Pillar of the Belizean Economy

Ministry of Agriculture & Fishereis

ANNUAL REPORT 2007

"Agriculture : Pillar of the Belizean Economy"

ACRONYMS

ACP	African, Caribbean and Pacific Countries
Agstat	Agriculture Station
AI	Avian Influenza
AQUIF	Aquaculture and Inland Fisheries
ASWAP	Agriculture Sector Wide Approach Programme
ATM	Automatic Teller Machine
BAHA	Belize Agricultural Health Authority
BAS	Belize Audubon Society
BEST	Belize Enterprise for Sustainable Technology
BFR	Belize Farm Registry
BGA	Banana Growers Association
BIARD	Belize Institute for Agricultural Research and Development
BLPA	Belize Livestock Producers Association
BMDC	Belize Marketing and Development Corporation
BOPA	Belize Organic Producers Association
BSE	Bovine Spongiform Encephalopathy
BSI	Belize Sugar Industries
CAC	Central American Agricultural Council
CARICOM	Caribbean Community
CARD	Community-Initiated Agriculture and Rural Development
CARDI	Caribbean Agriculture Research and Development Institute
CARIFORUM	Caribbean Forum
CARTF	CARIFORUM Agribusiness Research and Training Fund
CATIE	Tropical Agriculture Research & Higher Education Centre
CBO	Community Based Organization
CCU	Conservation and Compliance Unit
CDB	Caribbean Development Bank
CDE	Centre for Development of Enterprise
CFA	Cane Farmers Association
CFIA	Canadian Food Inspection Agency
CGA	Citrus Growers Association
CGWCU	Citrus Growers and Workers Credit Union
CITES	Convention for the Regulation of International Trade of Endangered Species
CORECA	Regional Council for Agriculture Cooperation
CREI	Citrus Research and Education Institute
CRFM	Caribbean Regional Fisheries Mechanism
CSF	Classical Swine Fever
CZMAI	Coastal Zone Management Authority and Institute
DAC	District Agriculture Officer
DFID	Department for International Development
EU	European Union
FAO	Food and Agriculture Organization
FAOR	Food & Agriculture Organization Representative

FDA	Food and Drug Administration
FTAA	Free Trade Area of the Americas
GAP	Good Agriculture Practices
GEF	Global Environmental Fund
GMO	Genetically Modified Organism
GMP	Good Manufacturing Practices
GOB	Government of Belize
HACCP	Hazard Analysis and Critical Control Point
HIVOS	Humanist Institute for Co-operation with Developing Countries
ICCAT	International Commission for the Conservation of Atlantic Tunas
IDB	Inter-American Development Bank
IFAD	International Fund for Agricultural Development
IICA	Inter-American Institute for Cooperation on Agriculture
IMMARBE	International Merchant Marine Registry of Belize
INFAL	International Network of Food Analytical Laboratories
LEO	Livestock Extension Officer
MAF	Ministry of Agriculture and Fisheries
MBRS	Meso-American Barrier Reef System
MOU	Memorandum of Understanding
MSY	Maximum Sustainable Yield
NARI	National Agriculture Research Institute
NCCARD	National Committee for Coordination of Agriculture Research & Development
NEAC	National Environmental Assessment Committee
NEMO	National Emergency Management Organization
NGO	Non Governmental Organization
OIRSA	International Regional Organization for Plant & Animal Health
OSPESCA	Central American Organization of the Fisheries and Aquaculture Sector
PAHO	Pan American Health Organization
PHMB	Pink Hibiscus Mealy Bug
REMERFI	Meso-American Network for Plant Genetic Resources
RFS	Rural Financial Services
RK	Red Kidney
ROC	Republic of China (Taiwan)
RUTA	Regional Unit for Technical Assistance
SAQS	Strengthening Agriculture Quarantine System
SCPC	Sugar Cane Production Committee
SCQCA	Sugar Cane Quality Control Authority
SICA	Central American Integration System
SICB	Sugar Industry Control Board
SIRDI	Sugar Industry Research and Development Institute
SMP	Synoptic Monitoring Program
SPAGS	Spawning Aggregation Sites
SPFS	Special Project for Food Security
SPS	Sanitary/Phyto-sanitary

TCGA	Toledo Cocoa Growers Association
TCP	Technical Cooperation Programme
TNC	The Nature Conservancy
UNDP	United Nations Development Programme
USA	United States of America
USDA	United States Department of Agriculture
UTN	National Technical Unit for RUTA
VDRU	Veterinary Drug Registration Unit
VPN	Virtual Privacy Network
WFD	World Food Day
WNV	West Nile Virus
WTO	World Trade Organization
WWF	World Wildlife Fund

THEME	Agriculture, Fisheries & Cooperatives: Pillars of the Belizean Economy
VISION	A transformed/modern sector that is fully competitive, diversified and sustainable.
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 population for sustainable development.
STRATEGIC OBJECTIVES	1. Increase the efficiency, profitability and Competitiveness of the agriculture, fisheries and cooperative sectors 2. Accelerate the diversification in production, processing and exports 3. Improve and conserve the natural and productive resource base to ensure long-term sustainable productivity and viability 4. Improve access to productive resources and services and create economic opportunities for small/young farmers, women and indigenous people, particularly in poor, marginal areas 5. Strengthen the institutional capacities to provide effective support in marketing and trade, research and extension, as well as relevant education and training
OUR CLIENTS and PARTNERS IN DEVELOPMENT	Farmers Fishers Cooperatives Producers and workers Processors and manufacturers Distributors and exporters Consumers and investors National and local government Civil society Local and external donors

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Foreword

Hon. Rene Montero
Minister of Agriculture & Fisheries

Belize's agriculture is at a cross-road. Agriculture development over the past 40 years was based on preferential markets in the European Union and to a lesser extent in the USA. These preferential markets are gradually disappearing with major impact already being felt on the banana sector. Sugar is now starting to feel the impact and is bound to be impacted on a significant fashion in the coming 3 years. All this means that products for which Belize is competitive (grains/ legumes, livestock) need to be identified and promoted.

The other major challenge facing Belize is the issue of rising cost of agriculture inputs (agro-chemicals and animal feed) which caused cost of production to soar and, therefore, prices for Belizean consumers. Government is addressing this challenge by working hand-in-hand with producers, in implementing measures designed to reduce cost of production; for example, taxes on most inputs have been eliminated. Secondly, Government is securing funds from Donor agencies for credit provision to the private sector (the Caribbean Development Bank, the Inter-American Development Bank and the World Bank); this will allow the sector to invest for expansion and productivity enhancement for exports to the Central American Region and Mexico. Thirdly, the Government of Belize is implementing support programmes for sugar, bananas and rural development with focus on productive activities being financed by the European Union. All of these interventions and measures highlight Government's commitment to the sector.

Government is certain that policy measures being implemented will in the medium-term lead to increased production, income, employment, a greater level of food security, reduced poverty and a more diversified, sustainable and competitive agriculture sector in the coming 5 years.

Hon. Rene Montero
Minister of Agriculture & Fisheries

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Executive Summary

During 2007, primary agriculture output (including fisheries) decreased by 7.3% from $449.9 million in 2006 to $416 million in 2007. Income for farmer was reduced due to reduced income for sugar-cane, bananas, fisheries, fruits and vegetables. Increased income was observed for citrus, grains/legumes and livestock products.

Table 1: Primary Agriculture Income (Producer Price)

Commodity	2006	2007	Change
Sugarcane	$ 71,264,711	$ 65,066,711	$ (0.09)
Banana Products	$ 52,553,869	$ 42,705,000	$ (0.19)
Citrus Products	$ 72,773,076	$ 82,698,885	$ 0.14
Marine Products	$ 89,456,218	$ 43,869,073	$ (0.51)
Fruits	$ 36,885,970	$ 31,069,008	$ (0.16)
Grains/Legumes	$ 30,886,603	$ 49,908,051	$ 0.62
Vegetables	$ 21,150,325	$ 15,645,229	$ (0.26)
Livestk (Dressweight)	$ 75,024,646	$ 86,016,084	$ 0.15
Income	**$ 449,995,418**	**$ 416,978,041**	**$ (0.07)**

Sugar income was reduced by 9% from $71.3 million to $65 million, on account of reduced price for sugar-cane from $60.73/ ton in 2006 to $54.22/ton in 2007; this represents a 12% reduction in price. Banana income was reduced by 18% due to reduced prices and also due to reduced output. Banana output decreased by 11%.

Fisheries income was reduced from $89.5 million to $43.9 million which represent a 51% reduction. Fisheries income declined due to a substantial reduction (66%) in shrimp output from 15.9 million lbs to 5.4 million lbs and an 8% reduction in shrimp prices. Reduced conch output (28%) from 731,950 lbs to 526,205 lbs together with reduced prices (12%) also contributed to reduced earnings for the fisheries sector.

Table 2: Fisheries (Producer Price)

Commodity	2006	2007	Change
Lobster	$ 13,926,940	$ 16,095,747	$ 0.16
Conch	$ 8,359,097	$ 5,389,117	$ (0.36)
Shrimp	$ 62,519,837	$ 19,749,080	$ (0.68)
Whole Fish	$ 277,030	$ 400,812	$ 0.45
Fish Fillet	$ 932,691	$ 527,139	$ (0.43)
Fisheries Income	**$ 89,456,218**	**$ 43,869,073**	**$ (0.51)**

Citrus income expanded by 14% from $70.6 million to $80.4 million due to increased output and increased prices for orange. Orange output expanded by 4% from 5.1 million boxes to 5.4 million boxes while prices increased by 22% from $9.99/box to $12.76/box; this resulted in orange income expanding from $51.8 million to $69 million. Grapefruit experienced reduced output from 1.7 million

boxes to 1.6 million boxes while prices decreased from $9.23/box to $5.50/box; this resulted in grapefruit income declining from $15.9 million to $8.6 million.

Table 3: Citrus (Producer Price)

Commodity	2006		2007		Change	
Grapefruit **(80lb box)**	$	15,975,588	$	8,641,578	$	(0.46)
Orange **(90 lb box)**	$	51,775,352	$	69,044,615	$	0.33
Fresh Lime Export (lbs)	$	8,050	$	9,450	$	0.17
Fresh Orange Export (lbs)	$	2,889,508	$	2,684,562	$	(0.07)
Citrus Income	**$**	**70,648,498**	**$**	**80,380,205**	**$**	**0.14**

Income for fruits decreased by 16% from $36.9 million to $31 million largely due to reduced income for papayas. Income for papayas decreased by 16% from $31 million to $26 million due mainly to reduced papayas prices by 18% from $0.42/ lb to $0.36/lb. Papaya output decreased by 1% from 73.2 million lbs to 72.9 million lbs. Other factors which contributed to reduced income were reduced watermelon output.

Table 4: Fruits (Producer Price)

Commodity	2006	2007	Change
Papayas (export)	$31,014,397	$26,073,873	$ (0.16)
Mangoes	$1,227,000	$670,000	$ (0.45)
Local Papaya	$616,298	$596,105	$ (0.03)
Pineapple	$978,127	$1,555,283	$ 0.59
Watermelon	$1,320,750	$765,480	$ (0.42)
Coconuts (Nuts)	$764,592	$597,706	$ (0.22)
Canteloupe	$349,120	$255,340	$ (0.27)
Cashew (raw nut)	$323,440	$298,430	$ (0.08)
Fruit Income	**$36,885,970**	**$31,069,008**	**$ (0.16)**

Income for grains and legumes expanded by 62% from $30.8 million to $49.9 million. Crops responsible for this increase were corn, rice paddy and sorghum. Corn output expanded by more than 100% from $12.5 million to $26.2 million due to a 35% increase in price and output. Rice paddy income increased by 50% from $5.7 million to $8.6 million due to a 50% increase in output. Sorghum expanded by more than 100% from $1.4 million to $3.0 million due to a 50% increase in output and a 30% increase in price.

Table 5: Grains/Legume (Producer Price)

Commodity	2006	2007	Change
Corn	$12,521,363	$26,184,649	$ 1.09
Rice paddy	$5,749,937	$8,621,115	$ 0.50
Sorghum	$1,413,454	$3,022,680	$ 1.14
Cowpeas	$2,208,195	$2,446,245	$ 0.11
RK beans	$5,093,730	$5,942,216	$ 0.17
Black Beans	$2,580,864	$2,703,847	$ 0.05
Other Beans	$551,381	$330,320	$ (0.40)
Soybean	$459,000	$282,608	$ (0.38)
Peanuts	$308,680	$374,369	$ 0.21
Grains/Legumes Income	**$30,886,603**	**$49,908,051**	**$ 0.62**

Income from vegetables decreased by 26% from $21.1 million to $15.6 million. Products responsible for this decrease were plantains, Irish potatoes, tomatoes and coco-yam. Irish potato income decreased by 57% from $2.1 million to less than $1 million due largely to a 59% reduction in output. Tomato income decreased from $ 3 million to $2.4 million (19%) due largely to a 23% reduction in output. Plantain income decreased by 80% from $3.7 million to just $777,000 due an 80% reduction in output from 741,000 bunches to just 147,000 bunches in 2007. Coco-yam income experienced a reduction due to a 40% reduction in output which resulted in income declining by 42%.

Table 6: Vegetables (Producer Price)

Commodity	2006	2007	Change
Hot Peppers	$211,950	$313,511	$ 0.48
Cocoa	$189,850	$109,546	$ (0.42)
Cabbage	$2,151,207	$2,126,298	$ (0.01)
Sweet Pepper	$3,108,384	$3,068,076	$ (0.01)
Tomatoes	$3,000,473	$2,417,707	$ (0.19)
Irish Potato	$2,116,174	$906,461	$ (0.57)
Onion	$1,313,756	$1,157,827	$ (0.12)
Carrots	$186,420	$357,830	$ 0.92
Cassava	$232,163	$331,949	$ 0.43
Lettuce	$192,853	$350,662	$ 0.82
Celery	$217,290	$249,900	$ 0.15
Sweet Corn (ears)	$273,000	$254,800	$ (0.07)
Cocoyam	$478,443	$278,575	$ (0.42)
Yam	$177,517	$160,974	$ (0.09)
Yampi	$227,464	$213,347	$ (0.06)
Plantain (bunches)*	$3,703,170	$736,655	$ (0.80)
Cotton	$1,600,000	$1,640,000	$ 0.03
Coffee	$283,500	$135,000	$ (0.52)
Nutmeg	$154,200	$210,000	$ 0.36
Vegetable Income	**$21,150,325**	**$15,645,229**	**$ (0.26)**

Livestock income expanded by 15% from $75 million to $86 million due to increased income for poultry and eggs. Poultry income expanded from $47.8 million to $52.2 million on account of a 10% increased in price per pound of dress-weight whole chicken from $1.60 to $1.77. Egg income increased by 99% due to a 44% increase in price per dozen eggs from $1.50 to $2.67; egg output also contributed to increased income by expanding by 12% from 2.7 million dozens to 3 million dozens.

Table 7: Livestock (Producer Price)

Commodity	2006	2007	Change
Beef	$11,021,220	$14,212,520	$ 0.29
Pigs	$7,975,040	$7,700,208	$ (0.03)
Sheep	$169,155	$158,085	$ (0.07)
Poultry	$48,225,560	$52,584,424	$ 0.09
Turkey	$1,065,285	$1,098,147	$ 0.03
Milk (lbs)	$2,126,280	$1,908,964	$ (0.10)
Eggs (Dozen)	$3,960,228	$7,875,263	$ 0.99
Honey (lbs)	$481,878	$478,462	$ (0.01)
Livestock Income	**$75,024,646**	**$86,016,084**	**$ 0.15**

Agriculture export earnings declined by 16% from $396.4 million in 2006 to $334.7 million in 2007. The main sectors responsible for this decline were reduced earnings for sugar, bananas, fisheries and papayas. Sugar/molasses export earnings declined by 10% from $104.3 million to $93.7 million, on account of a 12% reduction in sugar exports, even though, molasses unit exports expanded by 26% which resulted in increased export earnings from molasses. Banana exports declined by 18% from $50.5 million to $41.5 million due to reduced unit exports of 16% and a slight reduction in price. Fisheries export earnings were reduced by 51% from $86 million to just $42.2 million due to a 66% reduction in unit exports of shrimp from 15.9 million lbs to just 5.4 million lbs, and a 28% reduction in unit exports of conch from 732,000 lbs to 526,000 lbs. Shrimp export earnings declined by 68% from $62.5 million to just $19.8 million while conch export earnings declined from $13.9 million to $16.1 million. Papaya export earnings decreased by 16% from $31 million to $26 million due mostly to reduced price for exports, even though, unit exports declined by 4%.

Table 8: Agriculture Export Earnings

Commodity	2006	2007	Change
Sugar	$ 100,065	$ 88,142	(0.12)
Molasses	$ 4,203	$ 5,504	0.31
Bananas	$ 50,592	$ 41,464	(0.18)
Citrus	*$ 117,663*	$ 123,121	0.05
Shrimp	$ 62,520	$ 19,749	(0.68)
Other Fisheries	$ 23,396	$ 22,749	(0.03)
Papayas	$ 31,014	$ 26,074	(0.16)
Other Non-Traditional Products	$ 6,891	$ 8,164	0.18
Agriculture Export Earnings	**$ 396,344**	**$ 334,651**	(0.16)

1.0 Agriculture Department

1.1 Livestock Development

Despite the many challenges encountered by the livestock industry there was significant growth in most of the sub-sectors, the value of the sector increased from $75m to $86m, an increase of 15%. Beef, poultry, egg and turkey production contributed significantly to this increase.

The production of breeding stock production at the Government of Belize Agricultural stations increased in 2007 significantly. The supply of Brahman cattle breeding stock increased by 9.6% while that of pigs supplied increased by 20.6%. GOB stations continued to produce superior genetics for Brahman cattle, Landrace and Large White pigs. In the first quarter of 2007 two registered Brahman young bulls and 16 Landrace and Large White pigs were introduced at GOB stations.

With respect to animal health, the livestock sector remained relatively free of major diseases except for a few confirmed cases of rabies in bovine in the Cayo and Belize districts. However, with an intensive bat-trapping program implemented in conjunction with BAHA, the vampire-bat population was reduced and the incidence of rabies in the affected areas was reduced.

Agricultural Stations: In 2007 the Ministry of Agriculture (MAF) continued to assist in the development of the National Livestock Industry through the continuous supply of improved genetics from Yo Creek, Toledo and Central Farm stations. A total of 80 purebred Brahman cattle (45 young bulls and 35 heifers) were sold for breeding to 70 farmers countrywide. The cow herd at the stations was reduced by 14.4% due to the culling of 21 old non-producing cows. The culled cows will be replaced with 30 selected heifers to bring up the total cow breeding herd at the stations to 150 cows.

Pig production at the Yo Creek station in 2007 recorded an increase in the supply of pigs for breeding stock from 6.6% in 2006 to 20.6% in 2007. Pig farmers are procuring continuously breeding piglets from purebred pigs introduced last year to upgrade the quality and performance of their herd. This demand for breeding stock is expected to increase further in the coming year.

Livestock Survey: The 2007 national livestock survey showed an increase of the national herds for all sub-sectors over 2006 with the exception of pigs and dairy cattle, which recorded a decrease in size mainly as a result of increasing feed prices. Pig production went down from 14,533 to 12,403 heads while dairy went from 5,728 to 3,914 heads, representing a decrease of 14.7% and 31.7% respectively. On the other hand there was significant growth for both beef and sheep production by 7.7 % and 24.1% respectively over 2006. The national beef herd reached a total of 72,826 heads in 2007 and the sheep count reached 9,645 heads.

Meat production: The production of processed meats and slaughter returns showed significant increases in production, with the exception of mutton and broilers which decreased by 7.0% and 1.4% respectively. Mutton production was 52,695 lbs. and poultry production was 29.5 million lbs for this period. On the other hand pork and beef production increased significantly to 2.5 million lbs. and 3.6 million lbs., this representing an increase of 11% and 8% respectively over 2006. In terms of while turkey production the increase was 3.0%, from 355,095 lbs. to 366,049 pounds. Egg production also saw an increase of 12.0% from 2.6 to 2.9 million dozens in 2007.

Breeding and Genetic Improvement: The Brahman beef cattle herd at the government station has been constantly upgraded over the years with the introduction of new blood lines from Yucatan, Mexico and purchases locally. This has been complemented with the culling of twenty-five (25) old non-productive Brahman cows which gave room for the replacement of young heifers. The herd was further boosted with the procurement of ten (10) heifers from Joe Friesen in Spanish Lookout. The artificial insemination (AI) program to synchronize Brahman cows to introduce Red Angus F1 crosses in the herd was not successful as the conceptions were low as a result of technical difficulties before and at the time of insemination.

The bull rental service continues to be available to farmers at a rate of $ 4.00 per day. Rams of the Barbados Black Belly and Dorper breeds were available at Central Farm and Toledo Districts for rental services at the rate of $4.00 per dayl. The Boer goat buck was also made available to farmers upon request. Twelve (12) farmers from the Corozal, Belize, Cayo and Toledo districts took advantage of the rental services of the rams and buck.

The private sector also did their share of upgrading as many bulls were imported from Mexico. They imported mostly Nelore and Brahman bulls. The Mennonite communities of Spanish Lookout and Blue Creek are the ones investing heavily in the Nelore breed. Tiger Run farms in the Cayo district is the only producer that is divesting in the Black Angus breed. This is in response to the market demand from the tourist sector that has shown preference for the meat from this breed due to its tenderness and juiciness.

Livestock Feeds and Feeding: Pasture continues as the most important feed resource for our cattle and small ruminants. Pasture improvement and establishment of protein banks formed part of the techn ological tools to improve livestock performance levels. This year, the MAF was instrumental in the establishment of 16 acres of improved grass varieties in 6 small livestock farms in the districts of Cayo, Stann Creek, Orange Walk and Corozal. Also, these same 6 farmers established ¼ acre each of a protein bank composed of Mulberry and Nacedero with materials supplied from MAF. Hundreds of farmers continue to practice traditional ways of production known as extensive farming system where cattle are grazed on a permanent basis, which results in poor productivity. About 90% of livestock farmers use this system. With improved pastures and supplemental feeding, the cattle performed more efficiently and fetched higher prices. Over 1,500 acres was established countrywide to improved pastures mainly in Orange Walk, Cayo, Stann Creek and Toledo districts.

Beef Production: In 2007, the local and regional beef cattle market demonstrated tremendous growth over last year. The price offered by Guatemalan buyers was similar to the domestic price of $1.15 per lb. A total of 4,670 heads of cattle were exported to Guatemala, representing a huge increase of 190.0% over 2006. While beef cattle stocks reached 72,826 heads, representing an increment of 8.0%, the local numbers produced for slaughter also increased by 8.0% from 7,368 heads to 7,926 heads.

Most beef cattle are fattened on pastures, but there are several farmers that have invested in feedlot operations and others in other semi-intensive systems.

