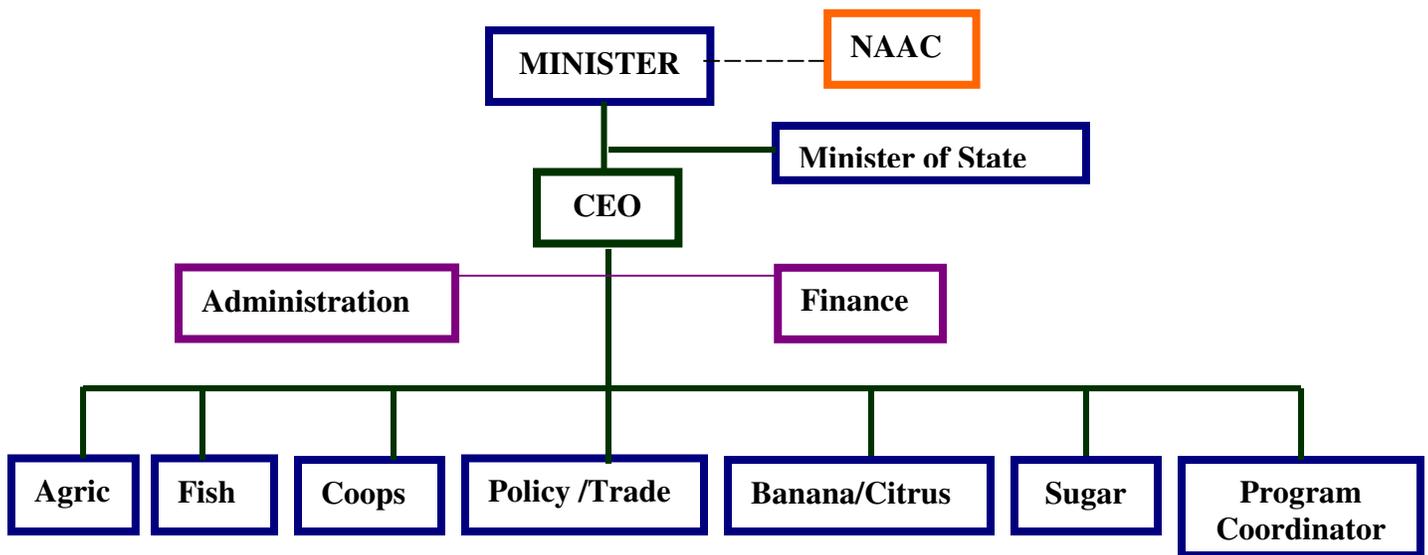


**4.2 Structure:** The **technical structure** of the Ministry is divided into 3 departments, a Trade/Policy Unit and director for the traditional sectors of sugar, citrus/bananas and a program coordinator. A **National Agriculture Advisory Committee (representatives from the traditional/nontraditional sectors, processors, consumers, farmers, intermediaries/marketers)** exists which advises the Minister on the effectiveness of policies/programs being implemented by the Ministry.

**Agriculture Department:** The mission for the Department of Agriculture is “*to enhance the profitability by providing professional and technical services to farmer and producers through research, extension and training countrywide.*” This mission requires the provision of the following support services: generation of statistics, research & extension, soil testing/ analysis, training, provision of improved planting material, seeds and breeding stock.

**MAF ORGANOGRAM**



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

**Cooperative Department:** The mission of the Cooperatives and Credit Union Department is “*to enable the common person to generate income and self improvement through organized group enterprises based on cooperative philosophy and principles for sustainable development.*”

**This Involves:**

- i. Promoting, educating and training groups seeking registration.
- ii Registering of cooperatives and credit unions
- iii Regulating and supervising cooperatives and credit unions including drawing up by-laws for societies, inspecting of records, auditing of accounts, and settlement of disputes submitted for arbitration and cancellation and liquidation of societies
- iv Promoting, supporting and assisting the development, management and monitoring of economic enterprises to ensure sustainable development

**Trade/Policy Unit:** The mission of the Policy/Trade Unit is **to improve relevant GOB and institutional policies and optimize the lasting impact of MAFC mission which is “To continue as the economic pillar of Belize, ensuring food security, generating income and foreign exchange, creating employment and conserving natural resources in order to grow the economy, reduce poverty and empower the local populations for sustainable development.”** Therefore, the broad objective of this unit is policy and legislative reform in order to facilitate and accelerate investment, diversification, productivity, marketing and export of agricultural products.

The functions/responsibilities of the Unit is as follows:

- i. **Policy Improvement:** To access the effectiveness of current policies on agriculture, fisheries and cooperatives and on MAFC’s mission (for example, free trade, land tenure, migration and concessions), to diagnose their constraints and accordingly formulate reforms on new policies, and to assist in implementing recommendations;
- ii. **Monitoring & Evaluation:** To determine the social, economic, financial and ecological impact (ex post and ex ante), within an appropriate space (macro-micro) and time context (short-long-term), of MAFC’s program, technological innovations and proposed projects;
- iii. **Market Information Analysis:** To provide timely market driven information to farmers, fisher persons, investors and policy-makers so they can make better choices among sectoral priorities, production technologies and marketing techniques, albeit for the local, national or international markets;
- iv. **Information Dissemination:** To coordinate, collate and edit the timely publication of MAFC annual reports, sectoral statistics and other key documents outlining the major achievements, recommendations and priorities of MAFC and/or the agriculture/fisheries/ cooperative sector;
- v. **External Interaction:** To liaise, collaborate and develop joint ventures with other GOB Ministries and the private sector (National Agriculture Advisory Council & the Fisheries Advisory Board) which will lead to a more effective and efficient fulfillment of its goal.
- vi. **Public Relations:** To ensure that media houses together with the public (other Ministries, departments and projects) / private (international agencies, embassies) sector is kept abreast of MAFC activities and programs and to engage in an active public awareness and education campaign on behalf of the agriculture, fisheries and cooperatives departments

