 223-4446 Email: <a href="mailto:crfm@btl.net">crfm@btl.net</a> Web site: <a href="http://www.caricom-fisheries.com">www.caricom-fisheries.com</a>	REG	PP, RG, TM
Name (acronym): <u>Cashew Growers Association</u> Postal address: 117 North Front St., Belize City. Tel: 227-7492 Fax: 227-5867 Email: <a href="mailto:bzecashewprod@yahoo.com">bzecashewprod@yahoo.com</a> Web site: -	AS-F	EX, IN, TM, PS-M

<b>Name and contacts</b>	<b>Type</b>	<b>Role</b>
Name (acronym): <u>Central Farm Agriculture Research Station</u> Postal address: Central Farm, Cayo District. Tel: 824-2129 / 2131 Fax: 824-3774 Email: <a href="mailto:central_farm@yahoo.com">central_farm@yahoo.com</a> Web site: -	GOV	EX, IN, PP, RD, TR, RU
Name (acronym): <u>Central Statistical Office (CSO)</u> Postal address: Corner Culvert Rd./Mountain View, Belmopan City. Tel: 822-2207 / 2352 Fax: 822-3206 Email: <a href="mailto:csogov@btl.net">csogov@btl.net</a> Web site: <a href="http://www.cso.gov.bz">www.cso.gov.bz</a>	GOV	EX, IN
Name (acronym): <u>Citrus Growers Association (CGA)</u> Postal address: 9 Miles Stann Creek Valley Rd., PO Box 7, Dangriga Town. Tel: 522-3535 / 3585 / 3547 Fax: 522-2686 / 3511 Email: <a href="mailto:cga@belizecitrus.org">cga@belizecitrus.org</a> Web site: <a href="http://www.belizecitrus.org">www.belizecitrus.org</a>	NGO, AS-F	EX, IN, FS, PP, RG, RD, TR, TM, RU
Name (acronym): <u>Citrus Research and Education Institute (CREI)</u> Postal address: 9 Miles Stann Creek Valley Rd., PO Box 72, Dangriga Town. Tel: 522-3535 / 3585 / 3547 Fax: 522-2686 / 3511 Email: <a href="mailto:crei@belizecitrus.org">crei@belizecitrus.org</a> Web site: <a href="http://www.belizecitrus.org">www.belizecitrus.org</a>	NGO, AS-F	EX, IN, PP, RG, TR
Name (acronym): <u>Citrus Products of Belize Limited</u> Postal address: PO Box 25, Dangriga Town. Tel: 522-2055 / 2080 / 2575 Fax: 522-2136 / 3368 Email: <a href="mailto:Citcom@btl.net">Citcom@btl.net</a> Web site: -	PRV	PS-M, PS-E, TM
Name (acronym): <u>Citrus Growers and Workers Credit Union</u> Postal address: PO Box 227, Dangriga Town. Tel: 522-2145 Fax: 522-0193 Email: <a href="mailto:cgwcu_dangriga@btl.net">cgwcu_dangriga@btl.net</a> Web site: -	BNK	FS, RU
Name (acronym): <u>Coastal Zone Management Authority</u> Postal address: Princess Margaret Drive, PO Box 1884, Belize City. Tel: 223-0719 / 5739 Fax: 223-5738 Email: <a href="mailto:czmbe@btl.net">czmbe@btl.net</a> Web site: <a href="http://www.coastalzonebelize.org">www.coastalzonebelize.org</a>	STA	EX, IN, PP, RD, RG, TR
Name (acronym): <u>Community Initiated Agriculture and Rural Development Project (CARD)</u> Postal address: 5 Miles, San Antonio Rd., PO Box 128, Punta Gorda Town, Toledo District. Tel: 720-2015 / 2016 / 0195 Fax: 722-0195 Email: <a href="mailto:cardtol@btl.net">cardtol@btl.net</a> Web site: -	OTH	EX, IN, FS, TR, RU
Name (acronym): <u>Cooperatives Department</u> , Ministry of Agriculture and Fisheries Postal address: 117 North Front St., PO Box 159, Belize City. Tel: 227-5826 / 7429 Fax: 227-5867 Email: <a href="mailto:hmiranda@hotmail.com">hmiranda@hotmail.com</a> Web site: -	GOV	EX, IN, PP, RG, TR, RU

<b>Name and contacts</b>	<b>Type</b>	<b>Role</b>
Name (acronym): <u>Country Meat Products</u> Postal address: PO Box 427, Belize City. Tel: 823-8038 Fax: 823-8044 Email: - Web site: -	PRV	PS-M
Name (acronym): <u>Development Finance Corporation (DFC)</u> Postal address: Bliss Parade, PO Box 40, Belmopan City. Tel: 822-2575 / 2360 Fax: 822-3096 / 0748 Email: <a href="mailto:info@dfcbelize.org">info@dfcbelize.org</a> Web site: <a href="http://www.dfcbelize.org">www.dfcbelize.org</a>	BNK	EX, IN, FS
Name (acronym): <u>Department for International Development (DfID)</u> Postal address: British High Commission, P O Box 91, Belmopan, Tel: 822-2146/7 Fax: 822-2761/822-3694 Web site: <a href="http://www.dfid.gov.uk/countries/caribbean/belize.asp">www.dfid.gov.uk/countries/caribbean/belize.asp</a>	GOV, OT	EX, IN, TR, RU
Name (acronym): <u>Fisheries Department</u> , Ministry of Agriculture and Fisheries Postal address: Princess Margaret Drive, PO Box 148, Belize City. Tel: 223-2623 / 2187 Fax: 223-2983 Email: <a href="mailto:species@btl.net">species@btl.net</a> Web site: <a href="http://www.agriculture.gov.bz">www.agriculture.gov.bz</a>	GOV	EX, PP, IN, RG, TR , RU, RD, TM
Name (acronym): <u>Forestry Department</u> , Ministry of Natural Resources and the Environment Postal address: 2325 Unity Blvd., Belmopan City. Tel: 822-1524 / 2079 Fax: 822-1523 Email: <a href="mailto:fdsecretary@mnrei.gov.bz">fdsecretary@mnrei.gov.bz</a> Web site: <a href="http://www.mnrei.gov.bz">www.mnrei.gov.bz</a>	GOV	EX, PP, IN, RG, TR, RU, RD, TM
Name (acronym): <u>Friends for Conservation and Development (FCD)</u> Postal address: San Jose Succotz, Cayo District. Tel: 823-2657 Fax: - Email: <a href="mailto:fcd@btl.net">fcd@btl.net</a> Web site: -	NGO	EX, IN, RD
Name (acronym): <u>Fruta Bomba</u> Postal address: PO Box 192, Corozal Town. Tel: 423-0333 / 0336 / 0050 Fax: 423-0179 Email: <a href="mailto:gilberto@frutabomba.com">gilberto@frutabomba.com</a> Web site: -	PRV	RD, IN, PS-E, TR, TM
Name (acronym): <u>Golden Stream Nature Preserve</u> Postal address: PO Box 177, Punta Gorda Town. Tel: 722-0108 Fax: 722-0108 Email: <a href="mailto:yct_gscp@direcway.com">yct_gscp@direcway.com</a> Web site: <a href="http://www.yct.bz">www.yct.bz</a>	NGO	EX, RD, TR, RU
Name (acronym): <u>Help for Progress (HFP)</u> Postal address: Forest Drive, PO Box 97, Belmopan City. Tel: 822-2371 / 2543 Fax: 822-1099 Email: <a href="mailto:progressbelize@hotmail.com">progressbelize@hotmail.com</a> Web site: <a href="http://www.helpforprogress.org">www.helpforprogress.org</a>	NGO	EX, IN, TR, RU
Name (acronym): <u>Hot Pepper Growers Association</u> Postal address: c/o Agriculture Department, Banquita Plaza, Orange Walk Town. Tel: 322-2149 Fax: 322-2541 Email: - Web site: -	AS-F	EZ, IN, TR