Dairy Production: In 2007 milk production decreased by 10.0%, from 6.6 to 5.9 million pounds. This reduction is directly related to the 32% decrease in the national dairy cow herd population. The high cost of dairy feed coupled with the marginal price for milk has contributed to downward trend. However deliveries to Western Dairies processing plant increased by 4.0%, from 4.3 million pounds in 2006 to 4.5 million pounds in 2007. The processing of milk by small scale cheese producers decreased significantly from 2.3 million pounds to 1.5 million pounds, a 37% decline. In order to curb the trend of famers exiting the activity Western Dairies in January negotiated with the government an increase in the price of while milk paid to farmers. Current price for unprocessed whole milk is $0.51 per pound.

Poultry Production: Total number of broilers slaughtered increased by 3%, it went from 8.2 to 8.5 million birds. However dress weight decreased by 1%, from 29,880,350 lbs in 2006 to 29,473,121 pounds. Almost 93% of the slaughter has been by large operations as compared to a larger number of small pluckers in the past. The Cayo district is still the number one district in poultry production as it produced 4.7 million or 55%, while the Orange Walk district produced 3.5 million or 41% of total production. Turkey meat production increased from a total of 355,095 lbs. in 2006 to 366,049 lbs. in 2007, representing a increase of 3.0%. Egg production also increased this year from 2,640,152 dozens to 2,949,537 dozens, an increment of 12.0%. Although less meat was sold the value of the sector increased, this was due primarily to the increase of poultry from $1.85 to $2.30 per pound.

Swine Production: Market price for pigs on the hoof went up by $0.25 from $1.50 to $1.75 per lb., the highest ever paid to producers. This increase is as a result of the increasing feed prices, which has resulted in an increased cost of production that exceeded $1.50 per pound. Slaughter returns from official and other monitored facilities showed that there was an increase from 18,548 heads in 2006 to 20,536 heads in 2007, an increase of 11%. However, the annual livestock survey showed that the national pig population decreased by 15.0% from 14,533 heads to 12,403 heads. This decrease was primarily due to some farmers leaving the activity or stepping down their operations. There was a slight decease in exports of 2.0%, from 1,058 heads in 2006 to 1,038 heads in 2007. It is estimated that the decline in pig production will continue as feed cost will not decrease in the near future. Additionally the cost of other inputs and service will follow suite.

Small Ruminants: Sheep producers are enthusiastic about sales as consumption is increasing steadily. The consumption has markedly increased in the Cayo district. All the sheep that is fattened for sale has been sold quickly and at a good price of $2.00 per pound on average. The market prospect has encouraged more farmers to venture into sheep production, while others have retained more ewes for breeding purposes to expand their herd. The survey showed an increase of 24.0% in the national herd, from 7,770 heads in 2006 to 9,645 heads in 2007. Slaughter returns show that that total mutton sales decreased by 7% from 56,385 lbs. in 2006 to 52,695 lbs. in 2007 – backyard slaughter is obviously not accounted for adequately. Mutton is available at the various meat shops and restaurants countrywide

The four semi-intensive rotational systems of sheep and goat production that were established in 2006 under the FAO project in the Belize, Toledo and Cayo Districts were monitored and maintained. These farms maintained improved genetics through the rotation of quality breeding rams and bucks in their flock.

Honey Production: Despite all the effort the Ministry and other agencies have put into expanding honey production over the years, production for 2007 fell by 1% from 10 7,784 lbs. to 106,325 pounds. Projections for 2007 were for an increase in production but Hurricane Dean destroyed many hives in the northern districts. Between the two northern districts the production of honey wa s 60.6%, with the Orange Walk district alone producing 52.0% of total production. The Cayo district was second in production with 32.0% of the honey produced. One farmer from the Cayo district also produced the largest volume of pollen; he sold 625 pounds of pollen at $20.00 per pound. The Cayo Quality Honey Producers Cooperative got $75,000 from PACT and $XXXX from GEF for expansion of their production, capacity building, value adding and diversification. The output and impact of these projects will not be seen until 2008. The process to revitalize the National Beekeeping Council was also started.

1.2 CROP PROGRAM

The crop sub-sector is the largest contributor to GDP of the agriculture sector as it contributes significantly to export earnings. The Statistical Institute of Belize reported that in 2007 the traditional export crops generated $273.1 million, papaya included. These figures represent 53% of the total exports earnings of the country. The export of sugar and papaya were affected heavily by Hurricane Dean in August that caused extensive damage and losses to the northern part of the country.

The production of grain increased except for soybean. The consumption of most grains is increasing due to the growth in the livestock industry. Vegetables experienced mixed growth, however the figures

demonstrate that importation is declining. Production of most root crops remained the same. The Ministry has been very instrumental in stimulating economic opportunities for farmers. This has been done in cooperation with the private sector, the partners in development, international/regional agriculture research institutions and key line Ministries.

The main achievements in 2007 for the Ministry's program were the following:

- The introduction of protected covered structures to produce off-season vegetables.
- Lumite netting and transparent plastic material were provided to farmers to assist in the construction of vegetable seedling nurseries.
- Six hundred harvesting crates were given to farmers to assist them to reduce post-harvest damage and enhance the quality of the product when it gets to the retail outlets.
- Plastic sealers and wrappers were procured and handed over to the Extension Service. This equipment is to facilitate farmers to improve the presentation of packaged vegetable products.
- California Red earthworms were re-introduced for organic vegetable production;
- Forty farmers and 3 Extension Officers attended the BEJO Vegetable Seed Company field day in Guatemala with the purpose of learning the latest technology developed by the company.
- One low-cost potato storage facility was built to demonstrate to farmers an appropriate technology to store potato for seed and human consumption.
- Ten pounds of CARDI Green hot pepper seeds were produced to supply small farmers.
- A total of 100,000 pounds of commercial rice seed was produced for small farmers
- Two rice variety trials were established to evaluate tolerance level to Spinki mite.
- Thirty six farmers and three Extension Officers were trained to detect and control the Spinki mite.
- 17,000 dwarf Curare plantain seedlings were imported from Galiltec in Honduras to establish commercial production of plantain for the export market.
- Nine meetings were held to properly plan and coordinate the production, marketing and research of vegetables, rice and hot pepper. This was done through the Technical Committees and Task Force of the aforementioned commodities.
- Training was held for Extension Officers, crops technical/field personnel of the Ministry and farmers in small machinery maintenance and operation.
- Thirty farmers were trained in organic vegetable production;
- The Crop Section participated at the Central Farm Open Day and the National Agriculture and Trade Show to promote the Ministry research and developmental programmes to the general public.

GRAINS AND OIL SEEDS:

Rice: Rice production experienced a market increase in production, 39.1 million pounds of paddy was produced compared to 26.1 million pounds in 2006. Irrigated rice accounted for 83.4%, upland mechanize for 13% and milpa for 3.6% of the total production. A total of 9,172 acres were cultivated of which 58.4% was irrigated and 41.8% was under the rain-fed system. The average production for irrigated rice was 5,300 pounds per acre, upland mechanized was 2,063 pounds per acre and milpa was 1,198 pounds per acre.

The main achievements this year were:

a) The stock-seed production plots and specialized equipment from the Taiwan Technical Mission (TTM) was transferred to the Ministry's rice project. Ten thousand pounds of stock seeds were produced of Cypress, CARDI 70, Belize Select #1, and Taichung #10 varieties.
b) The Spinki mite was detected in farmer's fields took place in the Orange Walk and Toledo Districts. Two technicians, Messrs. H. Westby and Mr. K. Witty received training in the detection and control of the mite in Nicaragua. They then provided a similar training locally in Blue Creek village for 30 farmers from both rice producing districts. The Ministry has obtained 3 tolerant varieties from Nicaragua and a screening nursery from CIAT.
c) Collection of data on production systems, acreage planted and consumption data were updated at the 3 meetings of the National Rice Technical Coordinating Committee. Ongoing concerns of producers, millers and industry representatives were also discussed. One of the objectives of these meeting was increasing productivity of the industry.
d) A seed/fertilizer drill was procured from the U.S. to assist producers from the Toledo district with planting. A tank with all spraying accessories will be adopted to assist with pre-emergent weed control. This will be a vast improvement over the customary seeding method which is the broadcasting method presently practiced in the Toledo District. It is expected that the rent of the rice seed/fertilizer drill will pay back the cost within 2 years. The seed drill will also be utilized for on-farm planting/demonstration of 8 new varieties within the Region.
e) All the field personnel and Extension Officers were trained in the operation and maintenance of the rice machinery.
f) Dr. Robert Shank, retired volunteer from Texas, continued his breeding experiments to produce varieties that are productive and adapted to Belize.

Corn: Corn production increased by 19%, from 81.2 million pounds in 2006 to 100.1 million pounds in 2007. Yellow corn accounted for 84% and white corn 16% of the total production. Yellow corn is produced on larger quantities than white corn because it has greater usage in the livestock industry. This year mechanized corn accounted for 78% and milpa 22% of the total production. The Cayo District accounted for 56%, followed by Toledo with 19%, Orang e Walk with 15% and the remaining 10% by Corozal and Stann Creek Districts. An estimated 80% of milpa production is concentrated in the Toledo district.

The mechanized yellow corn registered the highest average yield with 2,689 pounds per acre while mechanized white corn yielded 2,014 pounds per acre. The milpa farmers obtained an average yield of 1,672 pounds per acre. A total of 42,661 acres of corn were harvested in 2007. The average price of yellow corn was $0.26 and that of white corn was $0.24 per pound. The hybrid varieties of corn planted in 2008 are Pioneer 3041, 3031, 30S87 and CD-H8.

The Ministry will continue to encourage farmers to increase production to meet the growing demand of the local and export market. There is need to increase productivity, increase average yields from 2000 to 3,500 pounds per acre by using better varieties or improved technologies. The greatest challenges are the high cost of fuel and fertilizers. A task force will also be formed to better organize, plan and implement production, marketing and research needs.

Sorghum: Sorghum is used in the livestock industry as a substitute for corn. In 2007 production grew by 50% from 10 million pounds in 2006 to 15 million pounds in 2007. Increased production was as a result of higher yields obtained. Farmers are taking advantage of market opportunities as the demand for this commodity for livestock feed rises. In 2007 a total of 7,116 acres were harvested and the average yield was 2,124 pounds per acre in comparison to 2006 when 5,463 acres were harvested. These yields can be considered low since sorghum has the capacity to produce up to 4,000 pounds per acre with good field management. This is a low input crop and has greater tolerance to drought and pest/diseases problems than corn. The average price on the market was $0.15 per pound. The varieties planted are Pioneer 82G55 and 82G63. The Orange Walk District accounted for 73% and Corozal and Cayo District for 27% of the total production this year.

Beans: The production of pulses (including black-eye peas) increased by 7%, fro m 14.4 million pounds in 2006 to 15.4 million pounds in 2008. Of the total R.K. beans accounted for 6.2 million pounds, black-eye peas with 5.4 million pounds, black beans with 2.9 million pounds and pinto beans with 0.6 million pounds. In 2007 almost 56% of R.K production was exported, representing 3.5 million pounds. In the case of black-eye peas 95% is exported. The total area cultivated for pulse production was 19,495 acres while that of 2006 was 18,432 acres. Acreage decreased but productivity increased as there was adequate rainfall during pod formation. R.K. beans accounted for 9,100 acres followed by black-eye with 5,320 acres, black beans 3,475 acres and pinto beans and other beans with 492 and 644 acres respectively.

Other Beans: The Aribeno, Bayo and white beans are the most common beans grown in this category. Production decreased by 27% from an estimated 0.6 million pounds to 0.4 million pounds. A total of 492 acres were harvested in comparison to 1,003 acres in 2006. The average yield increased from 566 to 889 pounds per acre. The decrease in production therefore can be attributed to less acreage planted as results of farmers were unable to procure seeds on a timely basis.

Soybeans: Production decreased by 38% from 1.3 million in 2006 to 0.8 million in 2007. The acreage harvested also decreased from 750 to 486 acres. All of the soybeans produced came from the Orange Walk district. The average yield also decreased from 1,800 to 1,710 pounds per acre. The reduction in acreage can be attributed to heavy rains during the harvesting period which caused pod fall and rot. Soybean grain was sold at a wholesale price of $0.40 per pound. The main variety produced was the CB 1088.

The soybean processing facility at the Yo Creek station was leased to the Nutrisoya Co. Ltd. Nutrisoya had wanted to enter into a purchase-lease agreement but when Cabinet approved an 10% interest on the payment the owners of Nutrisoya then negotiated for a simple lease agreement. Due to difficulties with BEL's inability to replace the transformer barrowed from the facility in 2006 the facility was not utilized. However Nutrisoya purchased and have in storage 100,000 tons of soybean gain. It is expected that in early 2008 this issue will be resolved.

Peanuts: Production decreased by 2%, from 225,314 pounds in 2006 to 215,155 in 2007. A total of 176 acres were harvested representing an increase of 30% over the previous year. The average yield decreased from 1,666 to 1,225 pounds per acre. The yield of the crop was low as it was affected by high rainfall which destroyed some of the fields. The main variety produced is the Red Tennessee. Peanut was sold at a wholesale price of $2.00 per pound. The core of the production is based in San Antonio, Cayo District.

VEGETABLES

Although vegetable production decreased for some commodities, retail prices remain relatively high as supply was low and erratic. Much of this trend can be attributed to the erratic weather pattern, particularly heavy rains in the first quarter of the year. The lack of irrigation systems in the Cayo district, the district the produces most of the vegetables, also contributes as during the dry farmers cannot produce vegetables.

Tomato: In 2007 production was 1.6 million pounds, a decrease of 23% over the 2006 figures. A decrease in production can be attributed to adverse rainy conditions which resulted in high incidence of fungal and bacterial diseases. A total of 88 acres were harvested. The average yield per acre was 17,993 pounds. The wholesale price remained stable at $0.75 per pound and retail price averaged $2.00 per pound. The Cayo and Corozal districts accounted for 71% of the total production. The most popular varieties grown are Tolstoi, Sultan, Gempride and Polina.

Cabbage: Cabbage production was similar to that of 2006; 3.2 million pounds were marketed from 129 acres planted. The Cayo District produced 72% and the other districts 28%. The main varieties planted are Rotonda and Green Boy. The average yield was 24,978 pounds per acre. Prices fluctuated from $0.50 per pound during the main season January to May, and gradually increased to $1.00 per pound for the remainder of the year.

Sweet Pepper: The main planting season is from November to February as during this time the weather is ideal for producing this crop, the temperatures are cool and there is adequate rainfall. During this season the retail price leaped as high as $7.00 per pound. In 2007 total production was 1.1 million pounds from 78 acres harvested, representing a 9% increase over the 2006 production figures. The average yield was 12,541 pounds per acre. During the rainy season it is challenging to produce pepper successfully. Therefore, in order to reduce field losses the Ministry is recommending to produce under protected covered structures. The most popular varieties planted are Lido, Camelot, Sir Gallagard and Double-up.

Hot Pepper: The bulk production of this commodity is concentrated in the Trio Area of the Stann Creek district. Three years ago the Orange Walk district was the biggest producer of hot peppers for export and processing. This year a total of 0.3 million pounds were produced from 32 acres, a 10% increase in comparison to last year figures. Marie Sharp Ltd purchased 54% of the production at $0.80 per pound and the balance was sold on the local market at $1.00 per pound. The pepper sold to Marie Sharp was

processed and exported to the US and Japan. The average yield obtained was 10,000 pounds per acre. The variety produced was the CARDI Green. The Ministry continues to support the production of hot pepper seeds through collaboration with CARDI. This year 10 pounds of CARDI Green seeds were produced and sold to farmers at $0.40 per ounce. This industry has great potential to expand but it will take an active and effective producer organization to make it happen.

Carrots: Carrot is an important commodity grown by small farmers from the communities of El Progresso, San Antonio, Springfield and Barton Creek in the Cayo District. These communities produced 92% of the total production. The total production in 2007 was 0.5 million pounds from 53 acres, this represented an increase of 9% over the 2006 figures. The average yield was 8,530 pounds per acre. The main varieties planted were Royal Cross, Brasilia and Kuroda, the latter is a new variety the still needs more evaluation. The main challenge is to find an alternative variety to replace the Brasilia. Brasilia is a high yielding variety but the color and the core size is not attractive to consumers. Most farmers plant Brasilia because the seeds are reasonable; one ounce sells for $5.00 while the Royal Cross variety sells for $14.00 per ounce.

Irish Potato: Inclement weather coupled with bad imported seeds was the causes for decline in production, from the 155 acres planted 1 million pounds were market, representing a decrease of 59% over last years' figure. The importation of seeds was limited and adverse weather conditions caused early and late blight disease which affected the crop. The average yield was 6,796 pounds per acre.

Potato under normal conditions produces up to 12,000 pounds per acre under rain fed conditions and an average of 20,000 pounds with irrigation. The wholesale price was $0.60 per pound. The main variety planted planed in late 2006 was the Red Larouge but late 2007 the Red Lasoda and Red Pontiac varieties were introduced by the seed importer. Farmers had not alternative as they had made the down payment for the seed to the importer.

One low-cost storage structure was built in El Progresso (Cayo) with FAO funds and two other units will be constructed in 2008 in the Cayo district. These are the first of its kind built and will be used to demonstrate to potato producers a low-cost facility that can be used for the storage of seed and produce. The facility has the capacity to storage 25,000 pounds of potato.

Onion: Onion cultivation was introduced 10 years ago to diversify agriculture production and go contribute to import substitution. Onion production is of economic importance to over 100 small farmers mainly from the Corozal District. The production decreased significantly by 42% from 1.6 million pounds in 2006 to 0.9 million pounds in 2007. The decline in production can be attributed to adverse weather conditions experienced this year. The crop was affected by purple blotch and alternaria which resulted in low yields of 12,542 pounds per acre. Yields decreased by 37% over last year figures. A total of 69 acres were harvested. There was a shortage in supply resulting in higher prices. The average retail price was $1.20 per pound, but was as high as $2.50 per pound. The most popular varieties planted are Mercedes, Liberty and Basic. The Ministry delivered seeds, fertilizers and other inputs to farmers to

mitigate the effect of Hurricane Dean that made landfall on Belize in late August. There is need to rebuild the storage structures destroyed by the hurricane. Farmers would like a better variety of white onion. The current White Texas Grano does not store well and is prone to diseases.

Lettuce: Lettuce is one of the newest commodities that is being promoted by the Ministry to reduce the importation of this crop and to create economic opportunities for small farmers. The two main types grown are the leaf and head lettuce. Last year small farmers produced a total of 0.5 million pounds of lettuce from 18 acres in comparison to 2006 when 0.3 million pounds were produced, representing an increase of 87%. The yield of head lettuce is 26,000 pounds per acre and leaf lettuce yields an estimated 23,000 pounds per acre. The main variety of leaf lettuce produced was Taina, Veronica and Vulcan and of the head lettuce preferred varieties are Salinas, Tropical Emperor and Green Lakes.

Celery: The market for this commodity is now well-established. The current annual demand is estimated at 300,000 pounds. In 2007 small farmers produced 124,950 pounds from 4 acres harvested, this represents a 15% increase over the 2006 production figures. The average yield per acre was 34,139 pounds. Due to the climate needed to produce celery successfully is only adequate around one season of the year in Belize, celery production is limited. Most of the celery is planted in the Cayo district, particularly the Mennonite community of Springfield. The most popular variety planted is the Green Giant. The research program at Central Farm continues to evaluate new varieties that are adaptable to Belize and high yielding.

Broccoli &Cauliflower: With the increase awareness of healthy lifestyles and balancing the dies Belizeans are consuming more broccoli and cauliflower. Similar to celery the production of these two commodities has expanded over the last few years. New varieties have been identified that are more adaptable and higher yielding. However the production of broccoli was 22,700 pounds, a decrease of 58% over the 2006 figures. Broccoli seems to be less tolerant to excessive rains and in the months when it is grown there was plenty of rains. The total area planted was 2 acres and the average yield was 10,802 pounds per acre. In the case of cauliflower, production increased by 32% from 24,750 to 32,700 pounds per acre. A total of 3 acres were planted and the average yield was 10,381 pounds per acre. The most popular variety of cauliflower grown is the Majestic and broccoli is Gypsy.

Cho-Cho: Production increased from 86,200 pounds in 2006 to 113,700 pounds in 2007. A total of 22.8 acres were harvested. The average yield was 4,893 pounds per acre. Production increased as a result of good field management. The Cayo and Stann Creek Districts are the main producing districts. Consumers prefer the light green type. The wholesale price for the cho-cho was $1.00 per pound.

Sweet Corn: Sweet corn production decreased by 7%, from 390,000 ears in 2006 to 364,000 ears in 2007. The total area harvested was 14 acres. The wholesale price per ear was $0.60 per pound. Presently, Orange Walk is the only district which produces this commodity commercially. The Mennonites from Springfield in Cayo district researched and found several varieties that can be successfully grown in the country. In 2008, these farmers will produce the crop commercially. Expectations are that prices may fall due to market competition.

Other Vegetables: Vegetables such as cucumber, okra, string beans, Chinese cabbage, beets, radish, cilantro, chives, eggplant, parsley, calloloo, asparagus and pak choi are produced in small quantities to supply the demand of the local market. Last year production for cucumber was 167,000 pounds from 13 acres harvested. Okra production decreased by 71%, it went from 172,000 pounds in 2006 to 49,000 pounds in 2007. A total of 16 acres were harvested and the yield was 3,071 pounds per acre, this yield is considered low. The main variety grown is the Clemson spineless. The main varieties of cucumber planted were the Slice King, Slice Moore and Poinsett. The varieties of beet planted are Pablo and Redondo. In the case of radish the Reggae variety was planted and for cilantro the Caribe variety.

CUCURBITS

Pumpkin & Squash: A US company known as AgroSun is interested to purchase butternut squash from producers in Belize. The company has held two meetings with the Ministry and prospective producers with the objective of promoting the production of this commodity for the export market. The Ministry is cautious about this situation and will assess whether it is feasible to grow this crop. Two demo plots will be established in the Orange Walk District and data assessed. Once the trial plots indicate that the crop is adapted to Belize and production is viable the commodity will be promoted commercially. The two varieties that will be planted are Waltham and Avalon.

Cantaloupe and Watermelon: Cantaloupe production decreased by 27%, it went from 872,800 pounds in 2006 to 638,350 pounds in 2007. However productivity per acre increased as the average yield increased from 11,492 to 13,698 pounds. A total of 47 acres were harvested as compared to 78 in 2006. The variety that is grown by farmers is the Oro Duro and Hymark. Cantaloupe is normally grown from December to March and harvested in March to June. The Cayo District accounted for 77% of the 2007 production.

Watermelon production also decreased by 42%, it went from 4.4 million pounds in 2006 to 2.5 million pounds in 2007. In the case of watermelon the average yield decreased from 17,718 pounds to 14,564 pounds. A total of 175 acres were harvested in comparison to 218 acres last year. The decrease in yield was as a consequence of adverse weather condition during the production cycle. The variety most popularly grown is the Top Yield. The Cayo district accounted for 76% of the production.

ROOT CROPS AND TUBERS

The general trend seems to indicate the root crop production is on the decline. This may be as a result of farmers being unable to market their produce in those years when larger areas were planted and the small local market can only absorb a certain amount. Farmers are now planting less as at those levels the wholesale price has improved. The size of he local market limits production as farmers have the capacity to expand but will only do so if an export market is found for these commodities.