## 5.0 National Food & Agriculture Policy Framework 2002-2020

**5.1 Lessons Learned:** From recent experience, both successful initiatives and some disappointments, the Ministry of Agriculture, Fisheries and Cooperatives has learnt valuable lessons, that should guide future development pathways to modernize the productive sectors. These are:

- i. Macro-economic policy and coordination strategy for sector-wide development for food security, export promotion and development of complementary/cross-fertilization between national, local and international donors/cooperation agencies;
- ii. Institutional strengthening for sustainable development by creating viable and effective partnership among government, private sector, NGOs and community based organizations;
- iii. Commodity & pragmatic approach in response to market and consumer preferences, by integrating production with processing and value adding strategies and technologies;
- iv. Excellent market demand and opportunities for non-traditional, high quality exports, for example fresh fruits and vegetable, organic products and marine products;

**5.2 Policy:** The long-term vision for the sector is that of “A *transformed/Modern Sector that is Fully Competitive, Diversified and Sustainable.*” Therefore, policies for the Sector (Agriculture, Fisheries & Cooperatives/credit Union) will be guided by the major national challenges/constraints. Against this background five priority policy areas were placed, each with specific major objectives and areas for actions has been elaborated as follows:

### (i) Trade Policy

- Exploit the existing preferential market opportunities and continue to lobby for preferential market access.
- Increase production efficiency of both traditional and non-traditional products to compete in open and liberalized markets including the domestic market.
- Diversify the export product base to reduce negative impacts from the loss of the preferential markets.
- Exploit niche market opportunities for non-traditional products.
- Implement legislative and other institutional requirements consistent with meeting regional and international commitments and agreements.
- Improve the agricultural health services to facilitate agricultural trade and human safety.

### (ii) Price Policy

- Minimize distortions and facilitate market-oriented production activities.
- Facilitate quicker response of production and marketing activities to market price signals.
- Preserve and improve the profitability of activities in the agri-food chain.
- Provide increased incentives to products that compete in open markets and with potential to contribute to both production and export diversification.

**(iii) Diversification of the Production Base and Food Security**

- Accelerate diversification of the production and export base to reduce the likely impacts of losses of the preferential markets.
- Promote food production programs that enhance the country's long-term food security.
- Promote sustainable farming practices to reduce natural resource degradation, particularly of more fragile and vulnerable areas.
- Improve farming and production systems of particularly milpa and other small farmers.
- Strengthen infrastructure and support services to support diversification and increase food production.
- Promote greater use of locally produced foods.
- Reduce macroeconomic and price instability that often adversely affects low income and the most vulnerable groups of society.

**(iv) Sustainable Development of Rural Areas**

- Establish a national rural development program to contribute to a sustainable increase in competitiveness of production activities, food security and social well being.
- Accelerate employment and income generating opportunities that are fundamental to the alleviation of rural poverty alleviation and food insecurity.
- Address the main policy, institutional and infrastructural weaknesses and constraints of small and mid-size producers.
- Improve human capital through training, organization and technology transfer.
- Foster micro-enterprise development to make more productive use of rural natural and human resources.
- Improve information systems to provide information on markets and opportunities for small producers and micro-enterprises.
- Strengthen development programs of indigenous groups and communities.
- Promote greater participation of local people including women, youth and indigenous groups in local development planning and decision-making.

**(v) Natural and Environmental Resources Management**

- Promote an integrated approach to the use and management of natural and environmental resources for agricultural production, tourism and settlement development.
- Strengthen management of environmentally fragile areas including watershed management, protected areas and development of eco-tourism areas.
- Improve management of fishery and forestry resources to achieve an optimum combination of their productive, protective, recreational and scientific and educational capabilities.
- Resolve land tenure issues that inhibit more optimum and sustainable uses of land for production activities.
- Increase investment in water resources and management on account of its critical importance for improving agricultural productivity and sustaining production.

## 6.0 Agriculture Policies

**6.1 Sector Background:** During 2001 the contribution of agriculture to GDP (excluding fisheries & forestry) amounted to 14.2%, it contributed towards 25.0% of the labor force and 65.0% of total export earnings. In 2000 citrus exports replaced sugar cane as the largest contributor to foreign exchange earnings followed by sugar cane in second place and bananas in third place. Citrus, sugar/molasses, and banana exports for 2002 amounted to \$79.9, \$68.6 and \$45.9 million, respectively, for a grand export of \$194.4.0 million for these three traditional commodities.