<b>Name and contacts</b>	<b>Type</b>	<b>Role</b>
Name (acronym): <u>Inter-American Institute for Cooperation on Agriculture (IICA)</u> Postal address: PO Box 448, Belmopan City. Tel: 822-0222 / 1087 Fax: 822-0286 Email: <a href="mailto:iica@btl.net">iica@btl.net</a> Web site: <a href="http://www.iica.int">www.iica.int</a>	REG	EX, IN, RD, TR, RU
Name (acronym): <u>Itzamna Society</u> Postal address: PO Box 75, San Ignacio, Cayo District Tel: 820 4023 Fax: - Email: <a href="mailto:aristmai1981@btl.net">aristmai1981@btl.net</a> Web site: -	NGO	EX, IN, TR, RU
Name (acronym): <u>Land Information Centre (LIC)</u> , Ministry of Natural Resources and the Environment, Postal address: Market Square, Belmopan City. Tel: 822-2249 / 2232 / 2711 Fax: 822-2333 / 1526 Email: <a href="mailto:lic@gov.bz">lic@gov.bz</a> or <a href="mailto:lincenbze@btl.net">lincenbze@btl.net</a> Web site: <a href="http://www.mnrei.gov.bz">www.mnrei.gov.bz</a>	GOV	EX, PP, IN, RG, TR , RU, RD, TM
Name (acronym): <u>Las Cuevas Forest Research Station</u> Postal address: c/o Belize Communication & Security Ltd, PO Box 410, Belmopan City. Tel: 822-2149 Fax: 822-3361 Email: <a href="mailto:chris@mayaforest.com">chris@mayaforest.com</a> Web site: <a href="http://www.mayaforest.com">www.mayaforest.com</a>	REG	EX, IN, RD
Name (acronym): <u>Limbe / Spanish Lookout Lime</u> Postal address: PO Box 427, Belize City. Tel: 823 0282 Fax: 823 0260 Email: <a href="mailto:abedueck@hotmail.com">abedueck@hotmail.com</a> Web site: -	PRV	PS-M, PS-S
Name (acronym): <u>Marie Sharp Fine Food Products</u> Postal address: PO Box 6, Dangriga Town. Tel: 522-2370 Fax: 522-3504 Email: <a href="mailto:fierylady36@yahoo.com">fierylady36@yahoo.com</a> Web site: <a href="http://www.mariesharp-bz.com">www.mariesharp-bz.com</a>	PRV	PS-M, PS-E, TM
Name (acronym): <u>Ministry of Agriculture and Fisheries (MAF)</u> Postal address: 2 <sup>nd</sup> Floor, West Block Building, Belmopan City. Tel: 822-2241 / 2242 / 2243 Fax: 822-2409 Email: <a href="mailto:minaf@btl.net">minaf@btl.net</a> Web site: <a href="http://www.agriculture.gov.bz">www.agriculture.gov.bz</a>	GOV	EX, PP, IN, RG, TR, RU, RD, TM
Name (acronym): <u>Ministry of Finance (MOF)</u> Postal address: 3 <sup>rd</sup> Floor, Administration Building, Belmopan City. Tel: 822-2158 / 2152 / 2362 / 2169 Fax: 822-2886 Email: <a href="mailto:finrevenue@mof.gov.bz">finrevenue@mof.gov.bz</a> Web site: <a href="http://www.belize.gov.bz">www.belize.gov.bz</a>	GOV	EX, PP, IN, RG, TR, RU, RD, TM
Name (acronym): <u>Ministry of Human Development, Women, Children, and Civil Society</u> Postal address: West Block Building, Belmopan City. Tel: 822-2246 / 2161 / 2684 Fax: 822-3175 Email: <a href="mailto:mhd@btl.net">mhd@btl.net</a> Web site: <a href="http://www.mohd.gov.bz">www.mohd.gov.bz</a>	GOV	EX, PP, IN, RG, TR , RU, RD, TM

<b>Name and contacts</b>	<b>Type</b>	<b>Role</b>
Name (acronym): <u>Ministry of National Development</u> Postal address: Administration Building, PO Box 42, Belmopan Tel: 822-2526 Fax: 822-3673 Email: <a href="mailto:econdev@btl.net">econdev@btl.net</a> Web site: -	GOV	PP, RG
Name (acronym): <u>National Coordinating Committee for Agricultural Research and Development (NCCARD)</u> Postal address: c/o Central Farm Agriculture Research Station, Central Farm, Cayo District. Tel: 824-2129 / 2131 Fax: 824-3774 Email: <a href="mailto:central-farm@yahoo.com">central-farm@yahoo.com</a> Web site: -	OTH	EX, IN, RD, PP, RG
Name (acronym): <u>National Development Foundation of Belize</u> Postal address: 2882 Coney Drive, Belize City Tel: 223-1132 Fax: 223-1195 Email: <a href="mailto:ndfbze@btl.net">ndfbze@btl.net</a> Web site: -	NGO, BNK	FS, TR
Name (acronym): <u>National Fishermen Producers Co-operative Society Limited</u> Postal address: PO Box 316, Belize City Tel: 227-3165 / 8039 Fax: 227-1300 Email: <a href="mailto:natfish@btl.net">natfish@btl.net</a> Web site: -	AS-F	EX, PP, RG
Name (acronym): <u>National Meteorological Service</u> Postal address: PSW Goldson Int'l Airport, PO Box 717, Belize City. Tel: 225-2054 / 2011 / 2012 Fax: 225-2101 Email: <a href="mailto:cfuller@btl.net">cfuller@btl.net</a> / <a href="mailto:cfuller@hydromet.gov.bz">cfuller@hydromet.gov.bz</a> Web site: <a href="http://www.hydromet.gov.bz">www.hydromet.gov.bz</a>	GOV	EX, IN, RD, TR
Name (acronym): <u>New River Enterprises Ltd.</u> Postal address: 6 Westly St., PO Box 164, Orange Walk Town. Tel: 322-2225 / 3373 Fax: 322-2528 Email: <a href="mailto:nreloskot@btl.net">nreloskot@btl.net</a> Web site: <a href="http://www.newriverenterprises.com">www.newriverenterprises.com</a>	PRV	PS-M, PS-E
Name (acronym): <u>Northern Fishermen Co-operative Limited</u> Postal address: 49 North Front St., PO Box 647, Belize City. Tel: 224-4488 / 4460 Fax: 223-0978 Email: <a href="mailto:norficoop@btl.net">norficoop@btl.net</a> Web site: -	AS-F	EX, IN, PP, RG
Name (acronym): <u>NOVA Companies Belize Limited</u> Postal address: 12.5 Miles Northern Highway, PO Box 1360, Belize City. Tel: 225-2301 / 2614 / 3067 / 3058 Fax: 225-2306 Email: <a href="mailto:mescarpeta@bluecadia.com">mescarpeta@bluecadia.com</a> Web site: <a href="http://www.bluecadia.com">www.bluecadia.com</a>	PRV	PS-M, PS-E
Name (acronym): <u>Oak Foundation</u> Postal address: 1216 Blue Marlin Drive, PO Box 1161, Belize City. Tel: 223-5813 Fax: 223-5814 Email: Web site: -		

<b>Name and contacts</b>	<b>Type</b>	<b>Role</b>
Name (acronym): <u>Organismo Internacional Regional de Sanidad Agropecuaria</u> / International Regional Organization for Plant and Animal Health (OIRSA) Postal address: National Agriculture Show Grounds, PO Box 426, Belmopan Tel: 822-0521 Fax: 822 0522 Email: <a href="mailto:oirsabze@btl.net">oirsabze@btl.net</a> Web site: <a href="http://www.oirsa.org">www.oirsa.org</a>	REG	EX, IN, PP, RG, TR
Name (acronym): <u>Organizacion del Sector Pesquero y Acuicola del Istmo Centroamericano</u> / Central American Organization of the Fisheries and Aquaculture Sector (OSPESCA) Postal address: c/o Plan Regional de Pesca y Acuicultura Continental / Inland Fisheries and Aquaculture Regional Plan (PREPAC), Fisheries Dep. Compound, Princess Margaret Drive, PO Box 48, Belize City Tel: 223-3454 Fax: 223-5738 Email: <a href="mailto:prepacbc1@hotmail.com">prepacbc1@hotmail.com</a> / <a href="mailto:prepac@btl.net">prepac@btl.net</a> Web site: <a href="http://www.sgsica.org">www.sgsica.org</a>	REG	EX, IN, PP, RG, RD
Name (acronym): <u>Organization of American States</u> (OAS) Postal address: Blake Office Building, 301 Hudson St., PO Box 2019, Belize City. Tel: 223-3114 Fax: 223-3130 Email: <a href="mailto:oasbz@btl.net">oasbz@btl.net</a> Web site: <a href="http://www.oas.org">www.oas.org</a>	OTH	PP, RG
Name (acronym): <u>Pan American Health Organization</u> (PAHO) Postal address: 168 Newtown Barracks, PO Box 1834, Belize City. Tel: 224-4885 / 4852 / 5536 Fax: 223-0917 Email: <a href="mailto:admin@blz.paho.org">admin@blz.paho.org</a> Web site: <a href="http://www.blz.paho.org">www.blz.paho.org</a>	REG	EX, IN
Name (acronym): <u>Pesticide Control Board</u> (PCB) Postal address: Central Farm, Cayo District. Tel: 824-2640 Fax: 824-3486 Email: <a href="mailto:pcbinfo@btl.net">pcbinfo@btl.net</a> Web site: <a href="http://www.pcbbelize.com">www.pcbbelize.com</a>	STA	EX, IN, PP, RG, TR
Name (acronym): <u>Pine Lumber Company Limited</u> Postal address: PO Box 115, San Ignacio, Cayo District. Tel: 824-4093 / 3255 Fax: 824-3257 Email: <a href="mailto:pinelumber@btl.net">pinelumber@btl.net</a> Web site: -	PRV	PS-M, TM
Name (acronym): <u>Placencia Fishermen Cooperative</u> Postal address: Point Placencia Village, Stann Creek District. Tel: 523-3102 Fax: - Email: - Web site: -	AS-F	EX, IN
Name (acronym): <u>Plenty Belize</u> (PLENTY) Postal address: 563 Jose Maria Nunez St., Punta Gorda Town. Tel: 722-2197 Fax: 722-2197 Email: <a href="mailto:plentybz@btl.net">plentybz@btl.net</a> Web site: <a href="http://www.plenty.org">www.plenty.org</a>	NGO	EX, RU
Name (acronym): <u>Programme for Belize</u> (PfG) Postal address: 1 Eyre St., PO Box 749, Belize City. Tel: 227-5616 Fax: 227-5635 Email: <a href="mailto:pfbel@btl.net">pfbel@btl.net</a> Web site: <a href="http://www.pfbelize.org">www.pfbelize.org</a>	NGO	EX, IN, PP, RG, TR