Ginger: The production of ginger decreased by 34%, it went from 65,250 pounds in 2006 to 34,000 pounds in 2007. A total of 7 acres were harvested. The yields decreased from 5,553 pounds to 4,857 pounds respectively. The reason for the decline was that there was a lower demand for the crop, thereby limiting its expansion. If an export market is found ginger production has great potential. The wholesale price of ginger is $0.75 per pound. The main type grown is the Jamaican yellow ginger.

Cassava: This crop is of economic importance to small farmers from the southern part of the country. Cassava is the staple food of the Garifuna and used to prepare a several ethnic foods. The production increased by 37%, from 0.5 million pounds in 2006 to 0.7 million pounds in 2008. Despite its cultural importance the trend has been the farmers from the south are planting less cassava. This has been so as more farmers are finding jobs elsewhere. A total of 47 acres were harvested. The average yield was 15,354 pounds per acre. Cassava is sold at a wholesale price of $0.50 per pound on the local market. Some of the bread derived from cassava is exported to the US.

Coco-yam: Cocoyam production decreased by 40%, it went from 0.6 million pounds in 2006 to 0.3 million pounds in 2007. A total of 36 acres were harvested as compared to 103 acres in 2006. The average yield was 12,377 pounds per acre. The average yield during that year was 5,579 pounds per acre.

Sweet Potato: Sweet potato production decreased by 64%, it went from 141,000 pounds in 2006 to 50,750 pounds in 2007. The average yield was 7,808 pounds per acre. A total of 6.5 acres were harvested as compared to 15 in 2006.

Plantains: Last year production decreased by 81% from 0.7 million bunches to 0.1 million bunches. The crop was destroyed by Hurricane Dean in the Corozal and Orange Wa lk Districts. The farmers have replanted and production is expected to recover in 2008. Plantain yields decreased from 735 to 454 bunches per acre. The acres harvested decreased by 69%, from 1,049 to 325 acres. The Ministry in partnership with small farmers from Sarteneja introduced over 17,000 seedlings of the dwarf curare variety from Honduras. A 5-acre plot was established for seed multiplication. The farmers plan is to establish a 25-acre commercial plot in 2008 for the export market.

Other Root Crops: These commodities are planted on a small scale by farmers. In 2007 a total of 243,900 pounds of yams were produced from 24 acres. In the case of yampi 263,392 pounds were produced from 25 acres and 20,000 pounds of Jicama were produced. These root crops are produced mainly in the Stann Creek and Toledo Districts. The prices range from $0.50 to $1.00 per pound.

EXPORT CROPS

Banana: Exports earning of banana decreased by 18%, it went from BZ$ 50.1 million in 2006 to BZ$41.5 million in 2007. A total of 70.8 long tons were exported in 2006 in comparison to 58.9% in 2006, a decline of 11.9%. The acreage under cultivation was 6,000. The decrease in production is attributed to an outbreak of the Sigatoka disease which affected the crop. The industry continues to be assisted by a grant fund from European Union (EU). The purpose of this fund is to assist the industry to become more competitive on the world market. The country will lose its preferential market for banana and will have to compete openly on the world market. The banana belt is located in the Stann Creek district. The variety of banana grown is the Grandenain - Cavendish type.

Sugarcane: Sugar exports earnings fell by 11.9%, from BZ$100.1 million in 2006 to BZ$88.1 million in 2007. A total of 84.5 long tons (LT) of sugar were exported. Production decreased by 13%, from

111,394 LT harvested in 2006 to 97,254 LT in 2007. A total of 1.2 million LT of sugarcane was harvested in 2007 comparison to 1.1 million LT in 2006. The average yield per acre was 19 tons per acre. Molasses production was 41,997 LT. The main exports markets are the EU and the US. There are 62,000 acres of sugarcane under production. Production decreased as a result of the devastation caused by Hurricane Dean. Most of the fields were destroyed. New varieties of cane recommended for planting are BBZ8257, BBZ80240 and B79474. The variety B52298 will be removed from the market because of susceptibility to smut and rust diseases.

Cocoa: The Monilia disease continues to impact the industry. There is need to undertake all necessary measures to control this disease and recover production. In 2007 production of dried beans decreased by 83%, it went from 324,869 pounds in 2006 to 54,773 pounds in 2007. Most of the crop harvested originated from healthy isolated fields where Monilia is not present. The Toledo Cacao Grower Association (TCGA) sells the dry fermented beans to Green & Black Co. Ltd from England. The export price was $1.78 per pound.

Cotton: A Japanese company in the Orange Walk district was producing a special type of cotton known as Sea Island cotton for the export market. Last year 200 acres were harvested and the average yield was 1,000 pounds per acre with a total production of 200,000 pounds. Production was similar to 2006. Sea Island cotton is sold on the export market at US $10.00 per pound.

1.3 AGRO-PROCESSING

The production of dried fruits for the School Meal and Nutrition program in the Ministry of Agriculture Fisheries and Cooperatives is one of the main activities of the Agro-processing Program. The ROC, Agriculture Technical Mission were involved in the following areas: product enhancement, research and development, trainings, marketing assessment for potential products, production of dried fruits and the completion of the expansion of the Agro-processing Laboratory in Central Farm.

Despite the damages of hurricane Dean that affected the northern districts the production of dried fruits remained constant. The program consists of two processing centers; one is located at the ITVET facility in Corozal Town and the other at the area known as “Dump” in the Toledo District. At the ITVET papayas are dried while at the Dump pineapples and bananas are dried. The dried fruits are then transported to Central Farm where the fruits are packed into 5-ounce snacks. On a weekly basis 8,000 snacks are prepared to distribute to needy children in the pilot schools in the Belize, Stann Creek and Toledo districts.

During 2007 the following are some bottlenecks experienced by the program:

- Lack of equipments
- Inconsistent quality of processed products
- Poor or lack of market for local products
- Lack of production and marketing information (cost of prod.)
- Lack of trained personnel in Agro-processing
- Lack of packaging materials
- High cost of inputs

- Poor or lack of access to credit
- High cost of production

The main areas of emphasis in 2007 were:

1) School Meal and Nutrition
2) National Agro-processing Developments
3) Expansion and Completion of the Agro-processing Laboratory.

School Meal and Nutrition Program:

Production and workers: The School Meal and Nutrition Program is in its second year of implementation. A total of 181,000 lbs of fresh papayas, 225,000 lbs of fresh pineapple and 78,000 lbs of fresh bananas were dried. At the Central Farm facility 1,740 boxes or 226,200 snacks were delivered to the Ministry of Education for the School Meal and Nutrition Program. An additional 25,000 bags were used for other activities such as: Central Farm Open Day, National Agriculture and Trade Show, Districts Agriculture Open Day, Public Officers Day, World Food Day, school donations, and special activities of the ROC, Taiwanese Mission. Cumulatively a total of 251,200 bags of assorted dried fruits were packed and distributed to primary school students. The yearly target is the production of 320,000 bags of dried fruits. The target was not met in 2007 due to poor performance of workers and the time taken for the re-training of new workers; which also affected the quality. An additional two workers were employed to increase the production of dried fruits for the School Meal and Nutrition Program to supply the six Districts.

A new trailer was purchased for the School Meal and Nutrition Program. The trailer is used for transporting materials and final product to and from Central Farm.

New printed bags have replaced previous bags used for packaging the dried fruits. A competition with primary schools was launched to arrive at the new design for the new bags.

Agro-processing Development

Marketing: The Ministry gives high priority to developing a market for local products which may increase income generation for the rising number of small producers/processors involved.

For two years the Cayo Quality Honey Producers Cooperative has been generously assisted with honey bottles, labels and flyers to increase the sale of bee products. This year they were also supported to participate at the Belproconex Expo held in Belize City to promote their bee products. By the end of 2007, the Cooperative had reported an increase in sales of more than twenty five percent.

The Agro-processing Unit participated in the National Agriculture and Trade show to assist small producers/processors in promoting local products to expand the market and increase income. Various local products were collected from all the districts and were displayed at the Central Farm boot at the National Agriculture and Trade Show.

Training:

Soybean Milk training was carried out at the Agriculture and Natural Resource Institute (ANRI) in the Stann Creek District. The training was conducted by Mr. Huang, ROC, Taiwanese Food Processing expert and a technician from Central Farm. Two teachers and twelve students participated in this training. The main objective of the training was to promote Soybean Milk and its health benefi ts.

Training was held on Rice Liquor preparation in the Toledo District where twelve persons attended. The training was conducted by the ROC Taiwanese Mission to demonstrate the use of broken rice for value adding to reduce post harvest losses and increase sustainability in rice production.

An Agro-processing Technician and a student from Tumul Kin Center in Toledo District traveled to Central Farm Agro-processing Laboratory for training. The objective of the training was to enhance knowledge and skills in the area of Agro-processing in value adding for the Agro-processing course offered by the school. The participants received training from the ROC Taiwanese Mission on baking techniques, soybean milk, Horchata beverage and the use of equipments. Tumul Kin is in the process of developing its own baking procedures and has improved its horchata drink.

A three-day workshop was organized and facilitated by the Cooperative Department, Cayo Extension Office, BAHA, BRDP and the Agro-processing Development Unit from Central Farm. A total of fifty persons from all the six districts participated in this workshop which covered agro-processing techniques, food safety, good agricultural practices and good manufacturing practices, marketing, business development skills and entrepreneurship.

Fifteen women from Double Head Cabbage village in the Belize District received training in good manufacturing practices, and packaging and labeling of products which was facilitated by the Coordinator of Agro-processing. The training was a requirement for the group to receive funds from UNDP for a project on fruit preserves.

After more than six months of research on soybean sauce the process was completed by the ROC expert in Central Farm. The bottleneck of poor fermentation was corrected by aging the product for longer periods. Also the ROC is working on improving on the quality of the cacao powder with the aim of improving the quality of the chocolate bars made in the Toledo district.

Other Activities

The Agro-processing Unit participated in the World Food Day celebration to awareness of the importance of good nutrition and healthy lifestyles. The School Meal and Nutrition Program provided 5,000 bags of assorted dried fruits for display and to share with children from different schools who attended the event in Belize City.

As part of the Belize Marketing Study a product profile for jams and jellies was developed to look at the potential of marketing jams and jellies in pre-determined markets in the region. Jams and jellies was one of the priority commodities identified to evaluate in the market study. This exercise revealed that that most producers/processors do not practice record keeping and as such cannot determine the cost of producing the products.

1.4 Extension Department

The Extension Service was involved with the implementation of the Belize Rural Development Project (BRDP). It worked closely with the District Development Committee (DDC) and service providers to identify, evaluate and recommend small grant projects to the Project Management Unit of BRDP. Overall, twenty-seven small grant projects were approved and implemented. Of these, forty eight percent of them were agriculture related. Additionally, two hundred and thirty-three micro-grant projects were also approved. Then hurricane Dean struck the northern part of the country. Extension became engulfed in damage assessment and in the distribution of hurricane relief to affected rural communities. But in the spite of all these challenges and demands on Extension, the service was still able to focus on some major areas of Extension such as: capacity building, information dissemination and visibility, developmental activities, networking and the management of the service itself.

Capacity Building

As part of capacity building, Extension officers received trainings both locally and aboard. Three senior officers received trainings in strategic planning and one other officer received training on project management cycle. Field officers received training in assorted subject areas viz. soil management, irrigation techniques, nutrition education and permaculture. Three field Extension officer received training in pest and disease management and nutritional deficiencies in vegetable production, post-harvest technology for fruits and vegetables in Honduras. Eighteen soil analyses were also funded for small farmers. All these activities were possible through the support of FAO, OIRSA, PACT, EU and GOB.

Extension Officers also organized and/or conducted numerous seminars, workshops, field demonstrations and farmer exchanges for more than 125 farmers. Thematic areas included, inter alia, papaya cultivation, control of American Palm Weevil in coconut trees, basic irrigation techniques, soil and soil fertility management, apiary, livestock management techniques and pesticides. These were pursued in collaboration and with the support of CARDI, Central Farm, PCB and BAHA among others.

Technical information and visibility

Cognizant of the importance of visibility of agricultural activities, the Information Unit in collaboration with Love FM and financial support from BRDP/EU and OIRSA launched 15-minute weekly radio program titled "Growing Belize". The program highlighted major programs and activities in MAF and with its partners in development, aiming to reach the rural

producers and the general public. The Information Unit also compiled booklets and brochures in pineapple, cucumber and tomato cultivation, honey production and pest and diseases in apiculture. Support was also received through the EU/BRDP and UB to collect and digitize over 200 copies of agricultural information and past documents.

Extension districts also held three field days to promote MAF and PIDs' activities in their respective districts and to disseminate information to rural farmers. The Irrigation Unit of MAF actively participated at World Water Day 2007 to promote importance of irrigation and water in agriculture. Extension and MAF activities were displayed at the Office of Governance day held in Belize City.

Extension actively participated in World Food Day 2007 under the theme "The right to food. Make it happen." Locally grown foods were promoted as well as their nutritiona value.

Institutional and Technical support

With the support of GOB and BRDP/EU, all six district Extension Offices received DSL internet connection, improving the speed and reliability of communication among the entire service. Six laptop computers were acquired through the EU to facilitate the work of each DDC chair.

Mobility was also enhanced tremendously with the acquisition of six Toyota Hilux vehicles through GOB to support the implementation of the BRDP project. One of the vehicles unfortunately was damaged beyond repairs. District Offices also received uniform shirts for officers, district baseline maps, camera and laminators. Through the FAO Food Security Project, three wrappers, one 17 hp self-propelled rotor-tiller, two small trailers, one John Deere 18-foot grain drill and forage chopper were acquired for a little over $64000.

Developmental activities, networking and linkages

Before the FAO Food Security Project ended in December 2007, one 150 ft by 30 ft protective covered structure was constructed in collaboration with Escuela Mexico for vegetable production. Preliminary results showed the effectiveness of protective house in controlling pest and diseases and use of pesticides. Additional research is required to improve design to obtain adequate temperatures, pollination and techniques in optimizing the use of available space inside the unit. Other farmers who had worked previously with the Food Security project continued to plant their vegetables, rice and hot pepper using small plot irrigation.

Design for the macro-irrigation system at Central Farm was completed. With funds received from Taiwanese ROC mission, CARDI, UB and GOB, borehole was drilled and delivery pipes, submersible pump,

transformer and materials for the pump station were procured. It is anticipated that the entire project construction will be completed in 2008, if additional funding needed is forthcoming.

School gardens continued to have significant success in Stann Creek and Toledo districts. In the latter, Plenty International was a leading agency in the promotion of school gardens and Toledo Extension was closely working with them. Eight wells were drilled with the limited support received through Rural Development. The well at the Yo Creek station still remains an urgent need.

Management of the Extension Service

Management continued to streamline the Extension Service to improve its effectiveness. One officer was transferred to Acting District Agriculture Coordinator for the Stann Creek District, and another Extension Officer was transferred to the ROC project for the production of rice stock seed at Central Farm. One officer resigned from the service and another one was hired. The Extension officer of the year was selected from Toledo and with the assistance of CATTIE, he was given a two-week scholarship to pursue a course in "Extension and Rural Development" at that institution.

The Cuban Irrigation Technician under the South-South Cooperation completed his tour of duty. During his time, the Irrigation Unit was strengthened and technicians trained in irrigation technology. Another Cuban Expert in mechanization came for two weeks in 2007 and carried out an assessment of the mechanization situation in Belize.

1.5 Projects

The ministry's development strategy was supported by fourteen externally funded projects in 2007, whilst eleven more proposals were prepared and submitted for funding in accordance with MAF's identified areas of priority. Project assistance was sought through FAO's new special technical cooperation programme facility (TCPF) for the enhancement of the agriculture extension services, strengthening of the cooperative sector, improvement of agriculture statistics, and industry preparedness for the imminent threat of three serious citrus diseases. Through FAO's Technical Cooperation Programme (TCP) assistance was sought for disaster preparedness and small producer alleviation from effects of hurricane Dean, promotion of the agriculture- nutrition linkage through incorporation of the school garden concept into the school curriculum, and exploration of pelagic fishery for increased income opportunity for fishing cooperatives. Under the EU funded Belize Rural Development Programme, MAF collaborated with UNDP to prepare a $3m grant proposal focusing on enhancement of the value chain for high value small producer crop and livestock systems. In addition to these thematic areas three proposals for Telefood funding were submitted for farmer groups in the Cayo and Belize districts, all of which include women and youth. These proposals were for material inputs for start up or expansion of bee-keeping, vegetable gardening and sheep rearing ventures.

Two TCP's under FAO's special programme for food security (SPFS), Promoting CARICOM/CARIFORUM Food Security and Small Ruminant Development were completed in 2007. Under the on-going South-South Cooperation TCP the Cuban technical expert in water management concluded his mission which focused on assisting in the irrigation/drainage components of the food security project and another expert in organic crop development was recruited to assist the effort in developing organic vegetable production as a niche market for local farmers. Other TCP's implemented

were the Avian Influenza improving public awareness and education project which concluded in 2007 and two more expert missions in zoo-sanitary standards and legal advisory services were fielded under TCP/RLA/3004, another regional project in support of the SPFS.

Implementation of three Telefood projects got under way after funding was approved in late 2006 and mid- 2007. These were: (1) construction of appropriate technology (evaporative cooling) farmer level potato storage facilities, (2) small farmer production of organic vegetables crops for local certification through BOPA, aimed at the tourism market and (3) expansion of vegetable and livestock production at Escuela Secundaria Tecnica Mexico.

The implementation pace for both the competitiveness and the rural development components of the EU funded Banana Support Programme continued to increase. Several undertakings in social infrastructure development in the banana belt villages were initiated through the grant process under the rural development component whilst agronomic interventions for improved productivity under the competitiveness component continued. The 9th EDF Belize Rural Development Project went into full gear with the implementation of over forty subprojects countrywide including small enterprise development through group projects or individual micro-grants, as well as institutional strengthening both at the community and national level. A decision was made to accelerate disbursement of project funds through a rider to the financing agreement re-allocating line item funding to increase the infrastructure component along with allowing a sizable portion of funds to be accessed through the grant process. Under this process seven calls for proposals ranging from Euro 200,000 to Euro 1.3m were launched. The EU funded Accompanying Measures for Sugar Protocol Countries (AMS) got under way with preparation of financing agreement AMS 2007, preparatory works for its implementation and commencement of strategic studies identified under AMS 2006.

Under the UNEP-GEF funded biosafety project more public consultations and information sessions were conducted in connection with the draft bio-safety policy first drafted in 2006. Further amendments were made with the policy, the most substantive being a proposed moratorium on commercial production of GMO"s until such time that Belize develops the requisite institutional capacity for management of such. The final draft policy was submitted to cabinet in December 2007. The CARD project came to a formal close in March 2007 after which a joint evaluation mission was conducted by the project donors, IFAD and CDB.

1.5.1 Bananas

Banana production in 2007 was approximately 63,530 tonnes, a 10.6 % decline from 2006. Bananas were sold under the tariff regime introduced in January 2006 which included a flat tariff of Euro 176/tonne for non-ACP countries coupled with a duty free quota for ACP countries of 775,000 tonnes. . Belize sold 56,266 tonnes under the ACP quota at average price of US$6.66 per box and the balance was sold at US$4.56 per box. EPA negotiations during the year eventually concluded with a decision to implement a duty free quota free system for ACP bananas compatible with WTO regulations. The effect of this new regime on Belize's future market access would be affected by the competitiveness of Belize's banana industry versus other ACP countries with potential to expand production, the eventual third party tariff rates still under negotiation as well as the industry's ability to negotiate a restructured market arrangement with potential new buyers.

Under the EU Banana Support Programme (BSP) a project director to head the project implementation unit was recruited in mid 2007. The new project director was charged with the reorganizing of the PIU in order to effect more meaningful project implementation especially regarding monitoring and evaluation, impact assessment of project interventions, improved reporting format and more targeted execution of project interventions of the competitiveness component. Following the intervention of the disease management expert in designing an improved strategy for the management of black sigatoka and its successful implementation, this methodology was adopted for the other agronomic interventions under SFA 2005 and 2006. Terms of references were prepared for nutrition and nematode specialists to determine an integrated agronomic management system for the strategic use of inputs. Marketing was revisited and, through the tender process, preparation was made for marketing investigations into options available for the banana industry in the light of the changing regime brought about through the EPA negotiations. Support for irrigation and drainage works, land preparation and supply of fungicides and meristem plants continued, along with the preparation of a tender for equipping the University of Belize to engage in future production of meristem plants as a sustainable support measure.

Under the rural development component of the BSP villages in the banana belt were served by the initiation of construction of classrooms in five villages, health centres in two villages, establishment of a rudimentary water system in Cowpen and the contracting of SIF to establish water systems in four more villages. Micro-credit was facilitated through support to the TTCU by way of institutional strengthening, credit line funding and construction of an office in the village of Bella Vista. Meanwhile BEL was contracted as a grant beneficiary for the electrification of seven villages through connection to the national grid.

1.5.2 EU ACCOMPANYING MEASURES FOR SUGAR (AMS) PROTOCOL COUNTRIES (AMSPC)

In June of 2006, the Commission adapted a financing decision, which made an indicative allocation of €45.147 million euros to Belize for 2007-2010 under the (AMSPC). The objectives of the EC support for sugar, as described in Regulation 266/2006 of the European Parliament and the Council of 15 February 2006 is to pursue one or more of the following:

(a) to enhance the competitiveness of the sugar and cane sector, where this is a sustainable process, in particular in terms of the long-term economic viability of the sector, taking into account the situation of the different stakeholders in the chain;

(b) to promote the economic diversification of sugar dependent areas, for example by redirecting current sugar production towards the production of bio-ethanol and other non-food applications of sugar;

(c) to address broader impacts generated by the adaptation process, possibly related, but not restricted, to employment and social services, land use and environmental restoration, the energy sector, research and innovation and macroeconomic stability.

AMS 2006 (3.038 Million Euros):

AMS 2006 Financing Agreement (FA) was signed in December 2006 for a total of €3,038,000.00 euros. The date of the end of the operational implementation phase shall be June 30, 2012 and the date of the end of period of execution of the FA shall be June 30, 2014.

The AMS 2006 Financial Agreement makes provision for the following activities:

1.Strategic studies	EUR 450,000
2.Capacity building	EUR 840,000
3.Efficiency improvements in sugar cane	EUR 550,000
4.Diversification and socio-economic interventions	EUR 300,000
5.Upgrade of rural infrastructure	EUR 750,000

REPORT ON ACTIVITIES

STRATEGIC STUDIES

1. A **cost benefit analysis of interventions to improve efficiency of sugar-cane production including rehabilitation and feasibility of an implementation programme** was initiated by Scanagri, a consulting firm from Denmark. The overall objective of the consultancy is to provide recommendations for the improvement of the efficiency and competitiveness of the sugar industry so that it continues to be a major contributor to economic growth, stability and social development in Belize.
2. A **road study for the EC0supported sugar programme in Belize** was initiated by Halcrow Group Limited who was sub-contracted by Hydroplan Ingenieur to conduct the consultancy. The objective of the consultancy is to provide a list of key road infrastructure projects to enhance rural development of sugar, tourism and other rural enterprises which will provide sustainable improved access and reduce poverty.
3. Terms of references for strategic studies in transportation and diversification were prepared.