From the early 1980s to the mid-1990s Belize main source of economic growth was the agriculture sector - sugar, citrus, bananas and aquaculture; this growth was largely a response of the private sector to higher market prices being offered by preferential arrangements in the EU (bananas, sugar) and citrus in the USA and EU markets. Belize's agriculture policy focused on being market-led while aiming at providing consumers with a wholesome and safe diet at reasonable prices. Agriculture policy was also directed at having an environment within which agriculture could provide competitively products for both domestic foods needs and export markets. As a result of this market-led approach Belize experienced higher levels of self-sufficiency, development of new export commodities (papayas, aquaculture, habanero peppers) reduced price fluctuations and growth in export of bananas and citrus products.

Belize has a farming population of about 11,000 operating on a total land area of 265,00 acres of which 146,000 acres are for crops and 119,000 acres for pasture. The majority of farmers in the South (Toledo District) still practice milpa agriculture - traditional slash/burn method of shifting cultivation producing staples (corn, beans) for their consumption; rice is produced as a cash crop, together with any surplus of corn and beans. Small farms with permanent crops predominate in Northern Belize (Orange Walk & Corozal) and in the Stann Creek Valley where they are responsible for producing sugar cane and citrus respectively. In Western Belize (Cayo and part of Orange Walk) farmers are responsible for most of the corn, beans, poultry, pork, dairy and beef output - staple commodities for which Belize has achieved a significant level of self-sufficiency.

One of the major challenges facing domestic/milpa agriculture is the prevalent poverty level in over 75.0% of all farmers mostly small-scale/milpa farmers; these farmers may be described as indigenous peoples, recent immigrants from Central America, and as farm laborers in the citrus, banana and other agriculture industries. In the future agriculture will need to ensure that further growth in the sector trickle down to small farmers' income and better standard of living so that small-farming be sustainable in the long-run; small farms are responsible for producing the bulk of agriculture commodities consumed in the domestic market (corn, beans, rice, beef, pork, vegetables, fruits).

**6.2 Policy:** For the agriculture sector, the agriculture department, in consultation with its partners in development, has elaborated seven strategic objectives with accompanying programs:

**i. Accelerate the diversification of both local and export-oriented agriculture**

Specific attention is to be given to commodities that have traditionally been imported but that have the potential to be economically grown in Belize for local consumption. These include Irish potato, onion, carrots, garlic, celery, broccoli, cauliflower and grapes. In addition, new initiatives are being launched to rear the fallow deer and the wild gibbon, to expand the rearing of sheep and goats under improved management, and promote the cultivation of non-traditional fruits such as cashew, sapodilla, soursop, pitahaya etc. With respect to the export sector, efforts continue to expand aquaculture and non-traditional commodities in order to reduce the reliance on a few export products.

**ii. Promote agro-processing and value adding as a means of expanding opportunities and increasing the income of the rural sector**

Special emphasis will be placed on the packaging of locally produced products as well as promoting agro-processing both at the farm-level and in commercial enterprises. Training on product development, good manufacturing practices, marketing and packaging are being intensified. The Technical Mission of the Republic of China on Taiwan have opened up a regional food processing unit in the agriculture research and development station in Central Farm and the Belize Marketing Board has been renamed and restructured to expand its mandate to include value added and processed agricultural products. Collaboration with BELTRAIDE will be strengthened to ensure the provision of investment/trade support through an investment promotion unit, a trade information unit and through advisory services of an export business adviser.

**iii Support the establishment and development of an Organic Agriculture Industry in Belize.**

Recognizing the potential local and international market opportunity for organic produce from Belize, the need to diversify income opportunities for Belizean small-scale farmers and recognizing that organic production methods entail significant restrictions on the use of fertilizers and pesticides which may have detrimental effects on the environment or result in the presence of residues in agricultural produce which could pose potential risk to human health, the Ministry of Agriculture supports the establishment and development of an organic industry in Belize. To this end the Ministry will support the development and strengthening of the Belize Organic Producers Association (BOPA), an association that has been established to promote organic production and marketing in Belize. The Ministry will collaborate with BOPA in the implementation of Belize Organic Agriculture Standards and the establishment of a Belize Organic System. The Ministry will support initiatives to develop local markets for Belizean organic products through initiatives to be developed through the Belize Marketing Board and Belize Tourism Association (BTIA) as well as supporting initiatives to exploit international market opportunities for Belizean organically produced crops. Support will also be given and

opportunities sought for programmes to develop the technology required for organic production, crops and livestock in Belize.

#### **iv Actively promote market and trade expansion both locally and internationally**

In line with the diversification of the productive sector and the promotion of agro-processing and value adding, special attention will be given to expand market opportunities. The renamed and restructured Belize Marketing and Development Corporation will be tasked with linking small-scale food processors with the retail outlets such as supermarkets and tourist resorts. The national 'Buy Belizean' campaign will be supported at home and abroad. The Belize Trade and Investment Promotion Unit (BELTRAIDE) was established and given the mandate to promote Belizean products in the regional and international market. Collaboration with Beltraide will ensure the participation of Belizean agribusiness companies in various trade fairs in different parts of the world. Trade missions will continue to be sent to different countries and efforts to penetrate the Guatemalan, Mexican and Caribbean markets have been intensified. Special attention will be given to promoting the export of ethnic, processed and niche agricultural products from Belize. Linkages with the expanding tourism industry will also be strengthened to promote the consumption of more locally produced fresh and processed food and fruit beverages.