<b>Name and contacts</b>	<b>Type</b>	<b>Role</b>
Name (acronym): <u>Prosser Fertilizer and Agrotec Limited</u> Postal address: 8 Mile Western Highway, PO Box 566, Belize City. Tel: 223-5384 / 5392 / 5410 Fax: 222-5548 Email: <a href="mailto:prosser@btl.net">prosser@btl.net</a> Web site: -	PRV	PS-M, PS-S
Name (acronym): <u>Protected Areas Conservation Trust (PACT)</u> Postal address: 2 Mango St., PO Box 443, Belmopan City. Tel: 822-0642 / 3637 / 2187 Fax: 822-0825 / 3759 Email: <a href="mailto:info@pactbelize.org">info@pactbelize.org</a> Web site: <a href="http://www.pactbelize.org">www.pactbelize.org</a>	NGO, OTH	FS, EX, IN, OT
Name (acronym): <u>Quality Poultry Products</u> Postal address: PO Box 349, Belize City. Tel: 823-0113 / 0264 / 0265 Fax: 823-0248 Email: <a href="mailto:qppspl@btl.net">qppspl@btl.net</a> Web site: -	PRV	PS-P, PS-E
Name (acronym): <u>Reimer's Feed Mill</u> Postal address: PO Box 456, Belize City. Tel: 823-0105 / 0273 Fax: 823-0299 Email: <a href="mailto:reimerfeed@btl.net">reimerfeed@btl.net</a> Web site: -	PRV	PS-M
Name (acronym): <u>Republic of China (ROC) Taiwanese Technical Mission</u> Postal address: PO Box 43, San Ignacio, Cayo District. Tel: 824-3033 Fax: 824-3724 Email: <a href="mailto:roctmbz@btl.net">roctmbz@btl.net</a> Web site: -	OTH	EX, IN, RD, TR, TM
Name (acronym): <u>Rio Azul Processing and Cannery</u> Postal address: Blue Creek, PO Box 2, Orange Walk Town. Tel: 323-0983 Fax: 323-0983 Email: <a href="mailto:rioazulpc@yahoo.com">rioazulpc@yahoo.com</a> Web site: -	PRV	PS-M
Name (acronym): <u>Running W</u> Postal address: PO Box 175, San Ignacio, Cayo District Tel: 824-2126 / 2765 Fax: 824-3522 Email: <a href="mailto:runningw@btl.net">runningw@btl.net</a> Web site: -	PRV	PS-P, PS-M, PS-E
Name (acronym): <u>Rural Development Department</u> , Ministry of Human Development and Civil Society Postal address: 3 <sup>rd</sup> Floor Diamond Building, Constitution Drive, Belmopan City. Tel: 822-3915 / 3990 / 3924 / 2663 Fax: 822-3365 Email: <a href="mailto:minsillg@btl.net">minsillg@btl.net</a> Web site: <a href="http://www.gov.bz">www.gov.bz</a>	GOV	EX, PP, IN, RG, TR, RU, RD, TM
Name (acronym): <u>Sabal's Ereba</u> Postal address: Stann Creek Dist. Tel: 502-0016 Fax: - Email: - Web site: -	PRV	PS-P, PS-M
Name (acronym): <u>Southern Alliance for Grassroots Empowerment (SAGE)</u> Postal address: 53 Main Middle St., Punta Gorda Town. Tel: 722-2744 Fax: 722-2744 Email: <a href="mailto:sagetol@btl.net">sagetol@btl.net</a> Web site: -	NGO	RU, OTH

<b>Name and contacts</b>	<b>Type</b>	<b>Role</b>
Name (acronym): <u>Shrimp Growers Association</u> Postal address: c/o Alvin Henderson, Independence Village, Stann Creek Dist. Tel: 523-2282 Fax: 523-2262 Email: <a href="mailto:alclaudia@btl.net">alclaudia@btl.net</a> Web site: -	AS-F	EX, IN
Name (acronym): <u>Sibun Watershed Association</u> Postal address: c/o PO Box 104, Belmopan City. Tel: 610-3013 Fax: - Email: - Web site: -	AS-F	EX, IN, PP, RD, RG, TR
Name (acronym): <u>Small Farmers Business Bank</u> Postal address: South Ring Road, PO Box 57, Belmopan City. Tel: 822-3608 / 0826 / 0827 Fax: 822-3713 Email: <a href="mailto:ssbb@btl.net">ssbb@btl.net</a> Web site: -	BNK	FS
Name (acronym): <u>Social Investment Fund (SIF)</u> Postal address: Constitution Drive, PO Box 459, Belmopan City. Tel: 822-0239 / 0508 Fax: 822-0279 Email: <a href="mailto:sifbze@btl.net">sifbze@btl.net</a> Web site: -	STA	FS
Name (acronym): <u>Social Security Board (SSB)</u> Postal address: Bliss Parade, PO Box 18, Belmopan City Tel: 822-2163 / 2471 / 2513 Fax: 822-3331 Email: <a href="mailto:infr@socialsecurity.org.bz">infr@socialsecurity.org.bz</a> Web site: -	BNK	FS
Name (acronym): <u>St. Francis Xavier Credit Union</u> Postal address: 79 Corner 5 <sup>th</sup> Avenue / 1 <sup>st</sup> St. North, PO Box 174, Corozal Town. Tel: 422-2892 / 0075 Fax: 442-3611 Email: <a href="mailto:sfxaiver@btl.net">sfxaiver@btl.net</a> Web site: -	BNK	FS
Name (acronym): <u>St. Johns Credit Union</u> Postal address: PO Box 1673, Belize City. Tel: 227-7659 / 2575 / 0752 Fax: 227-1050 Email: <a href="mailto:sjcu@btl.net">sjcu@btl.net</a> Web site: <a href="http://www.stjohnscreditunion.bz">www.stjohnscreditunion.bz</a>	BNK	FS
Name (acronym): <u>Sugar Control Board (SCB)</u> Postal address: 1 Fonseca St., Orange Walk Town. Tel: 322-3141 Fax: 322-0404 Email: <a href="mailto:scib_belize@yahoo.com">scib_belize@yahoo.com</a> Web site: -	STA	RG, PP
Name (acronym): <u>Sugar Industry Research and Development Institute (SIRDI)</u> Postal address: 1 Fonseca St., Orange Walk Town. Tel: 322-3141 Fax: 322-0404 Email: <a href="mailto:scib_belize@yahoo.com">scib_belize@yahoo.com</a> or <a href="mailto:mamejia01@yahoo.com">mamejia01@yahoo.com</a> Web site: -	STA	EX, IN, RD
Name (acronym): <u>Sustainable Harvest International (SHI)</u> Postal address: Vernon and Front St., PO Box 72, Punta Gorda Town. Tel: 722-2010 Fax: 722-2010 Email: <a href="mailto:candido@btl.net">candido@btl.net</a> Web site: <a href="http://www.sustainableharvest.org">www.sustainableharvest.org</a>	NGO	EX, RU, IN