EFFICIENCY IMPROVEMENTS IN SUGARCANE

To support sugar-cane farmers who had been affected by Hurricane Dean, a **fertilizer contract** was negotiated and signed with Prosser Fertilizer in December. The contract is for the supply of one thousand one hundred and thirty (1,130) metric tons of 18-5-20 fertilizer at a value of BZ$ 1.02 million (Euro 0.41 million). The amount is equivalent to twenty two thousand six hundred bags of fertilizer. The Committee of Management of the Belize Sugar Cane Farmers Association along with the Sugar Industry Control Board have decided that the Corozal division will receive a total of fourteen thousand six hundred and ninety (14,690) bags of the fertilizer and the Orange Division seven thousand nine hundred and ten (7,910) bags of fertilizer or a sixty five (65%) to thirty five (35%) percent sharing respectively based on the damage caused by Hurricane Dean. The distribution of the fertilizer will be for a period of three months. The fertilizers will be distributed from the warehouses of the supplier, Prosser Fertilizer and Agrotec Company Limited based on a waybill which will be supplied by the Sugar Industry Control Board. The waybill will be signed by the SICB, BSCFA, Prosser and the cane farmer receiving the fertilizer. The BSCFA and the SICB will have a transparent system in place to ensure that the fertilizers are distributed in a transparent and accountable manner.

UPGRADE OF RURAL INFRASTRUCTURE

Roads which are to be rehabilitated using funds from AMS 2006 have been identified. Technical specifications are now being processed by the Ministry of Works. The Works tender is divided in three lots namely:

LOT A - Orange Walk District (Guinea Grass Road, BSI Ml Road and Yo Creek to San Antonio Road)

LOT B - Orange Walk and Corozal Districts (Remate Road, San Pablo-Douglas Road and Northern Highway to San Roman Road) and

LOT C - Corozal District (Little Belize -Chunox Road, Progresso -Little Belize Road and Progresso to Copper Bank Road)

These will represent the rehabilitation of 56 miles of key roads which is used for agriculture and commerce

AMS 2007 (6.0 Million Euros):

The purpose of the 2007 allocation of the EC's Accompanying Measures for Sugar Protocol Countries (AMSPC) for Belize is to advance the long-term EC support foreseen in the Multi-Annual EC Assistance Strategy (2006-13) and in particular, to make concrete steps towards improving the economic and social conditions through improving the rural road network, and (further) improvements made in the efficiency and competitiveness of sugarcane production.

The budget for AMS 2007 is 6.0 million euros which is earmarked for two actions:

- Road Improvement Programme – 5.0 million euros and
- Sugar Adaptation Policy and Capacity Building – 1.0 million euros.

The main direct results of the 2007 allocation will be improved rural road network in northern Belize that will enable efficiency improvements in sugar transport and create a better environment for social and economic development as a result of the improved physical access and communications. Specific results are:

- More timely and cost-effective transportation of sugar cane with reduced travel times and more fuel efficient and modern transport haulage equipment;
- New inland tourism sites are developed because travel time and costs are reduced, hence reducing the burden of travel within Belize for tourists and tour operators;
- Alternative agricultural and non-agricultural enterprises are established due to the improved market access and access to inputs, services and information;
- Rural unemployment and the cost pf providing and accessing services in rural areas are reduced due to improved access.

For the Sugar Adaptation Policy and Capacity Building the specific results are expected to be:

- A better understanding of the environmental issues and impacts of the Belize Country Strategy and EC supported AMPSC;
- Plans for the improvement of sugarcane transportation systems and if feasible, improvement in the transportation of processed sugar;
- If feasible, plans for the production of ethanol as a diversification initiative within the sugar industry;
- An action plan for strengthening the capacity of sugar cane farmer organizations;
- Strengthened policy and strategic planning and overall management of the EC supported Sugar Programme by the NAO and MAF.

2.0 Fisheries Department

The mission of the Belize Fisheries Department is "*to provide the country and the people of Belize with the best possible management of its aquatic and fisheries resources, with a view to optimize the present and future benefits through efficient and sustainable management*". The mandate of the Department is executed through its three main programs which are the Capture Fisheries Program, the Aquaculture and Inland Fisheries Program and the Ecosystems Management Program.

2.1 PERFORMANCE

In 2006, the Fisheries Sector ranked 4th with its contribution of 3% to the country's GDP. Export earnings of approximately 42,181,801.05 Belize dollars (SIB 2008) further reinforced its role as a significant contributor to Belize's Economy. The Capture Fisheries sector earned approximately $22,400,000BZ primarily from the exportation of Conch and lobster products. (5,171,100 and 17,232,000 respectively)This sector also provided direct employment to 2,110 fishers and over 123 processing plant personnel

Capture Fisheries: In 2007, the overall fisheries production volume decreased by 6.0% from 570.4 tonnes (1,254,861.5 lbs) in 2006 to 534.6 tonnes (1,176,033.7 lbs) in 2007. The overall monetary value of the exports of the capture fishery commodities amounted to BZ$22,700,000. (SIB and Belize Fisheries Department 2008)

In general, lobster tail production volume increased by 10% from 190 tonnes (419,863 lbs) in 2006 to 210 tonnes (462,152.3lbs) in 2007. The increase in production volume of lobster tails also produced an increase in lobster head meat production volume equivalent to 9.14% in weight from 17.2 tonnes (37,835 pounds) in 2006 to 18.8 tonnes (41,294 lbs) with an export value of $98,480 in 2007.

Conch production volume decreased by almost 17% from 314.7 tonnes (692,302.5 lbs) in 2006 to 261.3 tonnes (574,756.1 lbs) in 2007 with an export value amounting to $5,389,117.

Marine shrimp (*Litopenaeus spp*) production volume had another significant decrease of 43% from 21 tonnes (46,241 pounds) in 2006 to just less than 12 tonnes (26,351 pounds) in 2007.

Fish fillet, lobster head meat and whole fish showed an increase in production volume of 37.91 % (from 20 tonnes in 2006 to 27 tonnes in 2007), 9.14% (17 tonnes in 2006 to 19 tonnes in 2007) and 4.64% (4 tonnes in 2006 to 4.3 tonnes in 2007), respectively.

Shrimp Farming: There was no expansion in production area for the shrimp farms in 2007 hence the production area remains at 6,888 acres of production ponds in operation.

Aquaculture Operations: In 2007, Fresh Catch Belize Limited remained the only commercial-oriented tilapia farming operation. The total capacity of Fresh Catch is **4,000 MT per annum** with estimated annual revenues of over **Bz$12 million** (US$6 Million). There are currently 140 acres under tilapia

production and 150 acres of acres (60.7 Ha) of production ponds have been developed. The production area for small-scale fresh water aquaculture is 15 acres with mostly tilapia species being farmed.

Marine Farms limited initiated harvesting of its cage cultured Cobia. Its current capacity is 500MT and it is estimated to export fish at a value of approximately 6 million US dollars in 2008. It should be noted that the Department is not in possession of any current statistics regarding the performance of the aquaculture sector. The data available through the Statistics Institute of Belize is not reflective of the true performance of the industry either since these operations are not obligated to provide information to any regulatory body presently due to the passage of the Aquaculture Bill 2007.

2.2 CAPTURE FISHERIES PROGRAM

The Capture Fisheries Unit (CFU) is the arm of the Belize Fisheries Department responsible for providing the necessary legislative and management interventions to facilitate the continued development and proper management of Belize's marine fisheries resources. In 2007, important resource assessment exercises were carried out on the lobster (*Panulirus argus*) and the Queen conch (*Strombus gigas*).

Status of Major Fisheries

Status of Lobster Fishery: In early 2007, the CFU carried out a study on the lobster fishery. This work involved the scientific analysis of export quality lobster tails data for the period 1999 to 2006 with technical assistance from Cuban Expert Maria Estela de Leon Gonzalez, Ph.D. The study revealed an inter-annual variation after the full development of the fishery in 1980 (based on historical lobster landing series in Belize for the period 1932-2006). The largest catches were reported between 1981 and 1985 and in 1995. It was also noted that the catch of 2005 was 12.4% lower than in 2004 and in 2006 the catch decreased once more by 14.6% compared to 2005. Considering the observations made in the Fifth Regional Lobster Workshop (WECAFC) this was deemed as a possible reflection of an overall regional decrease in the Spiny Lobster population.

In 2007 lobster tail production volume increased by 10% from 190 tonnes (419,863 lbs) in 2006 to 210 tonnes (462,152.3lbs) in 2007. It is not clear which factors may have contributed to an increase in lobster production after a distinct declining production pattern has been observed in the last three years but some anecdotal reports suggest a natural low and high production cycle. Higher lobster recruitment into the fishery this year coupled with higher fishing effort is also considered as contributing factors. However, notwithstanding the aforementioned, the increase in production volume in 2007 was unexpected as this fishery commodity had shown a distinct declining pattern in lobster production since 2004. In general, lobster production level has decreased from 722,470 lbs in 1995, when it reached its second highest production record (in the time series/production volume data available) to a record low of 419,863 lbs in 2006. This represented a 42% decline in production level during this 11-year period. Lobster production volume is not expected to show any significant increase in the 2008 fishing season.

Spiny lobster (*Panulirus argus*) maintained its position as Belize's most important marine fishery resource in monetary terms with a value of $15,997,266. The increase in production volume of lobster tails also produced an increase in lobster head meat production volume equivalent to 9.14% in weight

from 17.2 tonnes (37,835 pounds) in 2006 to 18.8 tonnes (41,294 lbs) with an export value of $98,480 in 2007. Even though an increase in production has been recorded, this fishery still needs to be managed with great caution and further management measures to introduce a production quota and limited entry will be pursued by the Department in 2008.

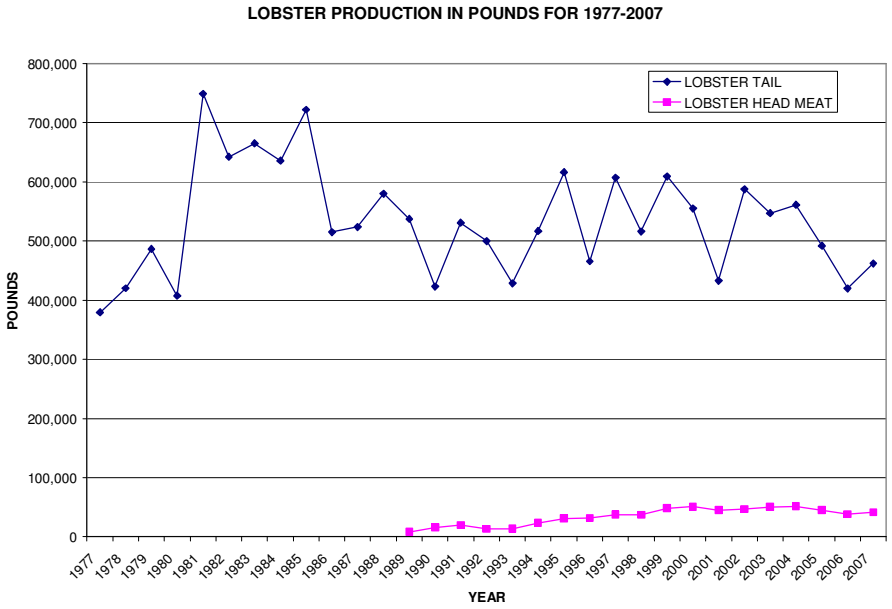


Figure 1. Lobster production for period 1977 to 2007.

Status of Conch Fishery: In 2007, Conch production volume decreased by almost 17% from 314 metric tonnes (692,302) pounds in 2007 to 261 tonnes (574,756 pounds) in 2007. For the 2007 conch fishing season, the BFD decided to keep the same 2006 conch production quota of 720,000 pounds.

It is not clear why conch production decreased by almost 17% in 2007. The Fisheries Department strongly believes that conch natural production capacity (Maximum Sustainable Yield) was reached in 2006 (314 tonnes or 692,303 lbs) and the steep decline observed in 2007 is a clear manifestation of the "maturity" and possibly overfishing of this fishery resource. The 2131 licensed fishermen involved in the conch fishery exert the maximum fishing effort on this fishery resource. It is recommended that immediate implementation of the maximum fishing effort in the conch fishery. This recommendation will limit the number of licensed fishermen to a total of 2150 fishermen. No additional boat licenses would be issued for conch and lobster fishing in 2008. This will become especially important if a trend is observed throughout the conch distribution range and CITES recommends more rigorous measures to avoid overfishing of conch. Conch prices are expected to remain fairly strong in 2008 especially if the decline in conch production volume as observed in Belize occurred in other producing countries.

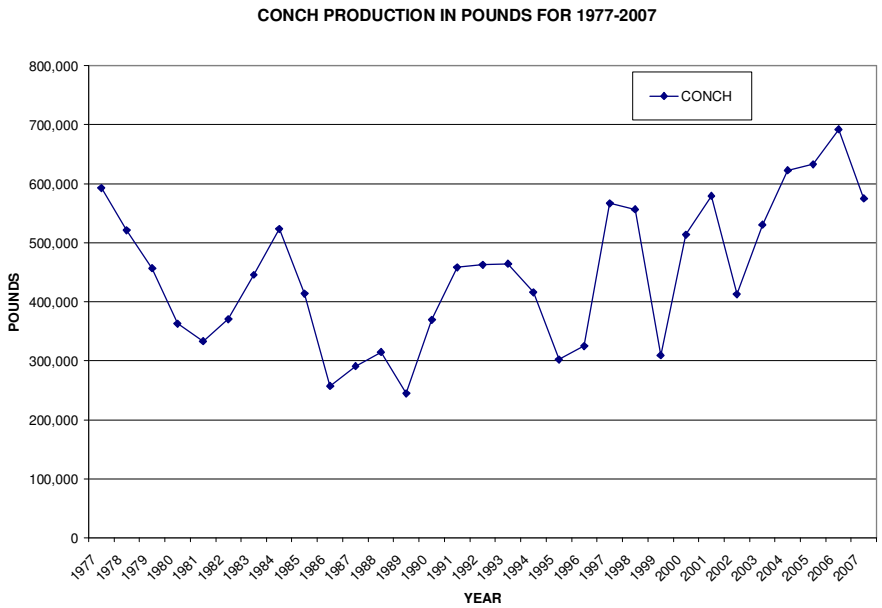


Figure 2. Belize conch production volume for period 1977 to 2007

2.3 High Seas Fishery

A grand total of US$ 101,376**.00 was generated in 2007 between the HSFVLF and HSFVQF.** In 2007, $ BZ $92,830.00 was generated from HSFVLF which is an increase of 17.4% of last year performance. $BZ 102,922.00 was generated from the High Seas Fishing Vessels Quota Fees and $BZ 7000.00 in Transshipment Fees.

Belize secured quotas from the International Convention for the Conservation of the Atlantic Tuna (ICCAT) in 2007 and as a result was in a better position to offer more catch quotas for various commercial species to its fishing fleet.

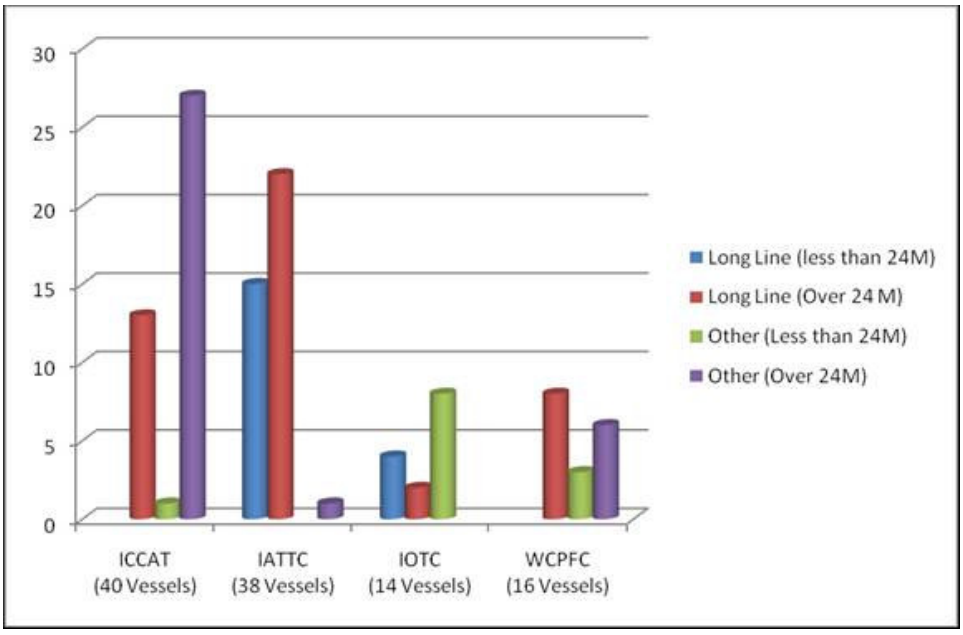


Figure 3. Distribution and description of Belizean Flagged Vessels

The production of the Highs Seas Fishing Fleet could have resulted in 75% more foreign revenue for Belize through the Belize Fisheries Department, IMMARBE and BAHA if the sanitary certification issue was resolved in 2007. This issue needs to be resolved promptly since more and more fishing vessels owners are getting interested in exporting to the EU market. Currently, The Kathy Cheng Group of Vessels (7) and Universo F/V are requesting such certification.

2.4 ECOSYSTEMS MANAGEMENT

The Ecosystems Management Unit (EMU) of the Fisheries Department is directly in charge of the management of the marine reserves which forms the basis for the ecosystems approach to the management of our fisheries resources currently adopted by the Department. The new management paradigm has shifted from specific species and site protection to the protection of entire ecosystems and the regulation of the activities within those systems.

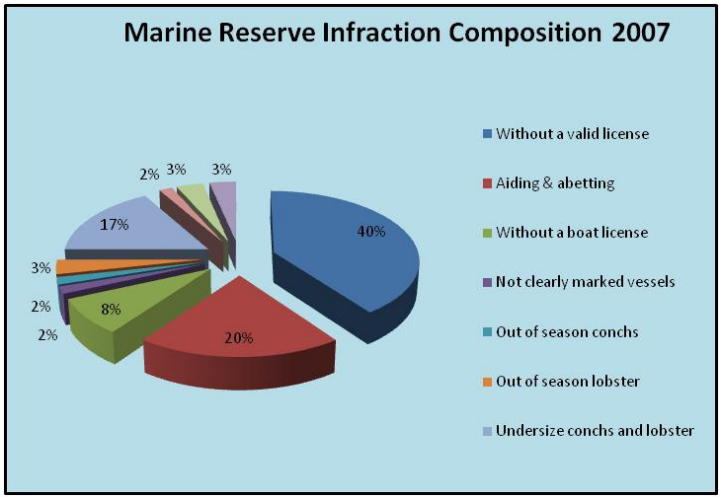


Figure 4. Marine Reserves Infraction Composition 2007

Enforcement: Enforcement in the marine reserves has been geared towards the sensitization of the major stakeholders and users of the fisheries regulations and those that are specific to the various reserves. Patrols at the various reserves and surrounding areas were prioritized to address illegal activity and to intercept illegal marine products before being landed. The enforcement activities within the reserves are closely coordinated with that of the Conservation Compliance Unit (CCU) to ensure greater effectiveness and efficiency of the Fisheries Department's overall activities geared at deterring illegal fishing. In 2007, the Fisheries Department had 60 convictions from the 85 arrests at the marine reserves.

Monitoring

Synoptic Monitoring Program (SMP) and Commercial Species Monitoring: The monitoring of lobster, conch and finfish populations continued at the various reserves. In general the results demonstrated the effectiveness of the closed areas within the reserves in providing critical habitat for these species during the different stages of their life cycles. It was noted that even the general use areas of the reserves had very healthy numbers of the main commercial species which is an indication of the "spill over" effect that the close areas are having within the reserves and surrounding areas.

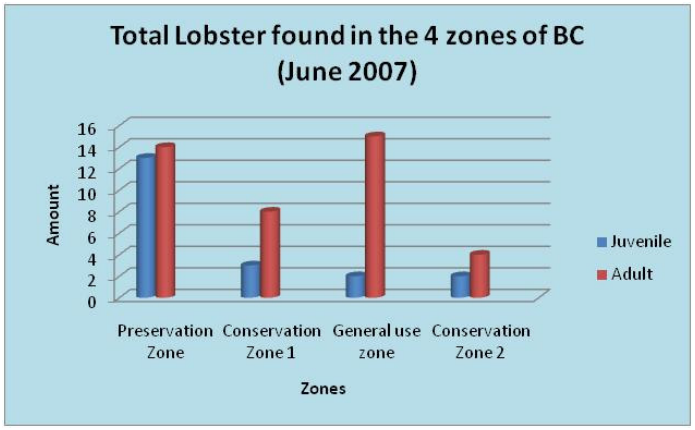


Figure 5. Lobster Survey Results in the Bacalar Chico Marine Reserve

Spawning Aggregation Monitoring: The staff from the various reserves and local NGOs participated in another national grouper aggregation monitoring exercise for key months in 2007. This was again a joint effort by the Grouper Spawning Aggregation Monitoring Working Group and funded by The Nature Conservancy and WWF. It should be noted that the numbers of fish observed at the various spawning sites continue to decline and if this trend persist in 2008, then there may be a need for further protection for this specie.

Turtle: Monitoring of turtle nesting sites continued at all the reserves and at the Gales Point area. Even though turtles nest on all the marine reserves, the nesting areas within the Bacalar Chico Marine Reserve are the most significant. The reserves are important because the Hawksbill, Loggerhead and Green Turtles major nesting sites are on their beaches.

Research Licenses: A total of 60 research licenses were granted in 2007. The research conducted varied from corals, fish, invertebrates and socio economic studies. The research was conducted by researchers affiliated to the Smithsonian Institute, Earth Watch Institute, Wildlife Conservation Society, Oceanic Society and various other independent universities from abroad. Various studies conducted merit mention as the data collected and analyzed by the various researchers is of importance to the Fisheries Department since the information can be used in decision making.

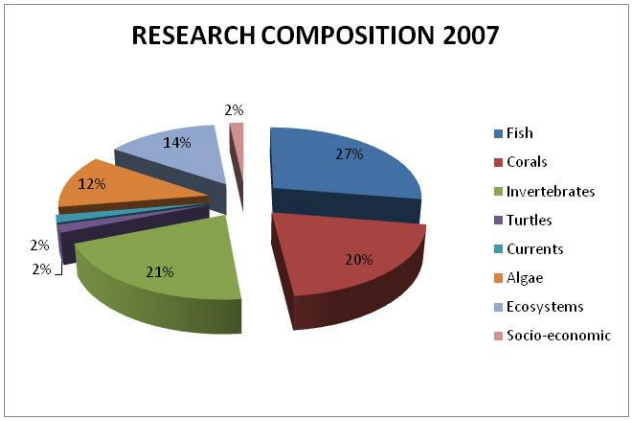


Figure 6. Research License Areas of Focus 2007

Buoys: Buoy maintenance and installment pricked up pace in 2007. Mooring and marker buoys were installed at the Hol Chan, Caye Caulker, Port Honduras and Sapodilla Cayes Marine Reserves. More mooring buoys will be installed as the National Mooring Buoy Program is being expanded in 2008. Buoys and arrays have been purchased under the National Wildlife and Fisheries Service (NFWF) of the United States of America grant. Friends of Nature along with volunteers from the Placencia tour guiding industry installed mooring buoys at various dive sites in southern Belize. The Fisheries Department will be assisting with the Conservation International Tourism Project with the mooring buoy component. This component includes the identification of heavily used areas by the cruise tourism industry and the installation of mooring buoys to minimize environmental damage.