#### **v. Increase the efficiency, profitability and competitiveness of agri-businesses**

Research and development programs are now focusing more on reducing the cost of production by improving yields and promoting cost-reducing technologies. Special farm mechanization custom services have been launched for small farmers who do not have access to machinery and this program will be strengthened. More attention is also being paid to commodities such as papaya in which Belize has a comparative advantage. Irrigation is being promoted more actively as a way to increase yields, improve product quality and maintain year round production.

To facilitate these programs and agri-business investment in general, the Department will lobby strongly for the productive sector to obtain loans at reduced interest rates directly from external sources to the commodity associations (eg. Citrus Growers Association, Cane Farmers Association, Belize Livestock Producers Association etc.), and the credit unions. A close working relationship will also be maintained with the Small Farmers and Business Bank which presently offers loans at 10 % interest and with flexible repayment plans for farmers.

#### **vi. Improve and conserve the natural and productive resource base to ensure long-term sustainable productivity and viability**

The conservation of the natural and productive resource base will be an integral part of our agricultural development program. All major agricultural investments will be required to submit a business proposal complete with an environmental impact assessment (EIA). This EIA must be approved by the national environmental approval committee (NEAC) before their business proposal is accepted.

The Department will also create the enabling environment for organic agriculture by passing relevant legislation to promote the production of organic products. Integrated pest management and rational use of pesticides will form a key component of our production systems. Tree farming, forest enrichment, agroforestry and silvipastoral production systems will be also promoted as alternative livelihoods for farmers and businessmen in general.

**vii Improve access to productive resources and services and create economic opportunities for small farmers, women and young farmers, and indigenous people, particularly in poor, marginal areas**

Special programs are being established for women and young farmers, inclusive of credit, training and apprenticeships. In the south of Belize, where most of the indigenous and underprivileged live, an \$ 15 million project entitled “Community Initiated Agriculture and Rural Development Project” which will last for the next 7 years has been launched. This project places developmental decision making directly in the hands of the people.

Research programs will be geared to be more outreach in nature and in many cases will be established on farmers’ fields along with demonstration plots. The agriculture development program will also focus on commodities that make maximum contribution to the livelihood of the rural poor, and consciously empower individuals and communities to be less dependent on handouts and government.

The Department of Agriculture will actively engage the participation of the Ministry of Rural Development, other government departments, the NGO community, civil society and indigenous organizations in planning and executing the agriculture development program of each district. Where possible District Development Councils or steering committees that will include these stakeholders will guide the development programs in each district.

**viii Strengthen the institutional capacities to provide effective support in marketing and trade, research and extension, as well as relevant education and training**

Human resource development and institutional strengthening are critical factors in achieving the other strategic objectives outlined above. The Government of Belize has moved to integrate the Belize College of Agriculture with 4 other institutions to establish the University of Belize. Support to the secondary agriculture schools, focusing on technology transfer and information technology, will be further strengthened. The Ministry itself has been re-organized and many of its services are being removed from the day-to-day management by government. The Belize Agriculture Health Authority will be which was established by integrating plant health, animal health, quarantine and food safety, into one semi-autonomous body, will be further strengthened to become a highly effective and world-renowned inspection and certification agency. The Research and Development Station in Central Farm will be re-structured into a semi-autonomous research and development institute that will enable it to better carry out its functions. Re-organization efforts will continue over the next 15 – 20 years and will include the Belize Marketing Board, the National Agriculture and Trade Show committee amongst others. In principle, the Department will maintain a culture of creative dissatisfaction, and will be active in trying to find new and better ways to deliver our mandate to farmers and agribusiness.

All these objectives should contribute in the long-term to the sector's vision of:

- i. An agriculture sector that will make maximum contribution to the economic, social and environmental well-being of Belizeans.
- ii. Agriculture industries that are innovative, efficient and competitive supplying the local and international market with high quality products.
- iii. Robust and self-sufficient production systems that will ensure food security, poverty alleviation and the ability to control our lives.

### **6.3 Traditional Crops**

The overall policy objective is to continue to exploit the preferential market opportunities in the USA, EU and Canada as long as these are available for sugar, citrus products and bananas, while at the same time preparing these sub-sectors to compete with markets under free trade. The specific objectives are to:

- Continue to meet the preferential market requirements in the US, EU and Canada as long as these are available to Belize.
- Introduce technological improvements and improve productivity at the levels of farm production, processing and marketing in preparation of reduction/elimination of the guaranteed markets.
- Improve the commercial viability of the sugarcane, citrus and banana crops farming system.
- Develop a long-term strategy to diversify the traditional export product lines of these sub-sectors by developing new by-products for both the domestic and export markets.

**SUGAR CANE INDUSTRY** - Planned activities of the MAFC will be lobbying to keep preferential access to the EU, USA and the Canadian markets while at the same time concientize industry leaders, cane farmers association and factory workers on need to increase yields and processing efficiency. It is expected that Belize will retain some level of preferential markets in the USA and EU but at the same time prepare the industry to compete for markets under free trade.

Another strategy will be to facilitate strengthening of cane farmers association in order to permit transfer of better technologies and adoption of optimal scale of operation with extension support in the form of demonstration; this should contribute towards a reduction in cost of production. The other policy of the MAFC will be to encourage/ continue diversification into using by-products (molasses) and residues (bagass); encouragement will be through granting of fiscal incentives and through availability of technology required to produce animal feed and other by-products.