<b>Name and contacts</b>	<b>Type</b>	<b>Role</b>
Name (acronym): <u>Tex-Mar Limited</u> Postal address: Bom Bom Landing, Independence Village, Stann Creek District. Tel: 520-3075 Fax: 520-3075 Email: - Web site: -	PRV	PS-M, PS-E
Name (acronym): <u>The Nature Conservancy (TNC)</u> Postal address: PO Box 170, Punta Gorda Town. Tel: 722-2503 or 223-1747 Fax: 722-0096 Email: <a href="mailto:nrequenia@tnc.org">nrequenia@tnc.org</a> Web site: <a href="http://www.nature.org">www.nature.org</a>	NGO	
Name (acronym): <u>The Wood Depot Co. Limited</u> Postal address: Forest Drive, PO Box 15, Belmopan City. Tel: 822-2387 / 2049 Fax: 822-2096 Email: <a href="mailto:info@wooddepot.com.bz">info@wooddepot.com.bz</a> Web site: <a href="http://www.themenagroup.biz">www.themenagroup.biz</a>	PRV	PS-M
Name (acronym): <u>Toledo Association for Sustainable Empowerment (TASTE)</u> Postal address: 53 Main Middle St., PO Box 18, Punta Gorda Town. Tel: 722-0191 Fax: 722-2070 Email: <a href="mailto:taste_scmr@btl.net">taste_scmr@btl.net</a> Web site: -	NGO	EX, IN, RU
Name (acronym): <u>Toledo Cacao Growers Association (TCGA)</u> Postal address: Main St., PO Box 160, Punta Gorda Town. Tel: 722-2992 Fax: 722-0101 Email: <a href="mailto:tcga@btl.net">tcga@btl.net</a> Web site: -	AS-F	EX, IN, PP, PS-E, RD, TR, TM, RU
Name (acronym): <u>Toledo Development Corporation (TDC)</u> Postal address: PO Box 174, Punta Gorda Town. Tel: 702-2275 / 2224 Fax: 702-2217 Email: <a href="mailto:tdcprosper@btl.net">tdcprosper@btl.net</a> Web site: -	STA	PP, RU, IN, EX
Name (acronym): <u>Toledo Institute for Development and the Environment (TIDE)</u> Postal address: PO Box 150, Punta Gorda Town. Tel: 722-2274 / 2431 Fax: 722-2655 Email: <a href="mailto:info@tidebelize.org">info@tidebelize.org</a> Web site: <a href="http://www.tidebelize.org">www.tidebelize.org</a>	NGO	EX, IN, RU
Name (acronym): <u>Toledo Maya Women's Council (TMWC)</u> Postal address: Jose Maria Nunez St., Punta Gorda Town. Tel: 722-0043 Fax: 722-0043 Email: <a href="mailto:tolmaya@btl.net">tolmaya@btl.net</a> Web site: -		
Name (acronym): <u>United Nations Development Program (UNDP)</u> Postal address: 7 Constitution Drive, PO Box 53, Belmopan City. Tel: 822-2688 Fax: 822-3364 Email: <a href="mailto:undp.belize@undp.org">undp.belize@undp.org</a> Web site: <a href="http://www.undpbelize.org">www.undpbelize.org</a>	REG	EX, IN, FS, TR
Name (acronym): <u>United Nations Children's Fund (UNICEF)</u> Postal address: 831 Coney Drive, 2 <sup>nd</sup> Floor Fultec Building, PO Box 2672, Belize City. Tel: 223-3864 / 3609 Fax: 223-3891 Email: <a href="mailto:pperez@unicef.org">pperez@unicef.org</a> Web site: <a href="http://www.unicef.org">www.unicef.org</a>	REG	EX, IN, TR, RU

Name and contacts	Type	Role
Name (acronym): <u>Vegetable Producers Association</u> Postal address: c/o Agriculture Department, Banquita Plaza, Orange Walk Town. Tel: 332-2149 Fax: 322-2541 Email: - Web site: -	AS-F	EX, IN
Name (acronym): <u>Western Dairies</u> Postal address: PO Box 464, Belize City. Tel: 823-0112 Fax: 823-0335 Email: <a href="mailto:sales@westerndairies.com">sales@westerndairies.com</a> Web site: -	PRV	RS-M
Name (acronym): <u>Yax Che Conservation Trust</u> Postal address: PO Box 177, Punta Gorda Town. Tel: 722-0108 Fax: 722-0107 Email: <a href="mailto:yct_ffl@btl.net">yct_ffl@btl.net</a> Web site: <a href="http://www.yct.bz">www.yct.bz</a>	NGO	EX, RD, TR, RU
Name (acronym): <u>Yalbac Ranch and Cattle Corporation</u> Postal address: 21 North Front St., PO Box 1975, Belize City. Tel: 820-0029 / 0010 Fax: 820-0011 Email: - Web site: -	PRV	PS-M, PS-E

#### Abbreviations used:

Type:

AS-F	Farmers' association (includes co-operatives)
AS-W	Women's association
AS-Y	Youth association
BNK	Bank or credit institution
CCI	Chamber of commerce and industry
CHU	Church-base group
EDU	Educational institution
GOV	Government department / ministry
NGO	Non-government organization
PRV	Private enterprise, company
REG	Regional organization, project or network
STA	Statutory body
STE	State enterprise
OTH	Other

Role:

EX	Extension and outreach
IN	Information services
FS	Financial services
PP	Policy and planning
PS-E	Private sector – Exporter (fresh, frozen and dried produce)
PS-M	Private sector – Manufacturer (e.g. tannery, bottler, refiner, roaster)
PS-P	Private sector - Producer (e.g. commercial farm, fishing company)
PS-S	Private sector – Supplier (e.g. agri. chemicals, equipment, seeds)
RD	Research and development
RG	Regulation (compliance, standards)
TR	Training (at secondary, tertiary and vocational level)
TM	Trade and marketing (including market development)
RU	Rural development
OT	Other

### Annex III.2. Select List of Key Institutions in the Belize Agricultural Sector

Many institutions make a significant contribution to the development of the Belize agricultural (including fisheries and forestry) sector. Twenty five were selected (using the criteria below (page 88) as “key” and are listed in Table 111.2.1. below.<sup>15</sup>

**Table III. 2.1 Key institutions in the agricultural sector in Belize**

INSTITUTION	Questionnaire completed for purpose of this consultancy
<b>Umbrella/Policy Organizations</b>	
1. Agriculture Dept (Min. of Agriculture and Fisheries)	✓
2. Fisheries Dept (Min. of Agriculture and Fisheries)	✓
3. Forestry Dept (Min. of Natural Resources and the Environment)	✓
4. Rural Development Dept (Min of Human Development and Civil Society)	✗
5. Land Information Centre (Min of Natural Resources and Environment)	✗
6. Belize Agricultural Health Authority (BAHA)	✗
<b>Marketing and Trade Organizations</b>	
7. Belize Marketing and Development Corporation (BMDC)	☑
8. Belize Chamber of Commerce (BCCI)	☑
9. Belize Business Bureau (BBB)	☑
10. BELTRAIDE (Belize Trade & Investment Development Service)	✗
<b>Finance Organizations</b>	
11. Belize Credit Union League	☑
12. St. Francis Xavier Credit Union	☑
13. Citrus Growers and Workers Credit Union	☑
<b>Crop Specific / Research Organizations</b>	
14. Central Farm Research Station	✓
15. Citrus Growers Association / Citrus Research & Education Institute	✓
16. Belize Sugar Industries	☑
17. Banana Growers Association	✓
18. National Fishermen Producers Co-operative Society Limited	✓
19. Shrimp Growers Association	✗
20. Belize Livestock Producers Association (BLPA)	✗
<b>Educational Institutions</b>	
21. Department of Agriculture (University of Belize)	✓
<b>NGO/Finance/Community Development</b>	
22. Belize Enterprise for Sustainable Development (BEST)	✓
<b>International Organizations</b>	
23. Inter-American Institute for Cooperation in Agriculture (IICA)	✗
24. Caribbean Agricultural Research and Development Institute (CARDI)	✗
25. International Regional Organization for Plant and Animal Health (OIRSA)	✓

✓ All of questionnaire completed

☑ Partial completion of questionnaire

✗ Agreed to be interviewed

<sup>15</sup> At the time of completing this draft (July 20<sup>th</sup> 2005) it has not been possible to arrange [complete] interviews with leaders of all institutions selected as key. Whether or not the institution was interviewed is indicated in Table III.2.1. However, the number of questionnaires completed meets the requirements of the TOR.

The criteria used to select the institutions were:

*Contribution (or representation of stakeholders that contribute) to Belize:*

- Contribution to economy;
- Contribution to rural development;
- Credibility or influence;
- Development, adoption, use/delivery of agricultural information.

*Alignment to CTA Themes:*

- Conquering international, regional and national markets;
- Production intensification and optimization;
- Environmental protection and natural resource management;
- Strengthening National Agricultural Systems;
- Mobilization of civil society: promotion of farmer's associations, the role of women.

Further details for the institutions interviews are included in the following tables.

Of the institutions identified as key, 10 were interviewed. A summary of the information collected for each organization follows (Table III. 2.2).