2.5 AQUACULTURE AND INLAND FISHERIES (AQUIF)

During the calendar year 2007 the Unit conducted a total of 34 field visits to farmers currently engaged in fish farming activities. Most of these visits were in the Belize River Valley where the Unit was actively assisting the Baboon Sanctuary Fish Farming Project in site selection and follow-up and monitoring visits, other farmers assisted include the Patchakan Agriculture cooperative, Selena Cooperative, Mr. Julian Patt in San Estevan and Escuela Mexico, the Mennonite communities in Shipyard and Little Belize amongst others. These field visits provided very valuable technical assistance on the various considerations for small scale farmers who showed interest in establishing fish farms.

Figure 7. AQUIF Staff inspecting newly constructed pond

Biscayne Farm: In order to improve the quality and quantity of fingerling production at the Biscayne Farm the unit conducted a selective breeding program for the hybrid tilapia brood stock. The program entailed the hand sexing and selection of the best specimens and their grow-out. The Biscayne hatchery produces red hybrid tilapia fingerlings year around for the supply to fish farmers. For the year 2007 a total of 45,500 fingerlings were sold to several farmers throughout the country.

Baboon Sanctuary Fish Farming Project: In continued support of the Community Baboon Wildlife Sanctuary the AQUIF Unit provided assistance in the implementation of the Fish Farming Project that received financial support from the United Nations Development Programme (UNDP). As part of this activity the Unit prepared an equipment list and assisted in sourcing this equipment as well as providing technical assistance in the various aspects of fish farming. At the end of the calendar year four farmers had been supplied with 5,000 tilapia fingerlings each and where three months into the grow-out cycle.

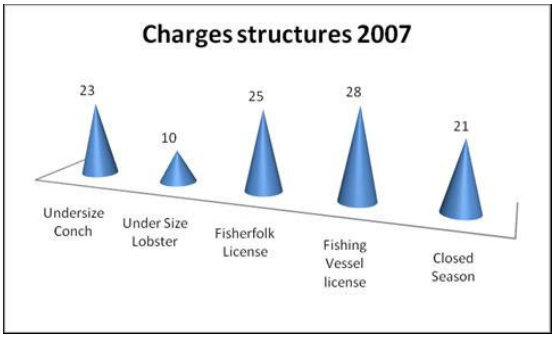
Aquaculture Programme of the Escuela Secundaria Tecnica Mexico: In an effort to integrate aquaculture into the curriculum of secondary and tertiary schools of Belize the Unit has been cooperating with Escuela Secundaria Tecnica Mexico (ESTM) in the Corozal District to fine-tune a project proposal for the construction of a fish farming demonstration plot. The project proposal was presented to the Belize Rural Development Project which has a component that will be assisting the development of rural aquaculture in the Belize. In this regard a site assessments and a development of a costing of a 2 acre pond was carried out for ESTM.

2.6 Conservation Compliance Unit – Enforcement

The Conservation Compliance Unit (***CCU***), which is the enforcement arm of the Belize Fisheries Department, is responsible to enforce fisheries regulations throughout the Belize Fishery Limits. This includes the sea and land areas including all the cayes, rivers, lagoons and other inland water bodies.

From January 2007 to December 2007 a total of 85 patrols were conducted by CCU Belize and CCU P.G averages 12 patrols per month. The general areas of patrol include Port Honduras, Monkey River, Sarstoon, Placencia, Laughing bird, Hunting Caye, Ranguana Range, Gladden Split Bacalar Chico, San Pedro, Light House Reef, Turneffe and areas in the Belize City Harbor.

A total of 107 arrests were made for 2007 with the main infraction areas being the possession of undersize conch or lobster and the possession of product out of season. There has been an increase in arrest of illegal immigrants in the southern region. The Department secured 78 successful convictions from the 107 arrests made.



2.7 INTERNATIONAL COMMITMENTS and COORDINATION

Convention for the Regulation of International Trade of Endangered Species (CITES) : The proposal to put the Spiny Lobster, *Panilirus argus*, in Appendix II did not materialize at the Conference of the Parties Meeting held in Hague in 2007. However, with changes made to the environmental legislation of the United States of America, the need for a CITES permit for every *Strombus gigas* product exported increased the issuance of those permits. The CITES permits issued need to be

validated by the Customs Department in order for them to be legitimate in the USA. There is an urgent need to legislate the draft CITES regulations to give our national legislation more authority.

Caribbean Large Marine Ecosystems Project (CLME): The Caribbean Large Marine Ecosystems Project which started in June 2006 in Panama City, Panama continued through the creation of the project proposal and submission to the GEF. The project focused on shared trans-boundary resources. The project will have a reef fishery, pelagic, fly fish and lobster components. The lobster pilot project will be managed by OSPESCA and will be implemented in Belize, Honduras, Nicaragua and Guatemala. Belize is expected to lead the pilot project because of its excellent regulations and data collection.

OSPESCA : OSPESCA presently has several ongoing projects which are funded by various international funding agencies:

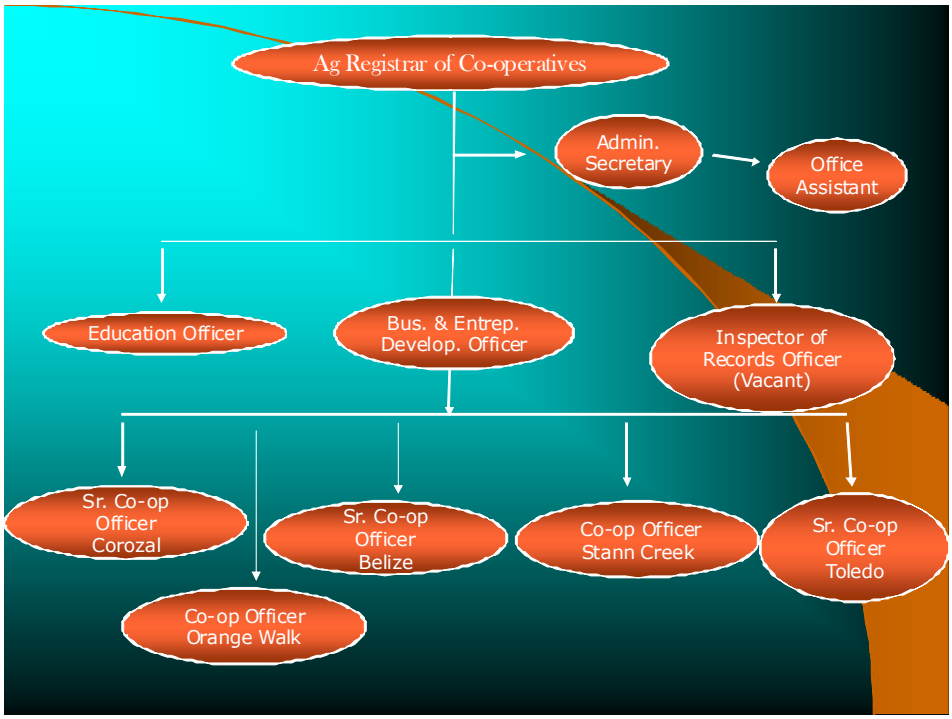
1. The PREPAC II Project, funded by Taiwan, will commence in 2008 and will focus on the implementation of the water bodies management plans developed under PREPAC I. This project will also assist the Fisheries Government Agencies with capacity building especially in the aquaculture extension services.
2. FIINPESCA, financed by the Swedish Government and FAO, has various subcomponents such as the socio-economic studies of the Spiny Lobster, marine shrimp and Queen Conch. This project will also institutionally strengthen data collection, analysis and database creation.
3. Sports Fishing, financed by IDB, which focuses on the economic value of large pelagic fishes such as the sailfish, blue marlin and dolphin fish. The sports fishing economic contribution to the Central American countries runs in the hundreds of millions of dollars (US).
4. Institutional capacity building, funded by the Spanish Government, which focuses on the strengthening of the Fisheries Agencies of Central America in the form of much needed equipment acquisition, staff training and technical assistance.

3.0 Cooperatives Department

In 2007 there were 195 registered co-operative organizations in the country: 69.2%, agriculture, .5% consumer co-operative, 2.56 % fishing co-operatives, 1.5% Handicraft /industrial craft co-operatives, 9.2% housing co-operatives, 2.56% tourism related co-operatives, 10.3% transport co-operatives, 4.1% secondary institutions and 0.5% tertiary institution. Mention is being made to liquidate 58.5% of registered co-operatives because of non production and their long period of inactiveness.

Co-operatives contribution to GDP was approximately $29.25 million, or an increase of $1.25 million if compared to 2006. The increase is mainly due to an increase in market prices for marine products. The total number of people employed by the co-operative sector is approximately 5,920 jobs. Cooperatives operate in the sugar, fishing, agriculture and transport industries.

COOPERATIVE DEPARTMENT 2007 ORGANOGRAM



DEPARTAMENTAL HUMAN RESOURCE

The Department of Co-operatives during the period under review made significant achievements despite the limitation of qualified technical capacities in co-operative development. The 2007/2008 budget reinstated key positions in the Department of Co-operatives:- Registrar of Co-operatives, Entrepreneurial Development Officer, Education Co-operatives Officer, two co-operative officers and approval to employ the Inspector of Co-operatives Records which will be advertised in the first quarter of 2008. Two co-operative officers were hired for the Orange Walk and Stann Creek Districts after transferring Mr. Victor Paulino to Punta Gorda. Mr. Michel Lewis was promoted Sr. Co-operative Officer for the Belize District.

GENERAL ADMINISTRATION

The Co-operatives Department main offices in Belize were moved from North Front Street to the third floor of Mahogany Complex Building in July 2007. The department was successful in securing funding and implementing the following projects:

(i) "Institutional Strengthening for Co-operative Approaches for SME's to Reduce Rural Poverty" - the objective of the project is to strengthen the capacities of staff members as well as the co-operative members capacities in areas of marketing, business plan development, introduction to accounting and financial management for improved decision making. The project included the following components: provision of a camera, laptop and computer for the department, and training for staff in Entrepreneurial Development.

(ii) Reorganization and strengthening of the Cooperatives Department (TCP/BZE/3101),

(iii) The Department of Co-operatives made submission for technical collaboration to the FAO, South-South Co-operation for Cuban Co-operative Specialist, to provide technical training to staff co-operative department, characterize the consumer co-operative experiences as well as to assist in the provision of training for co-operative members in the country.

(iv) TOR's for a beekeeping expert and a Arts and Craft Specialist were developed and submitted to the Ministry of foreign affairs for follow up, these specialist will be in country under an FAO South-South Co-operation Agreement and their main areas of co-operation will be to provide improved beekeeping management practices as well as to develop marketing strategies for co-operative Artisans in Belize.

(v) The Co-operatives Department entered into negotiations with Peace Corps in order to secure a person with business background to assist co-operatives in the Orange Walk District in the formulation of business plans.

(vi) The department during the period under review worked several training programs with BELTRAIDE in areas of business plan development and introduction to marketing to increase co-operative member's capacities in developing effective marketing strategies for commodities and services produced.

(vi) In 2007 the department worked with the Policy Unit of the Ministry of Agriculture and Fisheries in evaluating the current statistical collection system, processing and interpretation of data for effective decision making.

TRAINING AND CAPACITY DEVELOPMENT FOR CO-OPERATIVE STAFF

Mr. Ben Bol, Entrepreneurial Development Director attended the following workshops:

(i) a three week workshop on Small & Medium Enterprise Development int Taiwan, May 9th – May 22nd 2007, the objective of the training program was to have a firsthand view of the Taiwanese Entrepreneurial Capacities and Experiences, evaluate the role and functions of co-operatives in Belize and make recommendations and adopt some of those entrepreneurial development skills, principles and strategies to strengthen co-operatives entrepreneurial development skills and capacities in Belize.

(ii) a week workshop in Rural Financing in Nicaragua, the objective was to see practical rural financing experiences and to advice the co-operative sector in new and innovative ways to attract resources for expanded developmental activities within the co-operative sector through micro financing.

(iii) a BEJO seed multiplication workshop in Chimaltenango, Guatemala, the objective of the seminar was to see the type and varieties of vegetables being tested for adoptability, tolerance and susceptibility to climatic changes, pest and diseases.

Other capacity building for the department included the following:

(i) Exchange programme with the Cooperative Department, Department of Peten, Guatemala;

(ii) Technical support to be provided by Cuba in Arts and Craft to assist for artisan co-operatives in Belize;

(iii) Staff enrolment in Enterprise Development training (Business Co-operative, International Marketing, introduction to management, Entrepreneurship and Micro Financing.) under the auspices of Belize Rural Development Program as an Institutional Strengthening Program. The five course program is expected to finish in the third quarter of 2008; and

(iv) GIS/ ARC View training, organizational reviews of Labor Department, report writing, policy formulation/ development and government regulations/ procedures which was facilitated by staff member of MAF.

4.0 Projects/Statutory Bodies

4.1 Belize Agriculture Health Authority

In April 2007, the Belize Agricultural Health Authority (BAHA) entered its eighth year of operation. BAHA is the regulatory agency under the umbrella of the Ministry of Agriculture & Fisheries responsible for the following: agricultural health and agri-food safety. The Authority is a science-based quasi-government regulator of food, animals, plants and quarantine and is committed to providing optimum, competent and professional services in food safety, quarantine, plant and animal health in order to safeguard the health of the nation and facilitate trade and commerce. In an effort to keep updated with ever changing international sanitary and phytosanitary requirements, BAHA's personnel participated in several meetings and workshops sponsored by international and regional organizations to strengthen institutional capacity. BAHA also conducted public education campaigns to sensitize stakeholders on the role and function of the Authority.

Animal Health: BAHA ensures that livestock exports, valued at $74.5 million, remained healthy so as to promote employment, economic growth and social well-being. A vibrant export sector promotes food production and food security, food safety and trade in livestock and their products. BAHA staff issued more than 246 international veterinary certificates and compliance certificates certifying Belizean animal products (fresh shrimp, shrimp feed, live pigs (1,767), cattle hides (4550), pets and exotic animals to satisfy the requirements of importing countries. Since its first export trail in July of the reporting year, Marine Cage Culture have successfully exported fillet to the USA.

Through BAHA's prevention, detection, control, and eradication activities and its strict import controls, the Authority played a significant role in helping Belize remain *free* of World Organization for Animal Health (OIE) listed diseases, such as, highly pathogenic avian influenza, foot-and-mouth disease, Classical Swine Fever and Newcastle disease. In 2007, Belize was declared free of Avian Influenza (S.I. 45) and Classical Swine Fever by Minister Vildo Marin (S.I. 46). Disease outbreaks reported in 2007 include vesicular stomatitis, New Jersey strain in horses in the Cayo District; rabies in cattle in the Belize and Cayo Districts, Infectious bovine rhinotracheitis in cattle from the Orange Walk District, Mycoplasma in poultry and *Salmonella kentucky* in broiler breeders.

Through active and passive surveillance, more than 90 farm visits were made with some 75 animals treated. Diagnostic assays were carried out for 3,197 samples from various species of animals. A total of 6, 631 import permits were issued over the reporting year. Six import risk analyses/site visits were conducted in 2007. Sixty (60) Veterinary Products were registered in 2007 taking the list of registered Veterinary Products to a total of 556. Also, two new establishments were registered to sell veterinary products. At present, there are forty one (41) establishments registered with BAHA to sell veterinary products.

A nodavirus infection was detected in cultured shrimp (Pacific white shrimp, *Penaeus vannamei*) in an aquaculture establishment in Belize. The affected establishment experienced low shrimp survivals with shrimp in the affected ponds showing muscle necrosis. Advanced diagnostic work led to the finding of a nodavirus (tentatively named as LvNV, *Litopenaeus vannamei* nodavirus) as the cause of the muscle necrosis seen in affected shrimp.

Food Safety: The Authority worked to ensure that food produced in Belize is safe and wholesome to consumers, resulting in expansion of both local and international market access and trade in these products and increased competitiveness.

The inspection programme of the Food Safety Department deployed food safety inspectors that provide regulatory sanitary oversight of 19 Belizean food processing establishments. These establishments process the following food commodities:- fish and fishery products (6 establishments), meat (5 establishments), poultry (5 establishments), milk and dairy (1 establishment and hot pepper sauce (2 establishments. During the year, meat and poultry inspection for the 10 registered slaughtering facilities was conducted for more than 1,124 ovine, 8,514 bovine, 24,131 porcine and 12.2 million birds, including turkeys.

Currently, there are two shrimp processing facilities in Belize that are HACCP certified by BAHA. Over 233 sanitary certificates were issued for fish and fishery products, of which 35 were for shrimp destined to the EU, and 198 for shrimp and fish exported to Mexico, USA and the Caribbean. Five certificates of free sale were issued for pepper sauces.

The food microbiology and residues laboratory at BAHA's Central Investigation Laboratory in Belize City, the nation's only food testing laboratory, continues to be enrolled in proficiency testing through its affiliation with the International Network of Food Analytical Laboratories (INFAL) proficiency testing programme. A series of product and surveillance testing services for the food and agricultural industries and other regulatory bodies in Belize were provided. Some 780 food and water samples were tested for various microbiological and water quality parameters.

Two EU Inspectors visited Belize during the period July 2nd – 11th for the purpose of evaluating the control systems in place governing the production of fishery and aquaculture products intended for export to the European Union. The Sanitary audit for fish and fishery products report was received by BAHA on August 15, 2007. A response was formulated based on a number of non-compliances identified; however, Belize maintained its status to export to the EU, fish and fishery products.

A draft protocol for inspection procedures for the sanitary inspection of Belize flagged fishing vessels was presented to IMMARBE and Ministry of Agriculture and Fisheries officials. The Authority continues to work with IMMARBE to provide sanitary certification of its registered high seas fishing vessels.

"Biosafety" is the term used under the Cartagena Protocol of the Convention on Biological Diversity (CBD) to describe measures used to protect human health, animal health, plant health and the environment from the possible adverse effects of the products of modern biotechnology or genetically modified organisms (GMO's). Belize signed to the Convention on Biological Diversity on June 13, 1992 and ratified it on December 30, 1993. With regards to the Cartagena Protocol on Biosafety (CPB), Belize ratified this Protocol on February 12, 2004 and is a party by accession since May 12, 2004. As a signatory to the CBD and CPB, Belize is obliged to implement the articles of the Cartagena Protocol on Biosafety. Presently, a national biosafety policy has been drafted for Cabinets approval from which will ensue the development of a national regulatory framework for the safe transfer, handling, use and release of genetically modified organisms (GMOs) and products resulting from modern biotechnology.

Plant Health: The Authority worked to prevent, detect, control and eradicate plant pests within Belize. In 2007 only one new pest of quarantine importance was found. Rice Mite was (*Steneotarsonemus spinki)* found in rice fields throughout the Country. Certain endemic pests such as palm weevil (*Rhynchofhorus palmarum*), Citrus blight, soybean rust and melon thrip (*Thrips Palmi)* presented significant outbreaks affecting coconut plantation, citrus fields, soybean, black-eye peas and potato. The certification programme continued to ensure that established markets for papaya, black eye and red kidney beans, Tahiti lime and sugar, were maintained.

The Plant Health Department conducted survey along with the Citrus Research & Education Institute for Citrus Canker, Citrus Leprosis, and Citrus Greening and included the collection of the vector that transmits greening (***Diaphorina citri*).** Belize is free from all three diseases, the latter confirmed by negative results from the California Clonal Protection Programme for diagnosis.

The National Medfly Surveillance Programme was once again successful in maintaining Belize free of the Mediterranean fruit fly (*Ceratitis capitata)*. There was no medfly detection. The surveillance programme accomplished 94.47% trap servicing.

The Pink Hibiscus Mealy bug Programme continued to effectively control the spread of this pest to commercial production areas through a biological control programme that includes the systematic release of the parasitic wasp *Anagyrus kamali.* For 2007, a total of 177,440 parasitic wasps were produced. Of which 120,700 were used for release in the field and 56,740 were used in the laboratory for further reproduction. A total of 16,058 lbs of Japanese pumpkins were harvested. Surveillance reports showed that 54 new sites were detected. However, all showed presence of the parasitic wasp and native predatory beetles. This showed that the parasitic wasp has established itself well to our climatic conditions and is moving along with the pest. The average percent parasitization for the year was 44%, based on the results of emergence of specimens brought in from field study sites. The Mealy bug Programme in Belize was pleased to receive the visit of technical personnel from Dole Honduras and Colombia. The objective of the visit was to become familiar with the programme in Belize in aspects related to parasite rearing, parasite release, surveillance, eradication and legislative support.

Quarantine: BAHA issued 7,288 landing permit based on the inspection of agricultural and food imports, inspected 2,390 vessels, 4,378 aircrafts and observed 39,232 treatments conducted by OIRSA at all official ports of entry into Belize to prevent the introduction of exotic pests and diseases and ensured that regulated products complied with national regulations. During those inspections, 33 pests were intercepted and 509 violations were fined and recorded.

Other duties carried out by the department included the issuance of 139 import permits, 683 phytosanitary certificates, 42 market inspection and the confiscation of 16,665 pounds of assorted agricultural and food products.

As overseas travel increases rapidly and global trade becomes the norm, numerous exotic pests and diseases are potentially just a few hours from our shores. Failure to safeguard Belize's forests, crops,

livestock and fish could halt valuable exports and could result in embargoes on agricultural and fishery products.

Financial Sustainability of the Authority: The Profit & Loss Statement for the reported period shows a 4.1% increase in revenue collected compared to the previous calendar year. Government subvention accounted for 34.6% of total revenue, while BAHA generated 65.4% ($2,342,374) of total revenue. Overall, the performance of the Authority was constrained by a budget deficit of ($13,824).

The growing demand for the Authority's services has required the Authority to deploy its limited resources over a growing regulatory landscape. The Authority has focused its efforts on carrying out its regulatory mandate; however, emergencies have required the Authority to put urgent activities on hold.

For Belize, BAHA is good value for money. In 2007 BAHA safeguarded agricultural exports valued at approximately $396.5 million. This means that for every dollar Government invested in the Authority, the country received foreign exchange earnings equivalent to $347.81. This highlights the fundamental reason why the Government and Industry must continue to invest in and support the Authority in carrying out its vital mission for all the people of Belize.

4.2 The Coastal Zone Management Authority and Institute

Having concluded, in the previous year, its formalities of project closure with the European Union and the United Nations Development Programme, the agency maintained its status of transition into 2007. Under recurrent costs the government of Belize approved some $200,000 for sustaining the agency..

CZMAI is entrusted with the responsibility of overall management of Coastal resources in Belize. This requires that emphasis to be placed in integrated approach to management. Though easier said than done, the CZM Act manifests the clear need and importance for collaborative decision making process through the mechanism of the Advisory Committee. Thus it was recognized that the agency's Board of Directors needed to be revitalized.