The sugar policy as described in the “**Sugar Policy & Strategy: Strategic Actions for the Belize Sugar Industry**” seeks to achieve five broad objectives:

- (i) An *efficiency* objective - to increase the competitiveness of the sugar industry;
- (ii) An *income* objective - stabilize and increase farm incomes and rural welfare;

- (iii) A *diversification* objective - diversification of the agricultural production base in the northern region;
- (iv) A *regional development* objective – the sugar industry’s continued contribution to the economic and social development in the northern region; and
- (v) An *economic development* objective - ensuring that the industry continues to make an important contribution to the economic and social development of the country.

**CITRUS** - Planned activities of the MAFC will be lobbying to keep preferential treatment for citrus products in external markets while at the same time sensitizing the industry on the need for free trade in external markets. It is expected that this will result in the retention of current duty-free entry of citrus products to the USA, EU and CARICOM markets. The Department of Agriculture will continue to work with CREI and OIRSA to protect Belize from devastating exotic diseases, such as Citrus Canker and Citrus Leprosis, by strengthening the implementation of quarantine regulations and by developing strategies and necessary legislation for emergency response to these diseases.

Other activities will focus on strengthening cooperation among CREI, MAFC and multi-lateral agencies on Citrus Tristeza Virus (CTV) and towards promotion of CTV tolerant rootstocks and research on bio-indexing in order to minimize the threat and impact of other graft transmissible diseases on the industry. To this end the Department of Agriculture will support and back-up CREI in the implementation of the Belize Citrus Certification Program (BCCP) thereby ensuring that all citrus planting material used in Belize is of the highest possible quality.

Significant focus will be placed on increasing the productivity (yield per acre) of the citrus, in order that the industry may develop in an economically sustainable manner. The MAFC will collaborate with CREI in establishing a comprehensive citrus-production database using Geographic Information Systems (GIS). This database will form a part of the national farm register and will enable industry stakeholders to design strategies and implement appropriate farm management decisions that will significantly increase the productivity of citrus in Belize. Improvements in productivity will also be facilitated through investments in drainage development, promotion of improved cultural management and through cooperation among MAFC, CREI and processors to increase the competitiveness of citrus products in free markets.

The MAFC will support CGA in its efforts to develop an organic citrus industry in Belize. MAFC and CGA will collaborate in developing relevant technology and accessing appropriate markets for organic products. Attempts will also be made to integrate citrus production with the rearing of sheep and other small ruminants.

The MAFC will support CREI in its efforts to secure an annual subvention from the Government.

**BANANAS** - Planned activities for the MAFC are to lobby the EU for expansion of quota allotment to Belize from 55,000 tons to 100,000 tons; this will ensure that markets are available for any surplus banana production, reduce cost of transport from Belize to the EU and reduce infrastructure cost such as port charges. Other strategies of MAFC are to continue searching for

financial/technical assistance from the EU and multi-lateral agencies for the banana industry in order to improve productivity and reduce cost of production. GOB is paving the Southern highway and will continue to upgrade the road network system in the banana zone so as to improve quality of fruit being delivered. MAFC will also facilitate whenever possible processing of bananas and identification of alternative domestic/export markets for surplus bananas.

#### **6.4 Competitively Produced Domestic Food Products**

The overall policy objective is to improve the efficiency of production of the domestically produced food crops to maintain their dominance in the local market by making them more competitive with imports. The specific objectives are to:

- Improve productivity of these commodities to compete in the domestic market at lower levels of protection and in export markets.
- Facilitate exports to contribute to export diversification and foreign exchange earnings.
- Enhance food security and improve income of farmers, particularly smaller producers.
- Promote more sustainable farm production systems that contribute to better management and use of the natural resource base and the environment.
- Improve the commercial viability of smaller producers.
- Promote value adding and processing amongst small and medium sized producers.

**RICE** - The Government of Belize policies on marketing/trade/price, an assured domestic market and the Ministry of Agriculture, Fisheries & Cooperatives intervention on services, infrastructure and technical assistance has given rise to unstable growth of the industry over the past 10 years. This instability has resulted in too much price variation and no incentive to capture export markets. Government of Belize policy in the coming years will focus on improving the marketing of rice by improving quality and packaging, promoting product diversity (such as jasmine and organic rice), and encouraging a centralized national marketing and distribution system for rice. Efforts will also focus on improving the competitiveness of the industry by promoting the use of irrigation, mechanization and other cost-reducing technology, so as to be able to take full advantage of the Mexican, Guatemalan and other markets which have been identified.

**CORN/SORGHUM** - The policy of the Department will focus on improving the yield of corn and sorghum through the transfer of proven technologies of production and the provision of management and technical assistance especially to small farmers. Simultaneously, the need to secure foreign markets will be sought so as to sustain self-sufficiency in corn and generate another source of foreign exchange. Through collaboration with CARDI and other research institutions, attempts will be made to develop and sustain the production of hybrid seed locally. Processing of corn into minza (tortilla corn flour) will continue to be supported with a view to ensure the production of a high quality local product. Promotion of sorghum as a substitute for corn in the feed industry will also continue.