**Table III. 2.2. Detailed profile of key institutions where representatives interviewed completely**

<p><b><u>Name of institution:</u> Agriculture Department (Ministry of Agriculture and Fisheries)</b></p>
<p><b><u>Objective/mission statement:</u></b> To continue as the economic pillar of Belize, ensuring food security, generating income and foreign exchange, creating employment, and conserving natural resources, in order to grow the economy, reduce poverty and empower the local populations for sustainable development.</p>
<p><b><u>Field of specialization:</u></b></p> <ul style="list-style-type: none"><li>• Livestock Programme (Nutrition / genetic improvement / husbandry practices)</li><li>• Crops (Diversification (from traditional (sugar, citrus, banana)), non-traditional vegetables (tomatoes, broccoli, celery). Non-traditional export – papaya, hot pepper, ginger. Seed nurseries for vegetables, selection of potatoes accepted by consumer. All this is part of the ‘Import Substitution Programme’ – improving food security for Belize</li><li>• Extension Service / Irrigation (Water resource management)</li><li>• Research &amp; Development</li><li>• Agro-Processing, value adding, commercialization</li><li>• Cashew processing facility for backyard production</li><li>• Soya bean production</li></ul>
<p><b><u>Number of staff professional, clerical, technical, etc: permanent / temporary:</u></b></p>
<p><b><u>Main Office:</u></b> Belmopan</p>
<p><b><u>Branches, other sites:</u></b> 6 Sub-Stations one in each District: Toledo, Stann Creek, Belize, Orange Walk, Corozal, Orange Walk</p>
<p><b><u>Annual budget:</u></b> Bz\$2.78 (€1.08) Million</p>
<p><b><u>Source of funding, incl. main donors / sponsors:</u></b> Government of Belize, FAO, CDB (Caribbean Development Bank)</p>
<p><b><u>Programme / projects undertaken:</u></b></p> <ul style="list-style-type: none"><li>• Management and operational framework strategy for implementation of national agricultural policies</li><li>• Small ruminant development</li><li>• Promoting CARICOM/CARIFORUM Food security</li><li>• CARIFORUM: Market information and institution development strengthening (Camid)</li><li>• APPI – Area, Production, Prices &amp; Income</li><li>• Cashew project</li><li>• Soybean project</li><li>• Coconut hybridization project</li><li>• CARD (Community initiated agriculture and resource/rural development project)</li><li>• Banana Support Programme</li><li>• Special Framework of Assistance for traditional ACP suppliers of bananas</li><li>• Development of a National Biosafety Framework</li><li>• Medfly Free Areas</li><li>• Pink Hibiscus Mealybug</li></ul>

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**Agriculture Department (Ministry of Agriculture and Fisheries) *continued.***

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- VEE Emergency Control Programme
- Red –Sicta
- Garden-based agriculture for Toledo’s environment (GATE)
- Stann Creek Future Farmers
- School Beekeeping – University of Belize
- Grain drying and Storage for Southern Belize
- Sustainable vegetable production for three districts

Completed in 2004

- Regional Strategy for Forest Health and Management in Central America
- Strengthening phyto-sanitary capabilities in OIRSA member countries
- CARTF – Dehydrated pineapple: Feasibility for development
- CARTF –Formulation of a cassava & soybean based animal feed and evaluation of the potential for its commercial production
- CARTF – Improved marketing systems for cashew products in Belize
- Onion storage
- Strengthening of sanitary and phyto-sanitary surveillance in non-traditional export crops
- Irrigated school gardens/ backyard gardens for food security and economic sustainability of the National School Canteen

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Target audience (plus number, actual or estimated): The farmers of Belize

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Extent of interaction with CTA: – Spore Magazine, SDI, QAS, DORA, seminars, consultants, publications: Does not really interact with CTA but occasionally receive SPORE and other CTA publications.

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How information needs are currently met, and from where or by whom:

IICA – Documents

OIRSA – Plant health information

FAO – Publications in agriculture, fisheries and forestry

CARDI – Production of grain crops, assistance with the development of the livestock industry through networking to the Jamaica and Barbados CARDI offices.

CTA – CTA publications when they arrive in-office.

Internet – Trade transformation

Info Tech (IICA)

Web pages – share with staff

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Main information needs not satisfied:

- Policy development advice / experiences
  - Market intelligence – where to look for market information in tropical crops – especially in Florida and Europe
  - Need for a Caribbean system to share market information and develop the local market (such as CORECA)
- 

Why institution selected as a key:

This institution is responsible for policy and strategy implementation for developing the agriculture sector. It is expected to play a major role in each of the criteria above with particular emphasis on production intensification and optimization, developing national agricultural systems and the delivery of agricultural information.

---

**Name of institution: Fisheries Department (Ministry of Agriculture and Fisheries)**

Objective/mission statement:

The mission for the Fisheries Department is to provide the country and the people of Belize with the best possible management of aquatic and fisheries resources with a view to optimizing the present and future benefits through efficient and sustainable management. This mission requires the following support services: enforcement of fisheries regulations, quality assurance, detailed biological and socio-economic research, park and coastal zone management and strategy implementation.

Field of specialization:

Fisheries management, resource assessment and development

Number of staff professional, clerical, technical, etc; permanent / temporary: 66 employees

Main Office: Princess Margaret Drive, Belize City

Branches, other sites: Punta Gorda

Annual budget: Bz\$530,000 (€208,333) Salaries Bz\$450,000 (€176,886) Cap II

Source of funding, incl. main donors / sponsors:

Government of Belize

Programme / projects undertaken:

*Environmental Monitoring Unit* – Marine Protected Areas Development project

Mooring Buoy project, Environmental Impact Assessment Project

Fish Spawning Aggregation Project

*Capture Fisheries Unit* – Lobster and Conch Stock Assessment, Monitoring & Data Collection Project; FADs project, Fisheries Education Project, Marine Shrimp Monitoring

*Aquaculture and Fresh Water Unit (AQUIF)* – Fish Fingerling Production Project; Inland Aquaculture Development Project; Training of Fisheries alternative livelihoods project e.g. fish farming.

Target audience (plus number, actual or estimated): The fishermen and fisheries processors of Belize

Extent of interaction with CTA: Not aware of CTA

How information needs are currently met, and from where or by whom:

- CSO
- Customs Dept
- BAHA
- Independent Research
- Research through fisheries department
- Regional counterparts

Main information needs not satisfied:

Socio-economic information/data

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**Fisheries Department (Ministry of Agriculture and Fisheries)** *continued.*

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Why institution selected as a key:

This institution responsible for policy and strategy implementation for developing the fisheries sector. It is expected to play a major role in each of the selection criteria listed with particular emphasis on production intensification and optimization, developing national agricultural systems, the use/delivery of agricultural information and the natural resource management.

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**Name of institution: Forest Department (Ministry of Natural Resources and Environment)**

Objective/mission statement:

To guarantee the wise use of Belize's Forest and Protected Areas and its biodiversity resources through the coordination of sound management practices of conservation, protection and sustainable utilization of the resources in perpetuity for the Belizean people.

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Field of specialization:

- Forest Reserve Planning & Management (developing sustainable forest management criteria and indicators – development of community forest reserves and forest reserves in private land).
  - National Parks Management (Regulations and overseeing management of 40 + parks and 20 protected areas)
  - Wildlife management (Implement function under the wildlife protection act)
  - Law enforcement – mangrove management and production of permits.
  - Biodiversity Management Programme (geared at ensuring Belize meets its commitment on the conservation of Biodiversity)
  - The Forest Department is also the focal point for the implementation of a number of conventions to which Belize has signed
  - Forest revenue and exploitation control
  - Forest health
  - Convention on International Trade in Endangered Species (CITES) (all permits are sent through this office)
  - The Convention on Wetlands (e.g. implementation of Ramsar Convention on Wetlands and CCAB-AP procedures for sustainable forestry management)
  - Timber (mahogany) approval of sustainable forest management plans (with Programme for Belize, Yalbac (currently working on a sustainable forest management plan))
- 

Number of staff professional, clerical, technical, etc; permanent / temporary:

Clerical: 6 Technical: 25 Professional: 7 Permanent: 38 Open vote: 21

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Main Office: Belmopan

Branches, other sites: (Seven Forest Stations): Belmopan; Melinda Forest Station; Savanna Forest Station; Machaca Forest Station; Orange Walk; San Ignacio; Belize City

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Annual budget:

Bz\$2 million – Bz\$1.8 (€0.71) Million for Forestry Admin – Bz\$196,000 (€77,044) for Biodiversity, Bz\$72,000 (€28,301) for Silviculture operation

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**Forest Department (Ministry of Natural Resources and Environment) continued.**

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Source of funding, incl. main donors / sponsors:

Government of Belize, PACT – Biodiversity Management Programme – National Parks Management  
UNDP – Biodiversity clearing house system for National Biodiversity

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Programme / projects undertaken:

- Management and Supervision
  - Financial Management
  - Policy Formulation and Planning
  - Protected Areas Management
  - Forest Management
  - Wildlife Management
  - Information Management
  - Negotiation Skills – Conflict Resolution
  - Marketing & PR
  - Biodiversity Research & Monitoring
  - Office Management
  - Customer Service
  - Project Management
  - Coastal Ecology – Mangrove
  - Treaties & International Conventions
  - Computer Skills – Software application
  - Law Enforcement & Prosecution
  - Mapping, GIS, Cartography
- 

Target audience (plus number, actual or estimated):

Staff of the Forestry Department

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Extent of interaction with CTA: Not aware of CTA

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How information needs are currently met, and from where or by whom:

CATIE – technical support  
FAO- Forestry section – technical support  
UncaSilva – Journal (FAO) – technical information  
IUCN (World Conservation Union)  
GEF – publications  
CCAD – Environmental information and project development support  
MBC – Meso-American Biological Corridor – environmental, biodiversity information  
Nature Conservancy (Private Protected Areas) – conservation information

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Main information needs not satisfied: none reported

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Why institution selected as a key:

This institution is responsible for policy and strategy to develop the forestry sector. It is expected to play a major role in each of the selection criteria listed with particular emphasis on environmental protection and natural resource management.