The legal reform committee was formed with a vision to update the CZM Act to reflect more current status as in the case of using the term "executive officers" instead of "permanent secretary". Other elements looked at was the long list of representatives composing the advisory committee and the effort was then made to make recommendations to cut down the list to a more manageable number. It was thought that too many representatives on a committee provides for burdensome and sometimes unmanageable decision making process. The advisory committee was in fact then reappointed but meetings never convened.

The mechanism of working with other relevant departments in forming integrated decisions on issues affecting the marine environment continued as CZMA attended consultations planned by various relevant departments. Considerable time was spent in finalizing the draft for the National Action Plan for the Land Based sources of Marine pollution. Other efforts considered were the presentation of the 2006 Coastal Clean up results, providing information from the Integrated CZM /Strategy 2004 to assist with the Coastal Vulnerability due to Climate Change DRAFT and working with NEAC to assess development proposals through field visitations as well as debate sessions. Highlights during this year included continued debate on the construction of cruise ship marinas: The Stake Bank and North

Drowned Cayes developments as well as the Belize Cruise Terminal. In February Government of Belize through the UNESCO Secretary General (Ministry of Education) received a letter from UNESCO Paris in relation to the illegal activities in World Heritage Site of South Water Caye Marine Reserve. Consultations with other relevant agencies through APAMO were attended as well as consultations directly with the relevant departments within the MNREI were attended and recommendations forwarded. The result of these, were incorporated into official reply letter from GOB to UNESCO.

Under the Internship programmes three High schools were accommodated. These were E.P. Yorke, Anglican Cathedral College and St. Michaels College. These students worked in office as well as on Goff's Caye doing surveys and clean up exercises. This helped with their marine education as students had never been on sea before or visited an island. Primary School Presentations on topics of Goff's Caye, Conservation in Belize, World Heritage Sites and Coastal Zone Management were done in preparation for the Marine Science Bowl Quiz Contest held for the first time. This event was sponsored by the Hugh Parkey Foundation and Sirenian International in collaboration with relevant agencies. St. John's Vianney, Hummingbird Elementary School and Our Lady of the Way Government School won first, second and third place respectively. Together with Wildlife Conservation Society, several talks on the topic of reefs, sharks and climate change were presented to high schools and a varied audience in the CZM Training room.

CZMAI maintains its membership in the Maritime Security Conference Committee and the PACT advisory Council. This year it offered office space to the National Protected Areas Commission. To date then CZMAI provides offices for MBRS, NPAC and for Fisheries Department.

Goff's Caye visitation decreased from the previous year as wave action from Hurricane Dean and Felix aggressively washed the Goff's Caye Beach. At this time, coral rubble is washed ashore and clean up exercise lasted three days. As a result of tropical storms, and hurricanes in the north western Caribbean and the Gulf of Mexico, cruise ship visitation schedule was altered. Some visitations were postponed or cancelled altogether. During this fiscal period payments by tour operators for non Belizeans became big problem. Efforts continue to date to try to solve these. An estimated 7,368 non Belizeans visited Goff's Caye in 2007 compared to 9,064 in 2006.

4.3 The Belize Livestock Producers' Association (BLPA)

The Belize Livestock Producers' Association continues to work closely with the Ministry of Agriculture in the development of the Livestock Industry. Over the past year the BLPA in collaboration with the Livestock Division of the Ministry of Agriculture, Prosser Fertilizer, Mid-West Steel and Reimers Feed Mill provided training in various technical areas of interest to 95 producers.

Thirty producers attended the first training. The training was hosted jointly by the BLPA, the MAFC and Mid-West Steel. Topics presented include "Mineral Nutrition of Cattle" and Pasture Management. This was timely because producers were getting ready for the dry season. The second training was on "Pasture Establishment" and "Pasture Management" in the Belize River Valley area; twenty farmers attended. The third was done in Double Head Cabbage and included presentations on Artificial Insemination by Frank Reimer from Reimers Feed Mill; and "Herbicide and Herbicide use" by Wilmot

Simmons and Bert Masson from Prosser Fertilizer; and "Weed Control" by Harold Parham, BLPA; fifteen producers attended.

Cattle: In 1994 the National Herd for cattle was estimated at 50,000 heads. Today the national herd is estimated at about 68,000 heads. Over the past 12 years, growth in the national herd averaged 3% per year. The number of producers exceeds 2000, of which 92 % own less than 50 heads (35% of the national herd) and 85% own less than 20.

Land used for cattle production is estimated at 119,000 acres. Most of this is natural pasture; about 35% is planted with improved pasture species. Improved grasses are mostly Brizantha, Tanzania, Mombasa and Humidicola. Stocking rate is estimated at almost two acres per head of cow. With improved pasture and proper utilization and management practices this stocking rate could at least be doubled. Seventy-five percent of the farmers involved in producing livestock operate on 20 acres or less.

Pigs: Since 2002 the pig population remained at around 6,500 heads. Pigs are raised on 200 farms ranging from 5 to 70 sows unit.

Sheep and Goats: Currently the Sheep population is estimated at about 7,770 heads, which are owned by about 200 farmers with 2 to 120 heads per farm. The national sheep herd grew from 3,257 in 2002 to more than 7,770 in 2006. Most of the sheep producers (approximately 70%) own less than 20 heads. The goat population is estimated at 1,600 heads.

In 2002, the record showed that Belize had 1,600 heads of Goat owned by a few farmers. This scenario has not changed significantly since then.

Stock Improvement: Producers from the Cayo District, Belize District, and the Orange Walk District continue to improve their herds of cattle sheep and goats. For Cattle, five producers imported purebred stocks of Nelore, Brahman, and Charolais. The following table gives the amount of each breed that was imported. Breeding Stock Imported in 2006:

	Nelore	**Brahman**	**Charolais**
Bull	41	16	1
Cow	1	0	0
Heifer	3	13	0
Calf	1	0	0

Two producers imported straws of semen from international Champion Bulls of the Nelore, Brahman, Polled Hereford, Black Angus, Red Angus, Belgian Blue, and Charolais breeds.

For Sheep and Goats, This year two producers, "Running-W" and "Belize Sheep and Goat Ranch" imported thirty-one Dorper Sheep (15 rams, 16 ewes). The "Belize Sheep and Goat Ranch" imported ninety Boer Goats (3 rams, 87 ewes). It is anticipated that these producers will soon be supplying breeding stock to interested producers.

Slaughter: Accurate figures of total slaughtered are hard to obtain at this time because quite a lot is slaughtered in "under the tree" operations. The slaughter figures reported in the following tables are based solely on BLPA's CESS collection records.

Beef Cattle: The number of beef animals slaughtered domestically this year was 5,858. The figures indicate a continued general decline in the number of beef cattle produced for local slaughter over the past four years. However, there was a 6½% increase over last year's figure.

Beef Cattle Slaughtered

District	*2003*	*2004*	*2005*	*2006*
Corozal	376	456	76	472
Orange Walk	3774	2746	2477	2542
Belize	NA	188	261	128
Cayo	2580	2622	2577	2555
Stann Creek	29	26	30	15
Toledo	69	76	75	146
Local Slaughter	**6828**	**6114**	**5496**	**5858**
Export	**593**	**2804**	**3210**	**1609**

Pigs: The number of pigs Slaughtered locally in 2006 was 16,635. This figure is a substantial increase over 12,784 in 2005. This increase may also be the result of restrictions the MAF placed on importation of hams and bacons during the Christmas Season. Total production figures for slaughter (Local Slaughter plus Export) show an increasing trend over the past three years from 13,754 in 2003 to 17,693 in 2006. Major increases were observed in the Cayo, Corozal and Orange Walk districts.

Pigs Slaughtered

Pigs

District	*2003*	*2004*	*2005*	*2006*
Corozal	388	572	114	707
Orange Walk	7801	7373	5592	8315
Belize	NA	667	727	487
Cayo	4809	5535	5536	6570
Stann Creek	113	56	58	51
Toledo	643	731	757	505
Local Slaughter	**13754**	**14934**	**12784**	**16635**
Export	NA	**41**	**2083**	**1058**

Sheep: Local slaughter of sheep this year was 900. Over the past four years there was a continued increase in sheep slaughtered for local consumption from 535 in 2003 to 900 in 2006. The continued increase annually over the past four years indicates that Belize is consuming more and more sheep. There has been significant increase in domestic consumption annually since 2003.

Sheep Slaughtered

District	*2003*	*2004*	*2005*	*2006*
Corozal	NA	26	12	48
Orange Walk	455	631	710	788
Belize	NA	33	40	17
Cayo	59	91	78	44
Stann Creek	NA	NA	NA	NA
Toledo	21	4	2	3
Local Slaughter	**535**	**785**	**842**	**900**
Export	NA	**4**	NA	**230**

Exports: This year's export of beef cattle has increased tremendously since 2003. However, export this year dropped drastically to almost half of what it was last year. The Slaughter Returns Records showed that the decrease was experienced in the months of February, July and September. The price paid for steers ranged from $1.15 to $1.35 depending on the condition of the animal. Cows fetched prices ranging from $0.90 to $1.10.

The amount of pigs exported this year was 1058. This is a dramatic decrease from 2083 in 2005. The dramatic decrease may be due to a decrease in availability of slaughter pigs. The Pig Council observed that some, especially small, producers went out of production. This year a significant amount of sheep was exported.

Livestock Prices: The price of live cattle remained stable during most of the year. Towards the end of the year, the price paid for cattle was as high as $1.35 in November and December; this was better than any price in the history of the industry. The prices for beef cattle (live weight) are as follows: for feeders, $1.15/lb; young bulls and steers, $1.10 to $1.35 depending on the quality of the animal; heifer, $1.15; cows, $0.85 to $1.00. Pigs were purchased at prices ranging from $1.30 to $1.50 per pound live weight.

Sheep were selling at $1.00 to $1.50 per pound live weight.

4.4 Belize Rural Development Programme (BRDP)

The most serious threat to Belize's ambition of achieving a higher standard of living for its people continues to be the incidence of poverty, exacerbated by major resource adjustments in the export agricultural sector. The National Poverty Elimination Strategy indicated that incidence of poverty was more prevalent in rural (44%) than in urban (23.7%) areas of the country. For this reason, the GOB has committed itself to a broad-based approach to

rural development with specific resource allocation to address poverty reduction and to support the efforts of the marginalized populations to enter the mainstream of economic activity. The BRDP is expected to reduce rural poverty by 5% by 2010.

Objectives and Expected Results: The overall objective of the BRDP is to support sustainable economic growth of Belizean rural areas. The project aims at reducing poverty in Belize and improving the standard of living of the rural population by supporting the rural productive sector, bearing in mind the agriculture base of the Belizean rural economy. This will be done through the participation of rural communities in the planning, implementation and evaluation of income and employment generation projects. The BRDP is expected to generate three main results:

1. More efficient and competitive rural enterprises (both farming and non-farming ones established),
2. Improved basic services for the rural population, and
3. Strengthened policies and institutional environment within which rural enterprises, traders, processors, local organizations and communities operate.

To produce these results, the BRDP is intended to: (i) strengthen policies, institutions and communities to ensure the sustainability of "integrated rural development" in the long-term without donor support, (ii) promote an efficient rural sector and facilitate the development of farming and non-farming activities by stimulating the **s**mall, medium and micro enterprises (SMEs), and (iii) support the development of rural infrastructure in the most disadvantaged areas in Belize.

Institutional Strategy: The overall responsibility for the implementation of BRDP lies with the National Authorizing Officer (NAO) for the European Development Fund (EDF), and the Ministry of Economic Development is the Contracting Authority. A Project Steering Committee (PSC) has been set up to provide guidance and policy direction to the program and is chaired by the MED. BRDP is implemented by an independent Project Coordination & Management Unit (PMU), which assumes an administrative and financial role and co-ordinates the implementation of the program at community, district and national levels with the various line Ministries, private and NGO sectors and donor agencies. The PMU also coordinates all the activities carried out by the partner organizations, especially the District Development Committees (DDCs) and service providers.

The DDC is an institutional innovation for applying a participatory, community-driven and coordinated approach for planning, implementing and evaluating BRDP supported projects, either for small groups, micro grants and to address national level priorities. The DDC comprises from 8 to 12 core members representing the key stakeholders such as producer organizations, DAVCOs and Village councils, NGO/CBOs, as well as credit and marketing agencies, government departments and educational or technical colleges. The DDC is chaired by the District Agricultural Coordinator, and the vice-chair is the Rural Community Development Officer.

Project Development Process: The basic steps of the project development process followed by BRDP with the assistance of the DDCs and service providers follow the EU guidelines and procedures under the 9th EDF. These are:

1. Village/ group/ project identification: involves visiting villages and groups explaining BRDP and how they can access its support,
2. Proposal development: filling out the application form with the participation of all interested members of the group.
3. Project evaluation: the DDC evaluates the proposal to ensure it meets the basic requirements for support such as marketing arrangements, project objectives and activities, realistic costing and budget (25% local contribution), and sustainability of the effort. .

4. Field assessment: a core group of the DDC visits the group in the field to assess whether it is a bona fide project, group understands it, is cohesive and truly owns the project, and whether they can manage it.
5. Contractual agreement: the PMU and DDC meet with the group to finalize an agreement in which all members of the group must sign of on their commitments.
6. Obtaining quotations: since no one receives cash, the groups should obtain quotations for all investment to be made, following EU procedures.
7. Purchase of equipment, materials, etc: the PMU purchases from all suppliers.
8. Implementation, training, etc: all groups need skills development, e.g. group/ conflict management, technical/ technological practices, marketing and promotion, financial management.
9. Report & certification of donation: the project concludes when all BRDP disbursements are concluded, a report is submitted by the beneficiary, and they certify what equipment they have received from BRDP.

Implementation and Progress: The project inception was effective in March 2006. The inception phase lasted 6 months and was completed in November 2006. A start-up Program Estimate (PE) (Aug. 06 –Nov.06) was implemented during this period. The 2nd PE originally covering the period Nov 06 – Oct 07 and amounting to € 1,460,000 was subsequently revised to € 1,144,000 and the period of implementation was extended to 30th April, 2008. The reasons for this were that: (i) funds saved could be used to partially fund a new project for hurricane Dean relief (see below) and also (ii) additional time was needed to identify and implement the large number of small-scale projects funded under this PE.

Because of this constraint, discussions concerning a revision of the BRDP Finance Agreement (FA) were initiated in February 2007 and concluded on 8th October, 2007, with an addendum to the FA allowing for larger projects to be implemented, for an increase in the amount that can be spent on infrastructure, and an increase in the total funds available to BRDP by an amount of Euro 199,000. This additional amount is reserved for the repair of the Middlesex Bridge in Stann Creek District. The above Addendum No 1 to the FA authorizes larger grants that will be committed through 7 calls of proposals that were launched in August 2007 and evaluated in December 2007. The funds of BRDP will be committed during 2008 as follow:

- € 2.8 million for seven grants to non-profit organizations
- € 600,000 for rural feeder roads (or Cayo Market Phase 2 and University of Belize infrastructure)
- € 1,.089,000 for three programme estimates
- € 600,000 for hurricane Dean relief (see below)
- € 700,000 for the Middlesex Bridge repair
- € 110,000 for audits and mid-term evaluations
- € 1.30 million for the cost of the PMU (programme implementation)

During the night of 20th to 21st August 2007, a category 5 hurricane (named: "Dean") had made landfall at the Belizean–Mexican border and had brought severe destruction to the agricultural crops (papaya, sugar cane, trees) and to houses in villages of Corozal and Orange Walk and (partially) in Belize Districts. The EC Delegation in Jamaica had offered assistance to Belize by being prepared to re-allocate funds under the BRDP. A B$ 1,620,000 (Euro 600,000) request for a grant was made to support (a) the construction of simple one room houses (44 houses constructed and 20 to be repaired) for families who have lost everything, (b) the repair of 10 hurricane shelters, and (c) for 12 agricultural rehabilitation projects. The grant was made to the Social Investment Fund (SIF) with the assistance of the PMU to NAO in the last week of November and was forwarded to the EC Delegation for consideration. These Euro 600,000 will be financed from the FA cost category "Contingency" (Euro 390,000) and Euro 210,000 would be taken from savings from PE 2 and from the budget of PE 3 (May 2008 to Nov 2009).

Main Achievements on the Ground

1. SME Capacity development: In terms of the projects supported with small groups, BRDP has invested approximately B$910,000 on 43 projects (see Table 1). These projects involved the direct participation of 575

family beneficiaries who reside in 51 different villages among the six districts of the country. The districts with the highest level of beneficiaries are Toledo (the Annato project benefited 55 producers) and Belize (the YWCA project trained 28 young women in income generating skills). Of these beneficiaries, 52% are females, compared to the targeted level of 33%. Approximately 53% of the projects are agricultural (i.e. crop, livestock, beekeeping and agro-processing) and the rest are non-agricultural, e.g. internet cafes, arts and crafts, garment making, and tourism. Final reports have been completed for about 70% of these projects.

In terms of the micro-grants, BRDP has invested approximately B$ 220,000 on this project which has benefited some 269 families from 100 villages in all six districts of Belize. These grants were mainly targeted to women-headed households and they averaged less than B$1,000. The investments supported a wide range of income-generating activities such as food preparation and vending, garment making, agricultural production, arts and crafts, cosmetology, and other rural services.

2. Marketing: The largest project of PE 2 is the Cayo Farmers Market with a total investment of B$ 500,000. The market will be completed in March 2008. The overall objective of the Cayo Farmers Market (CFM) project is to improve the service and quality of the facility for the customers and vendors, which includes farmers, small-scale food producers and handicraft vendors. BRDP is investing in Phase 1 which consists of constructing 15 permanent stalls, an area for temporary stalls, a bathroom module,

Table 1 Distribution of small group projects and micro-grants disbursed under PE 2

District	Small Group Projects				Micro-Grants	
	No. Projects	Villages Involved	Family Beneficiaries	% females	Villages involved	Family Beneficiaries
Corozal	6	7	61	35	15	51
Orange Walk	6	10	59	31	8	42
Belize	8	12	114	75	23	74
Cayo	7	7	91	81	20	39
Stann Creek	8	6	101	35	14	24
Toledo	8	9	149	42	20	39
Total	**43**	**51**	**575**	**299 (52%)**	**100**	**269**

a garbage facility, and an Administrative office. A commitment was made by the key stakeholders that the market will be managed in a financially sustainable manner.

3. Institutional strengthening: Empowering the DDCs, local institutions, technical staff and young professionals is also a major type of work in which BRDP has achieved great success. Thus far in PE 2, in addition to the DDCs, BRDP has engaged for its operations 22 individual service providers (about 3-4 per district), 12 institutions with major responsibilities that relate to rural development (i.e. MAF, Rural Development, Department of Cooperatives, BEST, 3 credit unions, Plenty-Belize, University of Belize, YWCA, Belize Audubon Society, Toledo Development Corporation, and the Toledo Mayan Women Council), and also engaged for short periods some 9 interns, at least 1 per district. Skills have been strengthened for project management (e.g. project formulation and evaluation, project implementation, group management), in the technical areas of production and management (food safety, garment making, book keeping, marketing and promotion), and in the management of EU administrative and financial procedures. These institutions and professionals with improved capacities are extremely valuable for current and future collaboration with the EDF and other EU supported projects.

4. Visibility: Great effort has been made by BRDP for the promotion and visibility and EU collaboration with GOB at national and local levels. Every field project supported by BRDP has an EU sign erected in an appropriate location for the public. To date BRDP has produced several articles and information for the media which have been transmitted through the Belize Today, the national newspapers, national and district level TV stations, and for a radio program of MAF. Today the work of the EU through BRDP is well known in the country, in all the districts and in many villages.

5. Impact: Currently BRDP is implementing field surveys to evaluate the major achievements and outcomes of BRDP projects on the ground. This work is particularly focusing on the strengths, weaknesses, outcomes and lessons to be derived from the implementation of the small group projects and micro-grant project. These results will be read for the mid-term evaluation of BRDP.

5.0 Partner Agencies/Programs

5.1 USDA

The United States Department of Agriculture, Animal and Plant Health Inspection Service, USDA APHIS maintained a high degree of alert on the sporadic introduction of any exotic plant pest or animal disease into Belize. We have on hand ready to be used, 5 drums of GS 120 (Success) and the John Deere Gator, which is the applicator for the control of Medfly in Belize.

Medfly: In 2007 three med fly captures occurred:

Date	Trap ID	Location	District	Status
23-06-07	BPG 144	Santa Cruz	Toledo	Fertile Male
13-07-07	BPG 210	Cattle Landing	Toledo	Fertile Male
22-10-07	BBC 264	Plantation (Placencia Peninsula)	Stann Creek	Fertile Male

In all of these captures a grid of intensive trapping was implemented for ninety days, after which no single repeated capture was made. This indicates sporadic single introductions which did not require internal quarantine check points and ground spraying with chemical applications.

USDA sponsored a one week training course in the use of Global Positioning Systems for the Med fly Surveillance Program. Although, the training was geared towards the med fly surveillance program its application can used by the Animal and Plant Health Department. Two used Toyota Hilux 4 X 4 vehicles were donated to BAHA for the Med fly Surveillance program this fiscal year.

Animal Health: USDA/APHIS sponsored the participation of Dr. Joe Myers in the International Trans boundary Disease training in Plum Island, New York. Dr. Myers is the 6th Belizean medical veterinarian to participate in this intensive exotic animal disease training.

Plant Health: USDA supported plant health activities by donating a computer to the Quarantine Department of the Belize Agricultural Health Authority.

5.2 Taiwan Technical Mission in Belize

A. rice project:

1. 2.0 acres of rice seed propagated in central farm, produced 16,479 pounds of rice seed.
2. Conducted training for MAF technicians and 3 operators of agricultural machinery
3. Held a demonstration for rice seed production and disseminated rice production technology.
4. Display agricultural machinery and provided training on the use of agricultural machinery.

Rice Planted using transplanter.

Rice harvested by hand for purification

Rice harvested by agro-machine.

Field day of rice in central farm.

B. horticulture crop project (including the project of tissue culture):

1. Produced 25,000 pounds of vegetables, with income in excess of $65,000.
2. Produced 9 pounds of vegetables seeds and 2,000 seedlings of tropical fruit.
3. Offered 100,000 vegetables seedlings for small farmer.
4. Held 2 shows for vegetable cultivation and open technique training for farmers.
5. Produced 400 bottles stock of orchids, pineapple and banana.

Improved the production of vegetables.

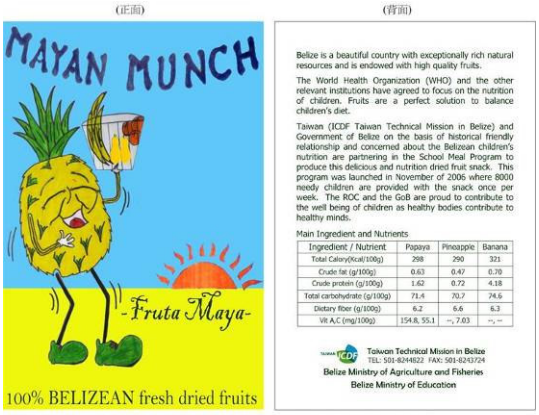
Field training course.

Stock seedling of pineapple.