The commercialization of grain production by small and medium-sized farmers will be encouraged. In the south, the use of high yielding varieties for subsistence and matahambre corn will be encouraged and support for the traditional marketing channels will be maintained. The

production of sweet corn will also receive extension and research support designed to improve productivity and marketability.

**OILSEEDS (SOYBEAN/SESAME)** - Policy will focus in promoting expansion of soybean acreage in order to increase farmers' income and reduce imports of oil and soybean meal. Support to the oilseed industry will continue through CARDI's research on more efficient production systems and improved productivity/competitiveness. Development of soybean processing will be monitored closely to ensure this linkage sustains itself so that the industry may develop its potential with as many farmers involved.

While the soybean development program will focus in its use as animal feed and edible oil, the production of alternative products from soybean such as soya milk, soya meat and other products will be encouraged.

**BEANS (RK BEANS, BLACK BEANS & COWPEAS)** - Focus in the MAFC will be to maintain and improve competitiveness in RK beans, cowpeas and other bean products. Simultaneously, production of these crops will be promoted through research, technical and marketing assistance. The Department will assist in coordinating the production and marketing efforts of the producers and exporters, and encourage the penetration of the distribution system in CARICOM. The goal of activities will be to increase foreign earnings from increased exports to CARICOM and outside CARICOM.

**ROOT CROPS (CASSAVA, COCOYAM)** - Promotion of cassava as a substitute for corn in the animal and shrimp feeds will continue focusing on improving yields to make it a viable and economic substitute. Processing of cassava and cocoyam into fresh, frozen and fried products for both the local and export market will also receive special attention. The policy will therefore focus on research and extension support designed to improve productivity and marketability. In the case of cocoyam, the use of irrigation is to be an important vehicle for increasing production and quality of the fresh product.

**VEGETABLES** - MAFC will focus its attention on providing extension/technical assistance to vegetable growers on cultural practices and on integrated pest management designed to raise productivity/ quality; efforts will also be directed to providing training in irrigation and in facilitating investment. Efforts to promote the production of existing but imported vegetables such as potato, carrots and onions will continue. Research and development will focus on identifying new high yielding and disease-resistant varieties that can be stored or planted out of the main production season. The policy will also be directed at the use of improved production technologies, such as irrigation, greenhouses and hydroponics, and at making vegetable production more competitive so as to expand local production over a longer period of the year. This should contribute to reducing the level of imports and the conservation of foreign exchange.

## **6.5 Non-traditional Crops**

Commodities catering solely to the domestic market but having reached self-sufficiency production level (rice, corn, poultry, beef) will be supported in ways to improve their efficiency/competitiveness rating. Commodities catering to the domestic market but for which imports are

still required (dairy, pork, vegetables, oilseeds,) will be supported through increased production and technical support/research designed to convert these industries into price/quality competitive with imports. A special effort will be made to encourage farmers maintain adequate records on their production and marketing activities.

**PAPAYAS** - The focus of the policy direction will be on facilitating increased production/farmer involvement through the provision of technical assistance, especially on plant health and water management. As an incentive for investment into papaya production, the Government of Belize will continue to grant fiscal incentives (duty-free capital equipment, tax holidays etc.). Furthermore, policies will reflect GOB's high priority in maintaining most of Belize medfly free so that exports could continue uninterrupted to the USA market. Policies will also reflect the importance of further spreading the industry to most parts of Belize and getting more Belizean farmers involved.

**CACAO** - Attention will center on increasing the number of small farmers involved in cacao production and in improving their fermentation and drying techniques. Efforts will also be directed at strengthening the Cacao Growers Association in their management, marketing and extension activities. The production of organic cacao for the high value end of the market will be aggressively pursued. All these efforts should contribute towards growth of the industry in a sustainable manner and in diversifying the agriculture base of the Toledo district.

**HOT PEPPERS** – Coordination among stakeholders (NGOs, Government, Processors, Farmers) within the industry will be strengthened in order to ensure maximum impact from all the financial/technical resources being invested in the industry. Secondly, the cash flow problem of exporters/processors as production expands will be addressed through an export credit scheme so as to ensure that production continues to expand in a smooth manner; this would contribute to reducing the mistrust which exists between farmers and exporters/processors. Farmer organization through cooperatives/associations will be encouraged in different regions in order to allow farmers to play an active role in the development of the industry. Along with the ROC food processing program, experimental efforts will intensify to produce high quality pepper derivatives such as sauces, mash, dried whole and ground pepper while at the same time alternative markets apart from those being offered by the current exporters/processors will be sought.

**FRUITS** – Attention will focus on the promotion of improved varieties/planting material and the Department will strengthen its capacity to produce grafted fruits in its nurseries. High priority will be the maintenance of a strong med fly/quarantine program in order to facilitate exports to the USA market. The policy will also be directed at facilitating investment in local and exotic fruits and to support the planting of new off-season varieties to ensure that local fruits are available over a longer period of time. Special efforts will be made to encourage the consumption of locally produced fruits by overland and cruise tourists. This should contribute towards enhancing import substitution and ensuring greater satisfaction for the demand of the domestic market.

**NEW INITIATIVES** - The policy of the MAF will pay particular attention to promoting the production of new and niche crops for both the local and export markets. The development

program will target commodity by commodity to determine the technical and economic feasibility of production and marketing and then encourage production on a larger scale. Such initiatives will include new and potential crops such as apple banana, okra, ginger, grapes, nutmeg, celery, garlic, broccoli, cauliflower, chaya, black pepper and others. The identification and promotion of crops for use as fiber and energy will receive some focus.