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**Name of institution: Citrus Growers Association / Citrus Research & Education Institute**

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Objective/mission statement:

*Citrus Growers Association:*

As set out in the Citrus Act, Chapter 277 of the Laws of Belize – to assist citrus growers in achieving their highest possible production of the best quality citrus to be sold at the highest possible price.

*Citrus Research & Education Institute:*

To work with citrus growers and others to develop, implement and share technology that leads to profitable and sustainable citrus farming systems in Belize.

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Field of specialization:

*Administration Finance & Sales Division:*

- Personnel management
- Loan programme administration (\$10 million)
- International trade and market negotiation
- Provision of grove machinery services

*Citrus Research & Education Institute*

- Citrus Agronomy
  - Diagnosis of citrus graft transmissible diseases (through bio-indexing and biochemical methods)
  - Establishment and implementation of nationwide plant nursery certification programmes
  - Maintenance of germplasm collection
  - Strengthening international quarantine systems to prevent regional spread of diseases
  - Development and implementation of grower participatory extension programmes
  - Production of grower friendly publications (Newsletters, brochures, manuals, internet)
  - Implementation of accurate fruit forecasting systems
  - Development and maintenance of citrus industry data-base
  - Mexican fruit-fly control
- 

Number of staff professional, clerical, technical, etc; permanent / temporary:

Professional: 7 Technical: 2 Clerical: 5

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Main Office: Mile 9 Stann Creek Valley Road, Dangriga

Branches, other sites: Office in Dangriga Town within office of Citrus Growers and Workers Credit Union

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Annual budget:

Administration, Finance & Sales:

Including loan programme: Bz\$2.2 (€0.86) Million (Bz\$680,000 (€267,295) for operation expenses)

Citrus Research & Education Institute: Bz\$690,000 (€271,226)

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Source of funding, incl. main donors / sponsors:

Grower cess (tax on citrus delivered to factory), sale of grove inputs, interest from loans, grant proposals

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**Citrus Growers Association / Citrus Research & Education Institute** *continued.*

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Programme / projects undertaken:

- EIB (European Investment Bank) Programme – loan programme for re-planting and rehabilitation of citrus groves.
- IDB Funded Organic Citrus Project
- IDB Funded Habanero Pepper Project – Diversification for small-scale growers
- Increasing the number of graft transmissible citrus diseases that can be identified in Belize
- Development of the Belize citrus germplasm collection.
- Modification of Belize Citrus Certification Programme for better alignment with industry needs and practicality for implementation
- Citrus plant nursery expansion
- Development of CGA Website
- Introduction of monthly newsletter / industry bulletin.
- Development of accurate citrus fruit forecasting system
- Production of brochures and manual on citrus production
- Development of small-agricultural library
- Development of Citrus Group approach to extension
- Development of targeted, goal setting (in terms of productivity), strategy development approach to Extension

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Target audience (plus number, actual or estimated):

- Growers who had who needed to re-plant their groves with tristeza virus resistant rootstock and growers who had abandoned their groves
- Growers who were interested in producing organic citrus
- Small-scale citrus growers who were interested in diversifying their farms to include hot peppers
- Service support required for the Belize Citrus Certification Programme
- Growers; to ensure they have access to a range of varieties to prevent any motivation for illegal importation of citrus material
- All Belize citrus nursery producers and growers
- Belize citrus growers who are re-planting
- All growers in Belize
- All growers in Belize
- The CGA, citrus processors (CPBL), Belize Central Bank and others planners
- Citrus growers
- CGA staff and citrus growers
- Citrus growers
- Citrus growers

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Extent of interaction with CTA: -*Spore* magazine, CTA publications, DORA (Distribution of Reference Books on Agriculture), SDI (Selective Dissemination of Information. Lists of abstracts and bibliographies are sent to recipients on the basis of the topics selected by researchers, scientists and policy-makers)

Not aware of specific CTA activities in the region but receive *Spore* magazine, CTA books and publications (DORA) and SDI.

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**Citrus Growers Association / Citrus Research & Education Institute** *continued.*

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**How information needs are currently met, and from where or by whom:**

- Internet searches
  - Foreign research institutions (CREC – Citrus Research & Education Centre, University of Florida; National Germplasm Repository for Citrus and Dates, California – citrus variety information and source of germplasm material)
  - Personal contacts – through email
  - CABI – entomological support – pest identification
  - CTA – purchase of books
  - IICA – institutional strengthening – technical support as a representative serves on CREI Technical Committee
  - OIRSA – status of citrus diseases in Central America; development of Citrus Certification Programme – technical support as a representative serves on CREI Technical Committee
  - CARDI – entomological support (from November 2005) and institutional strengthening and technical support through the representative that serves on CREI Technical Committee.
- 

**Main information needs not satisfied:**

- Abstracting journals in order to keep up to date with current refereed scientific literature. This difficulty is because of the high cost of subscribing to organizations such as CARDI for CAB abstracts.
- Information on the production of citrus in the humid tropics
- Latest ideas/ information on approaches to extension using participatory approaches
- Data-base development for programme impact evaluation
- There is no (organized) system (in the country) for searching and obtaining the latest scientific papers on issues that are relevant to agricultural production in Belize.

**Comment:** Difficulty in obtaining information is more to do with having personnel available that are dedicated to searching for, obtaining and managing such information. I believe that most of the information is available – there is just a need to have adequate systems in place – to make it easier to find and obtain.

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**Why institution selected as a key:**

The organization responsible for representing the needs of the citrus industry, one of the top three agricultural commodities in terms of foreign exchange earnings to the country of Belize. The organization is primarily involved in production intensification and optimization, conquering international and regional markets, has a high level of credibility and influence and plays a major role in the use and delivery of agricultural information.

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**Name of institution:** Central Farm Research Station (Ministry of Agriculture and Fisheries)

**Objective/mission statement:**

To provide the research and development support necessary to support the Ministry of Agriculture's Mission: To continue as the economic pillar of Belize, ensuring food security, generating income and foreign exchange, creating employment, and conserving natural resources, in order to grow the economy, reduce poverty and empower the local populations for sustainable development."

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**Field of specialization:**

- Livestock breeding (Brahinan)
  - Crop evaluation (Vegetable) and (Rice)
- Agricultural Engineering
-

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**Central Farm Research Station (Ministry of Agriculture and Fisheries)** *continued.*

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Number of staff professional, clerical, technical, etc; permanent / temporary:

67 Total – (4 technical, 3 professional, 2 projected staff)

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Main Office: Central Farm, Cayo

Branches, other sites: None – except through the Ministry of Agriculture District Agriculture Stations

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Annual budget:

Bz\$1.1 (€0.43) Million

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Source of funding, incl. main donors / sponsors:

GoB and a significant proportion from income generating sources – such as hybrid coconut production and provision of engineering services to farmers.

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Programme / projects undertaken:

- Food Processing
  - School Garden / Backyard Garden Project
  - Coconut Hybridization Project
- 

Target audience (plus number, actual or estimated):

- Extension officers, processors,
  - Rural farmers, general public
  - Primary, high school students
  - Farmers, students
- 

Extent of interaction with CTA: - Receive *Spore* magazine (but via CARDI)

---

How information needs are currently met, and from where or by whom:

Government of Belize

International sources – personal affiliation

Collaborators such as FAO, CARDI, IICA, ROC, CREI, BAHA, SICTA

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Main information needs not satisfied:

Research and development issues. It is difficult to access scientifically refereed papers. It is possible to get information from various internet sites but difficult to obtain papers that include the detailed descriptions of the methodology employed.

---

Why institution selected as a key:

This is the Ministry of Agriculture institution in Belize responsible for agricultural research and extension; focusing mainly on the crops and livestock that are not covered by the other commodity specific organizations listed below. Works mainly on the delivery of agricultural information, strengthening national agricultural systems and production intensification and optimization.

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**Name of institution: Belize Enterprise for Sustainable Technology (BEST)**

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Objective/mission statement:

BEST is a private non-government, not for profit organization dedicated to poverty reduction and economic empowerment of the most vulnerable, low income individuals, families and groups.