Original orchid in Belize

C. agro-processing project

1. Produced 147,320 packs of dried-fruits and supplied primary schools with these packs.
2. Assisted the food processing unit on providing training to the extension section.
3. Carried out 5 training sessions on food processing.
4. Held 5 demonstration on food processing.
5. Re-constructed the demonstration centre for food processing.



AGRO-Processing Dehydrated Fruit Bag Design Selection, Belize (6), 2007

Competition of logo design for dried fruit.

Agro-processing course for student.

D. vocational training project

1. Hosted 36 training courses for tourism and food processing.
2. Hosted 2 training courses for mechanical repairs and conservation.

Mechanical training course Stann Creek

Tourism training course in Punta Gorda.

E. The project of supporting Dean Hurricane's victim

1. Donated 40,000 ponds of rice to the Government of Belize to assist hurricane victims.

2 Donated 651 packages of assorted vegetable seeds and about 32,500 pounds of fertilizer to support hurricane victims.

3. Donated 285 packages of assorted seeds to hurricane victims

4 Offered papaya seeds for 500 acres.

Provided medical services to hurricane victims in the northern Belize.

Donated rice to victim of hurricane Dean in northern Belize.

Donated papaya seeds to the papaya growers in Corozal.

Assisted farmers in managing papaya nursery in Little Belize.

2008 programs:

A. Rice Project
Continue to assist MAF with technical assistance in rice production.

B. Horticulture Crop Project:
1. To continue to assist MAF with technical assistance in vegetable production.
2. To continue to provide technical assistance to the northern papaya farmers
3. To assist MAF to establish four demonstrative field for the farmers to learn and emulate.
4. To assist MAF in expanding the demonstrative field at Central Farm for the farmers' demonstration.
5. To assist MAF in establishing the horticulture research center at Central Farm.
6. To expand the tissue culture laboratory at Central Farm and establish the basic tissue culture system at Central Farm
7. To establish the nursery of original species, and developing market potential.
8. To establish facilities for the demonstration of infrastructure cultivation.

C. Agro-processing project

1. Transfer the School Meal Program to MAF.
2. Research on cacao's food processing.
3. Promote can food techniques.
4. Train officer in food processing

5 Assist MAF in establishing a food training factory

D. Vocational training Project

1. Cooperate with BRDP in hosting a food processing training course for women's group.
2. Host an advanced short-term training course on food processing with the assistance of experts from Taiwan.

5.3 OIRSA Belize

In 2007 the International Regional Organization for Agricultural Health (OIRSA) faced many challenges at the national/regional levels; these challenges compelled OIRSA to restructure the entire Organization and focus its activities on the regional/national needs of member countries. The Ministers of Agriculture of OIRSA approved a restructuring that is geared towards Agri-food chains while not leaving out the agricultural health aspect.

OIRSA conducts quarantine treatment service at four major ports of entry: the International Airport, Ports of Belize, Benque Viejo Western Border and at the Santa Elena Northern Border. Total amount of treatments for 2007 is estimated at 47,172 vehicles, containers and airplanes. In 2007 OIRDA expanded its service to the Savannah airstrip in order to conduct treatments for international flights from Savannah to San Pedro Sula, Honduras.

OIRSA worked very closely with The Belize Agricultural Health Authority, BAHA in continuing to control the pink hibiscus mealy bug, a quarantine pest of Belize and the OIRSA Region. Locally this pest is under control and thanks to this biological control program this pest has only infested live hibiscus hedges in urban and rural areas while not affecting commercial crop production. BAHA managed to produce 162,385 wasps for the biological control program signifying a 2.9% increase in comparison to 2006; 24,785 wasps were used for stinging (reproducing the wasp) and 137,600 were used to combat the mealy bug infestations; this control program serves as an insurance policy for Central America, by controlling it in Belize they can trade their agricultural commodities without the restriction of this bug.

A financial allocation was set aside from OIRSA's budget for BAHA's sanitary and phytosanitary programs which was divided into four parts, Animal Health, Food Safety, Plant Health and Quarantine whereby most of the monies were used for epidemiological and phytosanitary surveillance along with laboratory strengthening and capacity building. One major activity carried out was the establishment of an Inspection laboratory at the Santa Elena, Northern border; 50% of the overall allocation was used to finance this activity. An area was set aside from the Custom Warehouse for the establishment of the inspection laboratory.

OIRSA was implementing an Online Digital Diagnostics of Pests Images (DDDI) in collaboration with the University of Georgia, USA and the University of Zamorano Honduras, Belize benefited from this project by the acquisition of 2 complete units (comprising of a digital camera, a stereoscope, an illuminator) for DDDI and a partial one for the Central Farm Plant Pathology Laboratory. This program is designed for rapid diagnostics so as to facilitate trade of Agricultural commodities.

OIRSA worked very closely with the Ministry of Agriculture and Fisheries in relation to the use of the excess funds from OIRSA's 2005 and 2006 budget; a series of mini project proposals geared towards agricultural production issues were submitted for financing. Some industrial wells were dug for small farmers along with the renovation of the piggery unit in Stann Creek; a nursery was constructed in Central Farm, 12 doses of Brown Swiss Bull semen for Artificial Insemination were acquired for breed improvement in Central Farm; and 390 plastic crates were distributed to farmers to assist them with their harvest, transport and storage of vegetables.

OIRSA to assist small farmers who were affected by the erratic weather conditions of late 2006 and early 2007, with vegetables seeds and corn, along with fertilizers . In this venture OIRSA invested $27,000. OIRSA also assisted farmers/fishermen affected by Hurricane Dean in Northern Belize with Bz$23,850 from local emergency funds and programs funds assigned to MAF. Belize was also able to access Bz$30,000 from the regional emergency fund to aid small fishermen of Sarteneja, Chunox, San Pedro and other affected fishers. The Ministry of Agricultural through the PREPAC project also requested additional assistance from OSPESCA and a supplementary support of $10,000 was identified to assist small fishermen.

OIRSA participated in various committees or working groups such as the CREI committee in order to assist technically in the implementation of its mandate; and assist in the establishment of a citrus certification program to be regulated by law so to prevent the possible introduction and distribution of emerging diseases such as Citrus Canker, Citrus Leprosis Virus, Citrus Greening among others. OIRSA

participated in the Poultry Health Committee (Avian Influenza) and the National Zoonosis Committee(emerging exotic diseases such as rabies in bovine).

5.4 Inter-American Institute for Cooperation on Agriculture

The IICA Office in Belize continues to support the development of the agriculture sector through timely response to demands for technical services from the public and private sectors. The demands in 2007 continued to reflect the priorities that the agriculture sector has agreed to, which are to ensure competitiveness and sustainability both nationally and internationally, strategies to off set reduction in preferential markets, the penetration of products into new export markets, and a national platform to encourage dialogue and an integrated approach to foster our economic growth.

IICA has redefined its position, as a partner with the private and public sectors, in order to improve its technical cooperation with stakeholders. IICA is committed to consult and redefine its role in order to complement the objectives of the national, regional and hemispheric agendas in an effort to effectively serve the agricultural sector and contribute towards the development of rural communities in Belize.

IICA's Contribution to the Repositioning of Agriculture and Rural Life: The 2003-2015 Plan of Action continues to be implemented in the country and the IICA Office fully supports and facilitates this process through participation on technical committees, policy and strategy exercises, institutional capacity building and monitoring and evaluation of the agricultural sector and its impact on rural communities.

Promoting Trade and the Competitiveness of Agribusiness: The SWOT analysis of BELTRAIDE conducted by IICA in 2006 provided valuable input for the development of the export strategy and a strategic plan for BELTRAIDE. Technical cooperation included strengthening entrepreneurial capacity and a strategy to identify and promote new market opportunities.

Strengthening Agricultural Health and Food Safety Systems: IICA continues to coordinate and provide logistical support for Belize's participation at the WTO/SPS committee meetings held in Geneva in 2007. The national SPS Committee is fully functional and IICA's support, held an accountability workshop on activities carried throughout the year and received feed back on the work plan for 2008. IICA supported national and international forums dealing with Belize's Emergency Plan for Avian Influenza.

Promoting the Sustainable Management of Natural Resources and the Environment: IICA collaborated with the National Cacao Task Force and we provided support to CATIE with the Central American Cacao Improvement Project, and the National Cacao Industry Evaluation. IICA provided technical assistance to the Belize Organic Producers Association in the preparation of the Belize Organic Policy and draft legislation for submission to the Government authorities.

Strengthening of Rural Communities Based on the Territorial Approach: IICA formed part of the Social Investment Fund (SIF), Dolores Village Poverty Alleviation Project. This project is unique in the

sense that SIF is the lead agency and coordinates all activities to ensure proper management of available resources. A plan of action has been agreed to and specific tasks assigned. IICA is working along with the MAF in the area of improved crop and livestock production for local consumption to enhance nutritional intake.

Introducing Technology and Innovation for the Modernization of Agriculture and Rural Life: Under the leadership of IICA, the National Bio-safety Committee completed a national policy and continues to draft the legislation for bio-safety and bio-security. Belize has signed on to a Caribbean Regional Biosafety Project to assist countries with the implementation phase of the National Biosafety Framework.

Other Technical Programs: The IICA Belize and IICA Canada offices with assistance from IICA Headquarters organized for a Canadian expert in Avian Influenza to visit Belize and share the Canadian Avian Influenza Outbreak experience to stakeholders. IICA facilitated for the Belize Poultry Association and the Central American Poultry Association with the implementation of the Rapid Analysis for the Egg and Broiler industries in Belize. This assessment will seek to identify weaknesses and strengths to improve both industries nationally and harmonize standards and technology in the region.

Other technical committees in which IICA is represented includes: the National Coordinating Committee for Agricultural Research and Development, the Citrus Research and Education Committee and the Persistent Organic Pollutants Project which is designed to develop a National Implementation Plan to develop national technical capacity and strategies to better use and reduce the use of these pollutants.

5.5 CARDI BELIZE

The CARDI (Belize Unit) Annual Technical Report 2007 covers two cropping seasons, the November/December 2006 planted crop which was harvested in March/April 2007, and the June/July 2007 planted crop and harvested in September/October 2007. Additional crops planted in the November/December 2007 season are not covered in this report since harvesting would commence in March/April 2008.

Crops Programme

Cereal Crops:
Corn: Assessment of the performance of the eleven hybrids and one open pollinated variety in the **CARDI 2007 Yellow Hybrid Corn Trial** indicated that the hybrid **DKB 191** demonstrated the best overall performance. Although among the latest to flower, ***DKB 191*** recorded the third highest shelled grain percentage and highest yield of shelled grain among all the entries. Plant height, ear height, and husk cover score were about average. The number of stalk lodged plants and disease score were above average, and the hybrid recorded the lowest number of plants that were lodged at the root and lowest percentage of exposed ears. The hybrid ***HS 14*** was considered as exhibiting the second best overall performance.

An assessment of the fourteen hybrids included in the **CARDI 2007 White Hybrid Corn Trial** indicated that the hybrid ***DK 353*** demonstrated the best overall performance. Flowering, plant height and ear height were about average, while the number of root lodged plants, stem lodged plants and the husk cover score were better than average. The hybrid however ranked highest for disease score, exposed ears, shelled grain percentage, and yield of shelled grain. The entry ***MC 9971*** which recorded the third highest yield of shelled grain was assessed as having the second best overall performance.

Grains/Legumes :
Soybean: Ninety-seven soybean entries were planted in November 2006 in germplasm maintenance. The crop was manually harvested, threshed, dried, cleaned and stored in cold storage.

Cowpea: Twelve cowpea entries were planted in November 2006 in germplasm maintenance. The crop was manually harvested, threshed, dried, cleaned and stored in cold storage.

Peanut: Forty-three peanut entries were planted in June 2007 in germplasm maintenance. The crop was manually harvested, threshed, dried, cleaned and stored in cold storage.

Chickpea: Two trials were planted in November 2006 in an unreplicated preliminary evaluation trial and germplasm maintenance consisting of 14 and 20 entries of chickpea. The crop was manually harvested, threshed, dried, cleaned and stored in cold storage.

Spice Crops: Hot Pepper: Seedlings of **f**ive hot pepper varieties, ***West Indies Red, CARDI Green, CARDI Red, Scotch Bonnet and Savina***, were transplanted in 5-gallon bucket and the plants were grown in isolation in a screen-house at Central Farm. Nucleus seeds were extracted from the harvested fruits. The seed collected will be used to raise seedlings for future production of Commercial Seed.

Natural Resource Programme

Insect Pest Management – Soybean and Hot Pepper: Baseline data was collected on major insect pests and their natural enemies on four varieties of hot pepper (***West Indies Red, CARDI Red, CARDI Green and Scotch Bonnet***) at CARDI Field Station at Central Farm and at a farmer's field in Lucky Strike, Belize District. The most common pests found on all four varieties at both locations were white flies and cucumber beetle. Occasional pests included aphids, leafhopper, stink bugs, grasshopper and ants were also observed. The most common predators were spiders. Lacewing eggs were also observed on the underside of leaves.

Evaluation of fungicides for the control of Asian Soybean Rust: The Asian soybean rust (ASR), caused by *Phakopsora pachyrhizi*, is one of the most devastating diseases of soybean worldwide, causing yield losses of up to 90 %. ASR was for the first time recorded in Belize in January 2006 at Central Farm. Two trials were conducted to evaluate various fungicides to control rust in 2007. A total of six fungicides were evaluated in plots that received one or two fungicide applications. All compounds controlled soybean rust when compared to the untreated control and disease severity was less in all plots treated with fungicides. Seed weights and yields were higher in all the plots treated with fungicides except plots treated with Bravo. These results indicate significant benefits applying fungicides between 55 to 65 days after planting. Additional research on the timing of application and rotation of triazoles and strobilurin fungicides is needed.

Market Development Programme

Seed Production: Nucleus and stock seeds of selected crop types and varieties were produced during November 2006 – April 2007 and June – October 2007 at Central Farm. The crop types were Chickpea, Cowpea, Mungbean, Peanut, Pigeonpea, Sesame, and Soybean. Commercial seeds of corn, cowpea; hot pepper and soybean were produced, cleaned and distributed to farmers. Following discussion between the CARDI Belize Unit and the Ministry of Agriculture and Fisheries on the production and marketing of seed paddy, variety ***CARDI 70***, arrangements were made for the contract production of the required quantity of seed paddy specially to meet the needs of rice farmers in the Toledo district. A total of 26,199 kg of clean seed paddy was delivered to the Toledo district for planting the 2007 May/June crop.

Technical Assistance to Agriculture Sector

Technical Assistance to Belize Agricultural Health Authority (BAHA): Technical Assistance was provided to BAHA in Entomology under a special Memorandum of Agreement (MOA). Eighteen samples of pests intercepted by BAHA Quarantine Inspectors were received during the year for identifications. Preliminary identification of the specimens collected indicated that most of the samples were staphylinid or dermestid beetles, and diamondback moth larvae from crucifers. Requests for assistance to BAHA involved field visits palm plantations in which trees were reported to be declining. Weevils of different genra were found to be responsible for the decline. Irish potato and black eye fields were also visited and were found to be infested with Lepidoptera and Thysanoptera pests.

Technical Assistance to the Citrus Research and Education Institute (CREI): Technical Assistance was also provided to CREI of the Citrus Growers Association (CGA) under a special Memorandum of Agreement. Attempts were again made in 2007 for capturing of adult Trunk Girdling Larva (TGL) for identification but were unsuccessful. The survey of plantations for TGL started in November 2006 and continued in 2007. A methodology was designed for the survey of the status of the citrus psyllid, *Diaphorina citri* Kuwayama. The survey was conducted in early October 2007. The adult psyllid population was generally low in most of the areas. Assistance was also given to CREI in reviewing the CREI project on Mex-fly management funded by the International Atomic Energy Agency. Trapping activities for fruit flies began in December 2007 and a few recommendations were made on the improvement in the trapping and laboratory identification of the Mex-fly.

Technical Assistance: In 2007 efforts continued to be directed at providing technical assistance, on request, to the Extension Service and the Research Division of the Ministry of Agriculture. The Unit continually provided technical support to other organizations in the agricultural sector including, the Pesticides Control Board (PCB), the Citrus Research and Education Institute (CREI), the Belize Agricultural Health Authority (BAHA), the Faculty of Science and Technology of the University of Belize, the Belize Enterprise for Sustainable Technology (BEST), International Regional Organization for Health in Agriculture (OIRSA), the Inter-American Institute for Cooperation on Agriculture (IICA), the Belize Bureau of Standards and other organizations. Technical support and advisory assistance have also been provided to a large number of individual farmers and farmer groups.

Portable Dryer: A portable dryer was fabricated and shipped to the Ministry of Agriculture, St. Kitts. It was fabricated based on the original design developed by CARDI Belize. Fund for the project was provided by FAO. In early December 2007 CARDI Representative visited St. Kitts specifically to commission and demonstrate the operation of the dryer.

5.6 Food & Agriculture Organization (FAO)

The Food & Agriculture Organization of the United Nations (FAO) assisted Belize in 2007 with Technical Cooperation Programmes (TCP), Telefood projects, further work on Belize's National Medium Term Priority Framework (NMTPF) and dissemination of technical information documents. The Forest Programme Facility was activated and a project for forest policy revision submitted under this facility was launched in November. FAO also sponsored GoB staff attendance at workshops, meetings and training courses in phyto-sanitary measures, NMTPF, Avian Influenza diagnostics and communication strategies, illegal trade in wood, land degradation, the International Plant Protection Convention and sustainable forest management.

Two projects were implemented and three more proposals were submitted under the first biennium special TCP facility (TCPF), which was activated in April 2006 and expired December 2007. The preparation of a TCP proposal for disaster mitigation for the agriculture sector post hurricane Dean and training for licensed loggers in reduced impact logging were carried out in 2007 using this facility. The funding allocated under this first TCPF was exhausted with the further submission for technical assistance in 1) industry preparedness for the threat of three citrus diseases, 2)improvement of agricultural statistics, 3) enhancement of the agricultural extension service.

Implementation of three Telefood projects commenced and three more proposals were submitted in 2007. A project for the construction of four Irish potato storage facilities in the Cayo district was initiated with the start of construction of the first facility in El Progresso. Crop and Small Animal Production at Escuela Mexico also commenced with the procurement of materials for the construction of a protected nursery to support the vegetable production component of the project, and sourcing of materials for bee-keeping. Material inputs procured by the project including garden tools, seeds, irrigation system materials, agro-chemicals and other agro-inputs were handed over to ESTM at an official ceremony. The third project for "organic vegetable production" started with the establishment of two production plots in Santa Familia comprised of a mixture of commercially oriented vegetables, herbs and repellent plants, fertilized with farm developed compost. With this project BOPA plans to pilot six organic vegetable production plots in order to spread the organic culture and establish market linkages with the tourism industry through its local certification system. Three other Telefood proposals for "backyard gardening", sheep rearing and bee-keeping were submitted for funding.

Three projects under FAO's Special Programme for Food Security (SPFS) concluded in 2007. The vertical component of "Promoting Cariforum Food Security" finalized its programme with assistance to the development of irrigated rice production for Laguna, further agricultural training courses, the purchase of equipment in support of improved agriculture production and support to the World Food Day event for the promotion of indigenous produce for a healthier consumption pattern. The Small Ruminant Development project concluded early in 2007 with the conduct of a training activity in artificial insemination of sheep using frozen semen extracted from high quality Barbados black-belly breeding rams. Final activities under project TCP/RLA/3004(D) in support of SPFS were the fielding of

two expert missions providing assistance in zoo-sanitary standards and legal advisory services to the Belize Agricultural Health Authority. Under TCP/BZE/3001, an on-going project in support of SPFS, a new South-South Cooperation technician was recruited to assist in the implementation of the Telefood organic production project as well as development of a programme for organic production countrywide.

The regional project, TCP/RLA/3104 addressing avian influenza preparedness, came to a close with a wrap up session in Santiago de Chile attended by BAHA's Director of Animal Health. Meanwhile another regional project TCP/RLA/3111 (A) for the improvement of the domestic environment for seafood was initiated and a local fisheries expert was contracted to provide consultancy services. Belize also made submissions for three national TCPs in 2007, one for post hurricane Dean assistance, and two other long pending TCP proposals "Capacity building for the development of a school garden-based curriculum to promote healthy diets and lifestyles" and "deep slope fisheries".

World Food Day 2007 was celebrated at the Memorial Park in Belize City with an all day ethnic-cultural food fair on October 12th. Participants included primary and secondary school students of the Belize district, a cross-section of Belize City residents, farmers, cooperatives, local and regional organizations, agriculture-based and food preparation entrepreneurs, dignitaries, agriculture, tourism and education technicians and various media personnel. The WFD theme "the right to food –make it happen" was exemplified with an array of innovative cuisine featuring locally grown root crops and vegetables promoted as a healthy alternative diet within an urban environment, and an entertaining dramatization by BAHA promoting the right to safe food. Food sampling of both local/cultural and international cuisine and a constant serving up of a wide variety of "healthy" dishes was the major highlight. Other activities included a live cooking demonstration by Belize's famous television chef, agricultural/nutritional/educational booth displays, a primary school poster competition on the WFD theme, and a vast number of primary school cultural presentations throughout the event.