## **6.6 Livestock**

Belize's livestock sector faces the same challenges as its domestic food crops sector – improving efficiency and competitiveness in domestic and export markets in a more liberalized trading environment, stronger linkages with other activities and sectors to create more value added and contribute to product and export market diversification. Policies for the livestock sector will seek to:

- Improve competitiveness of the various sub-sector activities.
- Strengthen backward and forward linkages in the domestic economy.
- Promote value adding and significantly expand the diversity of processed meat products
- Achieve higher levels of self-sufficiency from domestic production.
- Contribute to food security and improving the nutritional status of the population.
- Exploit export market opportunities.

**POULTRY** - Research will continue on identifying and promoting cheaper sources of feed for the poultry industry. Incentives will also be facilitated for investment into the processing of feed using locally supplied ingredients such as soybean, sesame, corn, cassava and sorghum. Veterinary officers will continue to monitor and control infectious diseases so as to foster the development of quality products free from disease and harmful residue. The private sector will be encouraged to capture a larger percentage of the local market for processed poultry products, particularly, sausages. Support will be provided to the private sector in identifying and establishing export markets in Central America so as to facilitate further growth of the industry.

**BEEF** - Efforts of the MAF will center on improving cost of production and increasing yield in order to facilitate expansion of the industry into the export market. Attention will focus on improved breeds and feed management together with de-centralized development of the industry via the promotion of active livestock association branches in each district. In order to facilitate exports, animal health assistance will also receive high priority in order to ensure that acceptable standards are available in slaughtering/processing facilities which are equivalent to United States Department of Agriculture (USDA) standard.

**DAIRY** - Focus will center on assisting the industry through the availability of improve dairy breeds and through training and extension support designed to develop and market new milk products, improve quality and improve pasture and herd management. It is expected that these efforts will increase both output and efficiency/productivity ratings so that the local market price could decrease significantly; this will permit the marketing of liquid milk as a substitute to condensed, evaporated and powder milk.

**PORK** - Efforts will shift towards evaluating ways in which feed cost could be decreased. Economies of locally produced soybean meal will be evaluated. Potential of using more local products (supplements of cane, cassava, banana etc.) which may be more economical will be analyzed. Support will continue to the industry in terms of extension (veterinary) support for improved health and quality of meat being produced. The policy of limiting imports to the extent that local products are available will also continue in order to allow the industry to continue to grow and be more competitive.

**BEEKEEPING** - Focus will center on providing technical assistance to BHPA on varroa mite, Africanized bees, marketing options, management assistance and in facilitating funding to the industry for re-vitalization/growth in terms of increase output and number of farmers involve in honey production. Institutional support will be given to the BHPA in order to better be able to manage the industry and increase output for the export market. All this should contribute towards sustainable development of the industry for the export market.

**SMALL STOCK/RUMINANTS** – Support will be provided for the establishment of a market structure, together with cost of production figures, an extension program, marketing information, availability of breeding stock, the setting up of grades/standards, and the development /promotion of an appropriate tech pack for small stock/ruminants since all of this is needed in order to make farmers aware of the potential for small stock and promote production.

## **7.0 Fisheries Policies**

**7.1 Sector Background:** The fisheries sector has been known to be an important contributor to the Belizean economy since the 1970s. Contribution to employment (excess of 1,300 fishers alone), GDP (7%), and foreign exchange generation by the capture fishery and the aquaculture sub-sector, rank this industry third in economic importance to Belize and growing very fast.

Fishing activities in Belize have traditionally revolved around the lobster and conch fisheries. Shrimp and finfish have over the last few years gained recognition as being of vital importance to national nutrition. Harvested on a small-scale are stone crabs, marine aquarium fish, seaweed, shark, and more recently some species of squid from the shrimp trawlers.

Exports of fisheries products for 2002 were valued at approximately \$67.7 million and are expected to continue increasing due to the evident exponential growth of the aquaculture sub-sector; total pond acreage under aquaculture exceeds 5,100 acres with 15 farms. Farmed shrimp was the largest contributor to foreign exchange with \$50.3 million followed by lobster with \$13.9 million and conch with \$3.3 million. Capture fishery outputs is certainly threatened by a substantial increase in fishing effort, inadequate resource management, alteration to critical habitats and lack of necessary financing to conduct urgently needed research on stock assessment and exploitation potential.

It is estimated that in Belize we consume almost three times (weight) as much fish (excluding farmed shrimp) than what is being exported. This means that any damage to the finfish industry would be detrimental to our national security in terms of nutrition and access to it; artisan

(subsistence) fishers usually make up the bulk of fishers responsible for finfish catches. Therefore, in developing any fishery this factor needs to be thoroughly analyzed.

The key to the development of the fisheries sector is the fisher themselves since development must be viewed from a sustainable viewpoint. Henceforth, national policy in the fisheries sector continues to be directed towards species-specific management. Programs include fishing seasons, minimum size regulations and licensing of commercial fishers.