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Field of specialization:

- Credit and Rural Development (with agronomy support)
  - Capacity building – organizational strengthening for farmer and producer organizations
- 

Number of staff professional, clerical, technical, etc; permanent / temporary:

12 staff (fluctuates between 12 – 14)

4 professional, 5 technical (Associates), 3 support (clerical)

Only hire personnel for the life-time of each project

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Main Office: Belmopan

Branches, other sites: Belize City

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Annual budget: BZ\$ 810,657.34 (€318,654)

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Source of funding, incl. main donors / sponsors:

Generate from credit, interest income, project proposals, co-financing from foundations and contract work

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Programme / projects undertaken:

- Micro Enterprise Credit Scheme (Bz\$1.4 (€0.55) million)
  - Small-holders credit scheme (Bz\$240,000 (€94,339))
  - Integrated agricultural production for small agricultural producers in Cayo
  - To integrate indigenous hard wood trees with fruit trees, annual, perennials for food production and production systems to generate a flow of income over different periods
  - Land management programme – 2 yrs from now – awareness about land tenure arrangements – get people to get plots surveyed
  - Global fund against HIV
- 

Target audience (plus number, actual or estimated):

- Low income entrepreneurs
  - Small agricultural producers who agree to adopt intensive systems for Taiwanese
- 

Extent of interaction with CTA: - Spore magazine, CTA publications (occasionally get when they “show-up”)

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**Belize Enterprise for Sustainable Technology (BEST) continued.**

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How information needs are currently met, and from where or by whom:

*National:*

Work closely with other NGOs especially credit based ones

NDFB – provision of credit systems

Help for Progress

Internet is major source of information but is limited to what is available free - sometimes it is not possible to access what is required as there is a need to pay for it.

*Agronomic:*

Min of Agric (but resource allocation currently being cut)

CARDI (CARIRI) – through CARTF Project

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Main information needs not satisfied:

Best practices for small-scale organizations – “This worked well because...”

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Why institution selected as a key:

This is an NGO based in Belmopan that provides loan programmes and technical assistance to small-scale agricultural producers throughout Belize. The organization has a high level of credibility and influence and is a major contributor to rural development in the country, focusing on intensification and optimization of national markets, the promotion of farmer’s associations and the use, delivery of agricultural information.

---

**Name of institution: Department of Agriculture, University of Belize**

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Objective/mission statement:

The Faculty of Agriculture and Natural Resources of the University of Belize is committed to promoting sustainable management of Belize’s natural and human resources for the present and future generations through excellence in Education, Research and Services.

---

Field of specialization:

- Training in general agriculture at Associate Degree level.
  - Training for farmers in General Agriculture.
- 

Number of staff professional, clerical, technical, etc: permanent / temporary:

Total: 14, Professional: 6, Clerical: 2, Employee: 4, Volunteer: 1, Temporary lecturer: 1.

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Office: Central Farm, Cayo

Branches, other sites: None

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Annual budget: Bz\$670,000 (€263,364)

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Source of funding, incl. main donors / sponsors: Government of Belize

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Programme / projects undertaken:

*Apiary project. (F.A.O.)* – honey production training programme that covered the whole country

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**Department of Agriculture, University of Belize** continued.

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Target audience (plus number, actual or estimated):

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Extent of interaction with CTA:- Spore magazine, CTA publications, CD-ROM / Database subscriptions

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How information needs are currently met, and from where or by whom:

Information is obtained through personal affiliation with organizations such as: FAO, CARDI, CATIE, IICA, CGA, BSI, Hoard's Dairymen, CTA, Ministry of Agriculture

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Main information needs not satisfied: Information in audio visual format, information in power point, electronic copies of research papers.

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Why institution selected as a key:

The Department of Agriculture (University of Belize) is the major agricultural educator in Belize providing Associate Degree level training and the only organization with a significant agricultural library. The FANR library is a depository for CTA publications. FANR contributes to some extent to all of the criteria listed.

---

**Name of institution: National Fishermen Producers Co-operative Society Limited**

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Objective/mission statement:

Never put together a formal one but it would be –

To provide marketing and processing facilities to members for marine products and provide the highest possible return for marketing on a non-profit basis to return the maximum revenue to the fisherman.

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Field of specialization:

- Market of lobster and conch – export to the US now have an established name but danger of losing population
  - Market fish fillet locally
  - Fishing supplies, ice and fuel
  - Processing
  - Providing credit
- 

Number of staff professional, clerical, technical, etc; permanent / temporary:

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Office: Belize City

Branches, other sites: None

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Annual budget: Bz\$6.1 (€2.40) million

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Source of funding, incl. main donors / sponsors:

Commercial loans and overdraft, payback from profits

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Programme / projects undertaken:

- Training for fishermen in HACCP – Nationwide
  - Training for fishermen in conservation
-



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**National Fishermen Producers Co-operative Society Limited continued.**

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Target audience (plus number, actual or estimated): Fishermen

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Extent of interaction with CTA: Not aware of CTA

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How information needs are currently met, and from where or by whom:

- Regional conferences and meetings
- Urner Barry Report (Fisheries market report for US)
- University of Miami – provided a lot of assistance in the past
- The University of Belize marine department is just getting off the ground and while it does not provide much assistance currently may do in the future.
- Min of Fisheries – provide policy support
- Fisheries Advisory Board
- Other foreign Universities
- NGOs such as the Smithsonian Institute on Glovers Reef – not specifically fisheries, more focus on environmental issues but this is an important new area of activity
- Belize Fishermen's Cooperative Association (BFCA)
- DFC (Development Finance Corporation) – loan programmes
- Embassies – the US trade mission is very helpful
- Some information from input suppliers, but not much

Main information needs not satisfied:

Market information in the EU (need the European equivalent of the US focused Urner Barry Report).  
Trade fairs for the small-scale producer

Why institution selected as a key:

This organization is responsible for representing the needs of fisherfolk that live off the waters around Belize; populated by more than 1,000 islands. The group is a significant contributor to rural development and the economy of the country.

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**Name of institution: International Regional Organization for Health in Agriculture (OIRSA)**

Objective/mission statement:

To facilitate the economic and social development of the region, through a healthy quality agricultural production that is environmentally acceptable to satisfy the needs of the farming population

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Field of specialization:

1. Animal health.
  2. Plant health.
  3. Food safety.
  4. Quarantine.
- 

Number of staff professional, clerical, technical, etc; permanent / temporary:

Professional: 5. Technical: 9. Clerical: 4. Temporary: 2.

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Branches, other sites: None

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**International Regional Organization for Health in Agriculture (OIRSA)** *continued.*

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Annual budget: Bz\$817,000.00 (€321,147)

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Source of funding, incl. main donors / sponsors:

Government of Belize, OIRSA and Republic of China (Taiwan)

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Programme / projects undertaken:

- VIFINEX (Surveillance system for non-traditional export commodities)
  - PREFIP 1&2 (Surveillance system for classical swine fever)
  - BIOFAMIN (Multilateral Investment Fund project – Harmonization of Regulations to Increase Trade)
  - PREPAC (Inland Fisheries and Aquaculture Regional Plan)
  - PHMB (Pink Hibiscus Mealybug) Control Programme
- 

Target audience (plus number, actual or estimated):

- *Farmers and exporters*
  - *Farmers*
  - *Technical, private & public sector.*
  - *Technical – private and public*
  - *Growers and general public*
- 

Extent of interaction with CTA: No knowledge of CTA or its activities

---

How information needs are currently met, and from where or by whom:

- IPPC (International Plant Protection convention)
  - FAO (Food and Agriculture Organization)
  - NAPPO (North American Plant Protection Organization)
  - MAF (Ministry of Agriculture and Fisheries)
  - Access to regional network of institutions through other OIRSA offices in the region
- 

Main information needs not satisfied:

- Information to support Pest Risk Analysis (PRA) assessments
- 

Why institution selected as a key:

This institution provides technical support and implements programmes for the control of pests and diseases within the region and nationally. The organization works primarily in the strengthening of national agricultural systems and the use of delivery of agricultural information related to the control of pests and diseases.

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**Name of institution: Banana Growers Association (BGA)**

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Objective/mission statement:

Mission: Sell Belize's bananas

Objective: To obtain a profit for its members.

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Field of specialization:

1. Pest and disease control.
  2. Plant nutrition.
  3. Nematode control.
  4. Fruit quality.
- 

Number of staff professional, clerical, technical, etc; permanent / temporary:

8 Professionals, 6 Technical, 6 Clerical, 2 Part-time

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Office: Big Creek, Independence.

Branches, other sites: None

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Annual budget: Bz\$2.00 (€0.79) Million

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Source of funding, incl. main donors / sponsors: Banana Growers.