6.0 Senior Management Staff of the Ministry of Agriculture & Fisheries

(31st December 2007)

Ministry:
Hon. Vildo Marin, Minister of Agriculture & Fisheries
Hon. Dave Burgos, Minister of State
Mrs. Sandra Hall, Chief Executive Officer
Mr Rudolph, Finance Officer
Mr. Jose Castellanos, Policy Analyst

Departments:
Mr. Eugene Waight, Chief Agriculture Officer
Ms. Beverly Wade, Fisheries Administrator
Mr. Hugo Miranda, Acting Registrar of Cooperatives

Statutory Bodies:
Mr. Mario Narvaez, General Manger, Belize Marketing & Development Corporation
Ms. Neri Sanz, Managing Director, Belize Agriculture Health Authority
Mr. Harry Parham, Managing Director, BLPA
Ms. Virginia Vasquez, Managing Director, CZMA

Associated Regional/ International Organizations:
Mr. Anil Sinha, Representative, CARDI
Mr. Salvador Monge, Acting Representative, IICA
Chief Cheng Jin, Head of Technical Mission, ROC Taiwan
Mr. Fermin Blanco, Representative, OIRSA
Mr. Crispin Blanco, Representative, USDA/APHIS

Primary Agriculture Output Value 2007 at Producer's Price							
Economic Value of Agriculture Output 2007							% change
Commodities	**Quantity (lbs.) 2006**	**Quantity (lbs.) 2007**	**Price* (BZ$) 2006**	**Price* (BZ$) 2007**	**Value (BZ$) 2006**	**Value (BZ$) 2007**	**In value**
Sugarcane	**1,173,468**	**1,200,050**	**$ 60.73**	**$ 54.22**	**$ 71,264,711.64**	**$ 65,066,711.00**	**-9%**
Bananas							
(40 lb boxes)							
(28 lb boxes)							
(36 lb boxes)							
(40 lb boxes)							
(37 lb boxes)							
(33 lb boxes)							
(26 lbs boxes)							
(31 lbs boxes)							
(28 lbs other)							
(28 lbs other 2nd class)							
Banana Products (lbs)	**153,546,000**	**136,671,040**			**$ 50,591,638.36**	**$ 41,463,786.42**	**-18%**
Apple Banana (Bunches)(30 lbs/bunch)	149,450	3,725	$ 3.00	$ 3.00	448,350	11,175	
Domestic Consump (40 lbs/Box)	504,627	410,013	$ 3.00	$ 3.00	1,513,881	1,230,039	
Total Value					**$ 52,553,869.36**	**$ 42,705,000.42**	**-8.7%**
Citrus							
Grapefruit (80lb box)	1,730,833	1,571,196	$ 9.23	$ 5.50	$ 15,975,588.59	$ 8,641,578.00	**-46%**
Orange (90 lb box)	5,182,718	5,411,020	$ 9.99	$ 12.76	$ 51,775,352.82	$ 69,044,615.20	**33%**
Fresh Lime Export (lbs)	115,000	135,000	$ 0.07	$ 0.07	$ 8,050.00	$ 9,450.00	**17%**
Fresh Orange Export (lbs)	19,309,335	5,602,246	$ 0.15	$ 0.48	$ 2,880,508.00	$ 2,684,562.00	**-7%**
Fresh Grapefruit Export (lbs)	0		$ -			$ -	
Domestic Lime Consumpt. (lbs)	120,000	120,000	$ 0.50	$ 0.50	$ 60,000.00	$ 60,000.00	**0%**
Domestic Grapefruit Consumpt. (80 lbs/bx)	16,866	15,712	$ 6.00	$ 6.00	$101,194.02	$ 94,272.00	**-7%**
Domestic Orange Consumpt. (90 lbs/bx)	246,548	270,551	$ 8.00	$ 8.00	$ 1,972,382.80	$ 2,164,408.00	**10%**

Commodities	Quantity (lbs.) 2006	Quantity (lbs.) 2007	Price* (BZ$) 2006	Price* (BZ$) 2007	Value (BZ$) 2006	Value (BZ$) 2007	In value
Citrus Products					**$ 72,773,076.23**	**$ 82,698,885.20**	**14%**
Marine Products (incl 4% for dom. Consump)					**$ 89,456,218.76**	**$ 43,869,073.09**	**-51%**
Lobster	398,190	458,665	$ 34.98	$ 35.09	$ 13,926,940.00	$ 16,095,746.52	**16%**
Conch	731,950	526,205	$ 11.42	$ 10.24	$ 8,359,097.00	$ 5,389,117.21	**-36%**
Shrimp	15,922,325	5,439,206	$ 3.93	$ 3.63	$ 62,519,837.00	$ 19,749,079.68	**-68%**
Whole Fish	392,324	260,785			$ 277,030.00	$ 400,812.02	**45%**
Fish Fillet	148,017	102,504			$ 932,691.00	$ 527,138.62	**-43%**
Other	-	2,530		$ 7.87		$ 19,907.00	**#DIV/0!**
Domestic Consumption	703,712	271,596			$ 3,440,623.76	$1,687,272.04	**-51%**
Fruits							
Papayas (export)	73,368,900	72,944,753	$ 0.42	$ 0.36	$ 31,014,396.85	$ 26,073,873.13	**-16%**
Mangoes	2,454,000	1,340,000	$ 0.50	$ 0.50	$ 1,227,000.00	$ 670,000.00	**-45%**
Local Papaya	1,467,378	1,419,299	$ 0.42	$ 0.42	$ 616,298.76	$ 96,105.58	**-3%**
Pineapple	3,155,250	5,017,044	$ 0.31	$ 0.31	$ 978,127.50	$ 1,555,283.64	**59%**
Watermelon	4,402,500	2,551,600	$ 0.30	$ 0.30	$ 1,320,750.00	$ 765,480.00	**-42%**
Coconuts (Nuts)	1,124,400	841,840	$ 0.68	$ 0.71	$ 764,592.00	$ 597,706.40	**-22%**
Canteloupe	872,800	638,350	$ 0.40	$ 0.40	$ 349,120.00	$ 255,340.00	**-27%**
Jicama	95,600	20,000	$ 0.50	$ 0.50	$ 47,800.00	$ 10,000.00	**-79%**
Cashew (raw nut)	323,440	298,430	$ 1.00	$ 1.00	$ 323,440.00	$ 298,430.00	**-8%**
Grapes					$ -	$ -	
Craboo	69,940	56,200	$ 0.75	$ 0.75	$ 52,455.00	$ 42,150.00	**-20%**
Guava	9,000	9,000	$ 1.50	$ 1.50	$ 13,500.00	$ 13,500.00	**0%**
Other Fruit (sapodilla,mamey,etc.)					$ 137,500.00	$ 137,500.00	**0%**
Soursop	20,495	26,820	$ 2.00	$ 2.00	$ 40,990.00	$ 53,640.00	**31%**
Sub-Total					**$ 36,885,970.11**	**$ 31,069,008.75**	
Grains/Legumes							
Corn	62,606,816	84,466,610	$ 0.20	$ 0.31	$ 12,521,363.20	$ 26,184,649.10	**109%**
Rice paddy	26,136,078	39,186,888	$ 0.22	$ 0.22	$ 5,749,937.16	$ 8,621,115.36	**50%**
Sorghum	10,096,100	15,113,400	$ 0.14	$ 0.20	$ 1,413,454.00	$ 3,022,680.00	**114%**
Cowpeas	4,907,100	5,436,100	$ 0.45	$ 0.45	$ 2,208,195.00	$ 2,446,245.00	**11%**
RK beans	5,659,700	6,254,965	$ 0.90	$ 0.95	$ 5,093,730.00	$ 5,942,216.75	**17%**
Black Beans	2,932,800	2,938,965	$ 0.88	$ 0.92	$ 2,580,864.00	$ 2,703,847.80	**5%**

Other Beans	689,225	412,900	$ 0.80	$ 0.80	$ 551,380.00	$ 330,320.00	**-40%**
Soybean	1,350,000	831,200	$ 0.34	$ 0.34	$ 459,000.00	$ 282,608.00	**-38%**
Peanuts	225,314	215,155	$ 1.37	$ 1.74	$ 308,680.18	$ 374,369.70	**21%**
Sub-Total					**$ 30,886,603.54**	**$ 49,908,051.71**	
							% change
Commodities	**Quantity (lbs.) 2006**	**Quantity (lbs.) 2007**	**Price* (BZ$) 2006**	**Price* (BZ$) 2007**	**Value (BZ$) 2006**	**Value (BZ$) 2007**	**In value**
Other							
Hot peppers (export)	108,700	171,146	$ 0.80	$ 0.80	$ 86,960.00	$ 136,916.80	**57%**
Hot peppers (local)	173,730	144,750	$ 1.22	$ 1.22	$ 211,950.60	$ 176,595.00	**-17%**
Cocoa	94,925	54,773	$ 2.00	$ 2.00	$ 189,850.00	$ 109,546.00	**-42%**
Cabbage	3,259,405	3,221,665	$ 0.66	$ 0.66	$ 2,151,207.30	$ 2,126,298.90	**-1%**
Cucumber	541,300	167,675	$ 0.50	$ 0.50	$ 270,650.00	$ 83,837.50	**-69%**
String Beans	400	3,700	$ 0.80	$ 0.80	$ 320.00	$ 2,960.00	**825%**
Okra	172,400	49,450	$ 0.95	$ 0.95	$ 163,780.00	$ 46,977.50	**-71%**
Squash	48,100	122,500	$ 0.45	$ 0.45	$ 21,645.00	$ 55,125.00	**155%**
Pumpkin	548,750	114,000	$ 0.40	$ 0.40	$ 219,500.00	$ 45,600.00	**-79%**
Sweet Pepper	1,209,488	1,107,609	$ 2.57	$ 2.77	$ 3,108,384.16	$ 3,068,076.93	**-1%**
Tomatoes	2,055,119	1,590,597	$ 1.46	$ 1.52	$ 3,000,473.74	$ 2,417,707.44	**-19%**
Irish Potato	2,580,700	1,054,025	$ 0.82	$ 0.86	$ 2,116,174.00	$ 906,461.50	**-57%**
Onion	1,492,905	864,050	$ 0.88	$ 1.34	$ 1,313,756.40	$ 1,157,827.00	**-12%**
Carrots	239,000	452,950	$ 0.78	$ 0.79	$ 186,420.00	$ 357,830.50	**92%**
Cassava	527,645	721,630	$ 0.44	$ 0.46	$ 232,163.80	$ 331,949.80	**43%**
Lettuce	257,138	467,550	$ 0.75	$ 0.75	$ 192,853.50	$ 350,662.50	**82%**
Chinese Cabbages	13,500	0	$ 0.80		$ 10,800.00	$ -	**-100%**
Broccoli	54,420	22,900	$ 1.50	$ 1.50	$ 81,630.00	$ 34,350.00	**-58%**
Celery	108,645	124,950	$ 2.00	$ 2.00	$ 217,290.00	$ 249,900.00	**15%**
Cho-cho	86,200	13,700	$	$	$	$	**-84%**

			0.75	0.75	64,650.00	10,275.00	
Sweet Corn (ears)	390,000	364,000	$ 0.70	$ 0.70	$ 273,000.00	$ 254,800.00	**-7%**
Cauliflower	24,750	32,700	$ 1.50	$ 1.50	$ 37,125.00	$ 49,050.00	**32%**
Cocoyam	576,438	343,920	$ 0.83	$ 0.81	$ 478,443.54	$ 278,575.20	**-42%**
Sweet Potato	141,000	50,750	$ 0.66	$ 0.71	$ 93,060.00	$ 36,032.50	**-61%**
Yam	213,876	243,900	$ 0.83	$ 0.66	$ 177,517.08	$ 160,974.00	**-9%**
Yampi	280,820	263,392	$ 0.81	$ 0.81	$ 227,464.20	$ 213,347.52	**-6%**
Pitahaya	300	1,200	$ 2.00	$ 2.00	$ 600.00	$ 2,400.00	**300%**
Plantain (bunches)*	740,634	147,331	$ 5.00	$ 5.00	$ 3,703,170.00	$ 736,655.00	**-80%**
Cotton	200,000	205,000	$ 8.00	$ 8.00	$ 1,600,000.00	$ 1,640,000.00	**3%**
Annato	79,000	83,400	$ 0.90	$ 0.90	$ 71,100.00	$ 75,060.00	**6%**
							% change
Commodities	**Quantity (lbs.) 2006**	**Quantity (lbs.) 2007**	**Price* (BZ$) 2006**	**Price* (BZ$) 2007**	**Value (BZ$) 2006**	**Value (BZ$) 2007**	**In value**
Coffee	210,000	100,000	$ 1.35	$ 1.35	$ 283,500.00	$ 135,000.00	**-52%**
Avocado	70,000	65,250	$ 0.75	$ 0.75	$ 52,500.00	$ 48,937.50	**-7%**
Ginger	64,250	34,000	$ 0.75	$ 0.75	$ 48,187.50	$ 25,500.00	**-47%**
Nutmeg	10,280	14,000	$ 15.00	$ 15.00	$ 154,200.00	$ 210,000.00	**36%**
Other Vegetables (radish, cilantro, etc.)					$ 110,000.00	$ 110,000.00	**0%**
Sub-Total					**$ 21,150,325.82**	**$ 15,645,229.09**	**-26%**
Grand Total					**$ 88,922,899.47**	**$ 96,622,289.55**	
Livestock:							
Dressweight:							
Beef	3,713,400	3,566,700	$ 2.50	$ 2.50	$ 9,283,500.00	$ 8,916,750.00	**-4%**
Beef Export (on the hoof) (lbs)	1,448,100	4,203,000	$ 1.20	$ 1.26	$ 1,737,720.00	$ 5,295,780.00	**205%**
Pigs	2,559,600	2,464,320	$ 3.00	$ 3.00	$ 7,678,800.00	$ 7,392,960.00	**-4%**
Pigs Export(on the hoof)(lbs)	211,600	207,600	$ 1.40	$ 1.48	$ 296,240.00	$ 307,248.00	
Sheep	56,385	52,695	$ 3.00	$ 3.00	$ 169,155.00	$ 158,085.00	**-7%**
Poultry	29,880,350	29,473,121	$ 1.60	$ 1.77	$ 47,808,560.00	$ 52,167,424.17	**9%**
Turkey	355,095	366,049	$ 3.00	$ 3.00	$ 1,065,285.00	$ 1,098,147.00	**3%**
Milk (lbs)	6,644,628	5,965,514	$ 0.32	$ 0.32	$ 2,126,280.96	$ 1,908,964.48	**-10%**
Spent hens (No. Heads)	139,000	139,000	$ 3.00	$ 3.00	$ 417,000.00	$ 417,000.00	**0%**
Eggs (Dozen)	2,640,152	2,949,537	$ 1.50	$ 2.67	$ 3,960,228.00	$ 7,875,263.79	**99%**
Honey (lbs)	107,084	106,325	$ 4.50	$ 4.50	$ 481,878.00	$ 478,462.50	**-1%**

Livestock					**$ 75,024,646.96**	**$ 86,016,084.94**	**15%**
All Non-traditional products					**$ 163,947,546.43**	**$ 182,638,374.49**	**11%**
Citrus/Sugarcane/							
Bananas/Fisheries					**$ 286,047,875.99**	**$ 234,339,669.71**	**-18%**
Total Agri. Output					**$ 449,995,422.42**	**$ 416,978,044.20**	**-7.3%**
**** 1 Bunch = 45 lbs***							
Source: MAFC, District Agriculture Offices Reports							

Appendix IIA:

Agricultural Exports 2002 -2007
In Value ($'000 Bze)

Commodities [a]	2002	2003	2004	2005	2006	2007 p
Sugarcane Sector:						
Sugar (Long Ton)	$ 65,981	$ 71,227	$ 81,534	$ 69,899	$ 100,065	$ 88,142
Molasses (gals)	$ 2,678	$ 2,476	$ 1,766	$ 2,821	$ 4,203	$ 5,504
Sugar/Molasses	*$ 68,659*	*$ 73,703*	*$ 83,300*	*$ 72,720*	*$ 104,268*	$ 93,646
Bananas	$ 33,499	$ 52,579	$ 52,991	$ 51,081	$ 50,592	$ 41,464
Citrus Sector:						
Orange Concentrate (gal)	$ 53,493	$ 65,538	$ 55,489	$ 87,547	$ 86,176	$ 101,169
Orange Squash (gal)	$ 3,094	$ 1,479	$ 1,996	$ 542	$ 107	$ 93
Orange Oil (lbs)	$ 809	$ 566	$ 2,050	$ 1,919	$ 2,810	$ 2,213
Oranges (lbs)	$ 2,439	$ 2,406	$ 1,973	$ 3,248	$ 2,881	$ 2,685
Grapefruit Concentrate (gal)	$ 13,950	$ 12,516	$ 23,817	$ 19,424	$ 22,810	$ 16,271
Grapefruit Squash (gal)	$ 7,080	381	$ 1,792	$ 298	$ 27	$ 8
Grapefruit Oil (lbs)	$ 306	$ 24	$ 1,573	$ 6,600	$ 2,852	$ 681
Citrus	*$ 81,171*	*$ 82,909*	*$ 88,690*	*$ 119,579*	*$ 117,663*	$ 123,121
TRADITIONAL EXPORTS						
Marine Products	$ 70,363	$ 110,157	$ 107,334	$ 83,871	$ 86,016	$ 42,182
Lobster	$ 13,236	$ 13,598	$ 15,142	$ 14,499	$ 13,927	$ 16,096
Conch	$ 3,440	$ 3,741	$ 5,810	$ 7,156	$ 8,359	$ 5,389
Shrimp	$ 53,563	$ 92,762	$ 85,153	$ 60,535	$ 62,520	$ 19,749
Whole Fish	$ 124	$ 30		$ -	$ 277	$ 401
Fish Fillet	$ -	$ -		$ -	$ 933	$ 527
Crab	$ -	$ 26		$ -	0	$ 20
Other Fish			$ 1,228	$ 1,681	0	$ -
Traditional Sector	*$ 253,692*	*$ 319,348*	*$ 332,316*	*$ 327,250*	*$ 358,539*	$ 300,413
Other						
Pepper Sauce	$ 414	$ 607	$ 866	$ 1,154	$ 1,607	$ 1,687
Papayas	$ 15,508	$ 16,752	$ 22,818	$ 26,768	$ 31,014	$ 26,074
Red Kidney Beans	$ 2,059	$ 1,659	$ 1,872	5,064	$ 1,912	$ 2,878
Black Eye Peas	$ 2,457	$ 3,410	$ 1,418	$ 3,463	$ 3,372	$ 3,599
Mangoes	$ -	$ 1	$ -	$ -	$ -	
Cocoa Beans	$ 29	$ 94	$ 69	$ -	$ -	
Honey	$ -	$ -	$ -	$ -	$ -	
Peanuts			$ 12	$ -	$ -	
Chicle	$ 63	$ 22	$ -	$ -	$ -	
Total Other	$ 20,530	$ 22,545	$ 27,054	$ 36,449	$ 37,905	$ 34,238
Other Exc. Papayas	$ 5,022	$ 5,793	$ 4,236	$ 9,681	$ 6,891	$ 8,164
Agriculture Export Earnings	$ 274,222	$ 341,893	$ 359,370	$ 363,699	$ 396,444	$ 334,651

INCLUDES FRESH, CHILLED, PRESERVED, PROCESSED & PRODUCTS
* INCLUDES PROCESSED AND UNPROCESSED PRODUCTS
P =Preliminary
Source: Trade Report, Central Statistical Office

Appendix IIB:

Agricultural Exports 2003 -2007

Units ($' 000 Bze)

Commodities [a]	**2002**	**2003**	**2004**	**2005**	**2006**	**2007**
Sugarcane Sector:						
Sugar (Long Ton)	103	99	114	90	96	83
Molasses (gals)	5,618	5,610	5,037	5,129	5,098	6,426
Sugar Products						
Bananas (tonne)	42	73	79	76	73	61
Citrus Sector:						
Orange Concentrate (gal)	3,621	4,921	6,445	8,380	6,415	4,672
Orange Squash (gal)	950	418	570	149	14	15
Orange Oil (lbs)	508	244	1,222	2,093	3,119	1,396
Oranges (lbs)	15,627	13,636	12,636	17,782	19,309	5,602
Grapefruit Concentrate (gal)	730	768	1,813	1,255	1,246	786
Grapefruit Squash (gal)	1,519	107	347	38	2	8
Grapefruit Oil (lbs)	58	11	182	652	293	140
Marine Products (lbs)	7,332	17,063	18,394	19,925	17,593	6,790
Lobster	499	536	538	510	398	459
Conch	465	450	596	524	732	526
Shrimp	6,330	16,052	16,999	18,445	15,922	5,439
Whole Fish	38	24			392	261
Fish Fillet	-	-			148	103
Crab	-	1				3
Other Fish			261	445		
Other						
Pepper Sauce (lbs)	285	399	513	583	778	812
Papayas (lbs)	24,465	36,522	55,606	63,105	76,004	72,945
Red Kidney Beans (lbs)	3,940	3,118	3,058	7,430	2,734	3,527
Black Eye Peas (lbs)	5,913	8,130	3,167	7,986	5,921	5,363
Mangoes (lbs)	0	10	-	0	0	
Cocoa Beans (lbs)	55	45	45	0	0	
Chicle (lbs)	27	19	-	0	0	
Honey (lbs)	N/A	N/A	-	0	0	
Peanuts (lbs)	N/A	N/A	21	0	0	

Source: All export commodities figures are from Central Statistics Office
Marine Product figures for 2000 and 2001 are from Fisheries Department, Belize City
N/A = Not Available
P=Preliminary
r= Revised

Agriculture Imports 2002 - 2007						
(Using BZE$, 1$US=2$BZE)						
IMPORTS	**2002**	**2003**	**2004**	**2005**	**2006**	**2007**
MEAT;#	**$ 8,323**	**$ 9,524**	**$ 9,120**	**$ 8,075**	**$ 7,744**	**$ 10,548**
BEEF	$ 101	$ 168	$ 126	$ 250	$ 294	$ 323
PORK	$ 1,599	$ 2,199	$ 3,502	$ 2,812	$ 1,541	$ 3,469
POULTRY	$ 98	$ 397	$ 329	$ 319	$ 36	$ 307
OTHER	$ 6,526	$ 6,760	$ 5,163	$ 4,694	$ 5,873	$ 6,449
DAIRY	$ 22,594	$ 23,053	$ 23,567	$ 24,291	$ 24,085	$ 27,772
EGGS	$ 1,030	$ 1,195	$ 895	$ 853	$ 829	$ 713
RICE	$ 821	$ 297	$ 136	$ 132	$ 175	$ 209
FLOUR	$ 696	$ 216	$ 210	$ 287	$ 247	$ 298
OTHER CEREALS*	$ 9,716	$ 18,595	$ 18,870	$ 18,612	$ 18,882	$ 18,825
FRUITS AND VEGET.	$ 11,236	$ 11,168	$ 12,353	$ 9,089	$ 8,827	$ 10,940
RK.BEANS	$ 339	$ 498	$ 45	$ 129	$ 162	$ 356
OTHER FOOD*	$ 36,552	$ 32,147	$ 26,398	$ 45,117	$ 42,108	$ 47,926
TOTAL FOOD	**$ 107,840**	**$ 118,730**	**$ 109,232**	**120203**	**$ 118,241**	**$ 135,589**
exc Ani. Feed & Seed	$ 91,307	$ 96,692	$ 91,594	$ 106,585	$ 103,058	$ 117,588
INPUTS:						
SEEDS	$ 1,561	$ 1,336	$ 1,273	$ 1,510	$ 1,840	$ 4,254
FERTILIZERS	$ 11,311	$ 9,423	$ 8,435	$ 6,802	$ 11,560	$ 10,993
HERBICIDES	$ 4,306	$ 3,903	$ 4,171	$ 3,900	$ 4,650	$ 5,123
INSECTICIDES	$ 4,711	$ 4,829	$ 3,890	$ 5,433	$ 4,134	$ 5,209
FUNGICIDES	$ 2,745	$ 3,043	$ 3,454	$ 3,243	$ 5,348	$ 4,874
ANIMAL FEED	$ 14,971	$ 20,702	$ 16,366	$ 12,108	$ 13,343	$ 13,747
TOTAL INPUTS	**$ 39,605**	**$ 43,236**	**$ 37,588**	**$ 32,996**	**$ 40,875**	**$ 44,201**
TOTAL AG. IMPORTS	**$ 130,912**	**$ 139,928**	**$ 129,182**	**$ 139,581**	**$ 143,933**	**$ 161,789**
OTHER IMPORTS	$ 918,117	$ 964,246	$ 899,035	$ 1,042,136	$ 1,176,882	$ 1,206,941
TOTAL IMPORTS	**$ 1,049,030**	**$ 1,104,174**	**$ 1,028,217**	**$ 1,181,717**	**$ 1,320,815**	**$ 1,368,729**

INCLUDES FRESH, CHILLED, PRESERVED, PROCESSED & PRODUCTS
* INCLUDES PROCESSED AND UNPROCESSED PRODUCTS
P =Preliminary
Source: Trade Report, Central Statistical Office