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Programme / projects undertaken:

- Fruit quality
  - Rehabilitation (meristem replanting) and drainage.
  - Irrigation
  - Pest and disease control (nematode, sigatoka)
- 

Target audience (plus number, actual or estimated): Banana Growers

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Extent of interaction with CTA: None

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How information needs are currently met, and from where or by whom:

- European Union (Fyffe's is the banana exporter for Belize)
  - Personal affiliation.
- 

Main information needs not satisfied:

- Market information
  - Pest and disease identification
  - Soil fertility
  - Industry regulation (international)
- 

Why institution selected as a key:

The organization responsible for representing the needs of the banana industry, one of the top three agricultural commodities in terms of foreign exchange earnings to the country of Belize. The organization is primarily involved in production intensification and optimization, conquering international and regional markets, has a high level of credibility and influence and plays a major role in the use and delivery of agricultural information.

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## ANNEX IV. DATA CAPTURE FORM USED FOR INTERVIEWS

**DATA CAPTURE FORMS - INSTITUTIONS**  
**ASSESSMENT OF AGRICULTURAL INFORMATION NEEDS IN AFRICAN, CARIBBEAN & PACIFIC (ACP) STATES**  
**Phase II: Caribbean**

### 1. Contact Information

Name of Institution/Organisation  
 Acronym  
 Postal address  
 Physical address of main location Country  
 List Branches, or other sites if applicable, including main focus of each site if different from main branch.  
 Tel: Fax:  
 E-mail:  
 Web site:

### 2. Type and Role of Institution

2a. Type (tick) no more than three	2b. Role (tick) as many as are applicable
AS-F Farmers' association (includes co-ops) AS-W Women's association AS-Y Youth association BNK Bank or credit institution CCI Chamber of commerce and industry CHU Church-based group EDU Educational institution GOV Government department / ministry NGO Non-government organisation PRV Private enterprise, company REG Regional organisation or network STA Statutory body TE State enterprise OT Other (define)	EX Extension and outreach IN Information services FS Financial services PP Policy and planning PS-E Exporter (fresh, frozen and dried produce) PS-M Manufacturer (e.g. tannery, bottler, refiner, roaster) PS-P Producer (e.g. commercial farm, fishing company) PS-S Supplier (e.g. chemicals, seeds) RD Research and development RG Regulation (compliance, standards) RU Rural Development TR Training (tertiary and vocational level) TM Trade and marketing (include development) OT Other (define)

2c. Consultant's Comments

### 3. Mission and objective

Objective / mission statement

### 4. Fields of Specialisation (Organisation's current programme of work)

**5. Financial Data**

a. Annual budget
b. Main source of funding

**6. Human Resources**

a. Total number of staff (size of professional, technical and clerical staff; indicate whether temporary, part-time, project staff, volunteers)
b. Specialised skills (list key skills of professional and technical staff)

**7. Name the Technical Divisions or Departments within the Institution**

**Information management and ICT use**

**8. Are there departments / units / divisions / person(s) responsible for:**

<p><i>8.a Any aspect of the management of information. Please specify.</i> (Information management refers to the selection, acquisition or collection of data and information (national regional and international), the storage, analysis, synthesis and consolidation of data and information for dissemination to specified target groups. Do not restrict this to the management of books and journals. For example, is there a group that is responsible for public education, preparation of audio-visuals, newsletters, registry/office files and organising information for the website).</p> <p><i>8.b Information and communication technologies (ICTs).</i> (ICTs refer to computers, hardware, software, local area networks (LAN), internet access, posting website updates or building websites, use of teleconferencing, conference calls, GIS etc.).</p>
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**9. What use is made of information and communication technologies (ICTs) in the institution?**

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**10. Can you identify areas within your institution where there is need for improvement in the management of information?**

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**11. How does the institution intend to further develop and use ICTs?**

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**12. What types of information/advice do you need to service the programmes being executed by your institution? (Check attachment for possible types of information)**

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**13. Indicate any other problems you have in executing your current work programme**

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**14. Indicate the sources that provide you with information and advice (national, regional, international or others) - (Check attachment giving possible sources)**

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**15. Linkages and collaboration with CTA**

15.a. Are you aware of CTA activities in your countries or the Region?  Yes  No.

15.b. If “Yes”, indicate if your institution is a recipient of the following CTA publications and services. Tick all that apply:

- Spore* magazine
- CTA publications
- DORA (Distribution of Reference Books on Agriculture)
- SDI (Selective Dissemination of Information. Lists of abstracts and bibliographies are sent to recipients on the basis of the topics selected by researchers, scientists and policy-makers)
- CD-ROM / Database subscriptions
- Question & Answer Service (QAS)

15.c. If “Yes” indicate if your institution has participated in:

- CTA Annual Seminars (international meetings on key topics of interest e.g. soil fertility, food security)
- Co-seminars (i.e. co-sponsored by CTA with other agencies such as IICA, FAO, etc.)
- ICT Observatory (Four day workshop to examine the impact of ICTs in relation to other key issues such as youth, extension and gender)
- CTA training programmes or non-CTA training programmes
- Seminar Support Programme

**Other collaboration**

**16.a Please indicate the names of institutions with which you collaborate. (national, regional and/or international)**

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**16.b Indicate the type of collaboration you have with the named institutions (e.g. joint projects, information exchange, etc.)**

**17. Identify types of information that you have found difficult to acquire. (Consult attachment to assist in identification)**

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**18. Programme / projects undertaken within the last 5 years**

<i>Programme / Projects</i>	<i>Target audience</i>

*(Use continuation sheet if necessary)*

19. Does the organization have an organization-wide strategic plan for the next  2 years  5 years?. If so, what are the main areas that are targeted for development?

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20. What resources and training needs have been identified by the institution that would assist in achieving these goals?

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**Name of the institutional representative interviewed:**

**Designation:**

**Date of Interview:**

*Consultant's Comments*

1. *Why did you select this institution to interview?*

2. *Other pertinent issues that arose during the interview.*

## ANNEX V. PERSONS / INSTITUTIONS INTERVIEWED

Name of Person	Designation and Contact Information
Fermin Blanco	Belize Country Representative, International Regional Organization for Plant and Animal Health (OIRSA), National Agriculture Show Grounds, PO Box 426, Belmopan. Tel: 822 0521 Fax: 822 0522 Email: <a href="mailto:oirsabze@btl.net">oirsabze@btl.net</a>
Allan Burns	Director, National Fishermen Producers Co-operative Society Limited, PO Box 316, Belize City. Tel: 227 3165 / 8039 Fax: 227-1300 Email: <a href="mailto:natfish@btl.net">natfish@btl.net</a>
Gabino Canto	Principal, Agriculture Department, Faculty of Science and Technology, University of Belize, Central Farm, Cayo District. Tel: 824 3775 / 4952 / 4934 Fax: 824 4933 Email: <a href="mailto:gcanto@ub.edu.bz">gcanto@ub.edu.bz</a>
Dennis Jones	Director, Belize Enterprise for Sustainable Development (BEST), PO Box 35, Belmopan. Tel: 822 3034 / 3150 Fax: 822 2563 Email: <a href="mailto:best@btl.net">best@btl.net</a>
Wilbert Ramclam <sup>1</sup> Sam Mathias <sup>2</sup>	Head of Research, Nutrition and Nematode Control <sup>1</sup> and Head of Quality Department <sup>2</sup> , Banana Growers Association, Big Creek, Independence Village, Stann Creek District. Tel: 523 2000 / 2001 Fax: 523 2201 Email: <a href="mailto:banana@btl.net">banana@btl.net</a>
Osmany Salas	Chief Forestry Officer, Forestry Department, Ministry of Natural Resources and the Environment, 2325 Unity Blvd., Belmopan. Tel: 822 1524 / 2079 Fax: 822 1523 Email: <a href="mailto:fdsecretary@mnrei.gov.bz">fdsecretary@mnrei.gov.bz</a>
William Usher	Director, Central Farm Agricultural Research Station, Ministry of Agriculture and Fisheries, Central Farm, Cayo District. Tel: 824 2129 / 2131 Fax: 824-3774 Email: <a href="mailto:central_farm@yahoo.com">central_farm@yahoo.com</a>
Beverly Wade	Administrator, Department of Fisheries, Ministry of Agriculture and Fisheries, Princess Margaret Drive, PO Box 148, Belize City. Tel: 223-2623 / 2127 Fax: 223-2983 Email: <a href="mailto:species@btl.net">species@btl.net</a>
Eugene Waight	Chief Agriculture Officer, Department of Agriculture, Ministry of Agriculture and Fisheries, 2 <sup>nd</sup> Floor, West Block Building, Belmopan. Tel: 822 2241 / 2242 / 2243 Fax 822 2409 Email: <a href="mailto:minaf@btl.net">minaf@btl.net</a>
Stephen Williams	Research & Extension Director, Citrus Research & Education Institute, Citrus Growers Association, PO Box 72, Mile 9 Stann Creek Valley Road, Dangriga. Tel: 522 3535 / 3547 / 3585 Fax: 522 3511 Email: <a href="mailto:swilliams@belizecitrus.org">swilliams@belizecitrus.org</a>



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