**7.2 Policy:** The national policy is directed at ensuring a sustainable supply of marine products, particularly, lobster, shrimp and conch. While present policy measures include minimum size, closed season and licensing requirements, the GOB recognizes the need to harvest other species in deeper waters since it is aware that sustainable levels of production for conch, lobster, and shrimp have already reached their maximum. The strategies will facilitate proper management of marine resources and contribute towards its long-term viability and sustainable development. The major policy objective for the fisheries sector is to maintain a sustainable yield of the fisheries resources while continuing to contribute to food production, foreign exchange earnings and to improved nutritional status in the longer term. Specifically, the GOB's fisheries policy will:

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

**Actions to achieve these objectives will focus on:**

- i. Improving quality control systems;
- ii. Encouraging joint venture activities with foreign fishers;
- iii. Developing an inter-sectoral approach to fisheries management that include improved planning of crop development, settlement and tourism development, particularly, in coastal and fragile areas that increase pollution and affect fish habitats;
- iv. more effective coastal zone management through an inter-institutional and inter-disciplinary approach;
- v. Rehabilitation of rivers and better management of inland stocks;
- vi. Expanding aquaculture activities, particularly, shrimp farming and coastal impoundment;
- vii. Improving fisheries management to reduce over-harvesting and maintain sustainable yields;
- viii. Strengthening regulations, enforcement/compliance;
- ix. And providing training in testing, quality assurance and processing activities.

### **7.3 Capture Fishery**

The activities associated with capture fisheries has been the focus and primary concern of the Fisheries Department and any of its management initiatives since the establishment of a Fisheries Unit in 1965. As a result, many of the decisions, recommendations and regulations made over the years were primarily for the management of this sub-sector. The policy framework for capture fishery will include the following objectives together with the accompanying activities:

#### **1.0 Managing the fisheries resources in a sustainable manner.**

The proper management of the existing resources is the most important aspect of the capture fisheries policy. This will be achieved through a combination of methods designed to reduce fishing effort on the existing commercially exploited species and maintaining a close monitoring programme. This will entail:

- i. Development of a data collection programme to collect data relevant to the management of the resources.
- ii. Constant evaluation of the status of fisheries resources in Belize through frequent analysis of the data collected.
- iii. Management recommendations to the Minister based on the information collected and analyzed, including such things as closure of sensitive areas, quotas, limited entry fishing for selected species such as lobster, licenses for recreational fishing, bag limits for recreational fishing and size limits.
- iv. Development of a list of priority areas for research to provide additional information on the status of the fisheries resources, and the means by which the research can be done.
- v. Identification of the resources required to undertake all the various activities associated with management of the sector, and the mobilization of those resources through various means.

#### **2.0 Including the resources users in the management process**

Recent studies have shown that the most effective way to sustainably manage a common resource is to involve the stakeholders. To break the pattern of "*the tragedy of the commons*" it is important that the resource users be involved in the management process and be allowed to feel a sense of ownership. Involvement of stakeholders will require the following:

- i. An extension and public education/awareness programmes that targets the resource users in, particular, and the Belizean public in general.
- ii. Establishment of close working relationships with the fishermen's organizations to discuss matters that is of importance to the sector.
- iii. Involvement of fishermen and other resource users in the public consultation process.
- iv. Enhancement of the Fisheries Advisory Board model to ensure its continuity and continued effectiveness through some form of legislative process.

#### **3.0 Improving the efficiency and profitability of the sector through the identification of new methods and markets.**

Most of the higher priced commercially exploited marine species are at or beyond their Maximum Sustainable Yield (MSY). This is shown in the landings for Lobster, Conch and Shrimp where increased effort (through an increase in the number of fishers) has resulted in very small increases in landings, if any at all. If these species are to continue at present production levels, then their needs to be a reduction in the fishing pressure. This will mean a reduction in the current fishing effort on these species. As indicated above, this reduction in effort can take the form of limiting entry, licensing by species, quotas and closed season/ areas, all resulting in a reduction of the number of fishers per species per unit time. However, this will mean that some fishers will be displaced and in general the earnings of the industry will be affected. To offset this potential situation a combination of strategies will be necessary. These include but are not limited to:

- i. Identification of alternative commercially exploitable species such as shellfish (oysters, clams etc), blue crabs, pelagic fish species (tunas, mackerels, jacks) and squids.
- ii. Training of fishermen in the harvesting and handling of target species that are
- iii. Improvements in methods of handling for all species caught to reduce post harvest losses and increase value through increased quality. Close cooperation with agencies such as BAHA will be a must.
- iv. Identification and assistance in the identification and development of new markets both locally and regionally for new target species.
- v. Training and assistance with development of processing and packaging methods to add value to the harvested products, whether traditional or new. Such things as seasoned ground conch or seasoned lobster head meat packaged in one or two pound packets, or crab meat in the back, or salting and smoking or dry salting and packaging will be some of the options explored.

#### **4.0 Improving on the human resource base of the management agencies**

None of these management strategies can be effected without a sound human resource base to implement the policies. Therefore, it is imperative that careful attention be paid to the human resource situation of the Fisheries Department and its allied agencies such as the Marine Reserves and the Coastal Zone Management Authority/Institute. If any meaningful development and change is to occur in the sector then it requires that a cadre of trained professionals be available. This can be achieved through:

- i. Development and implementation of a programme to monitor the human resources needs of the sector and to match available resources to those needs. This should be multi-agency in scope since it might be necessary to 'share' expertise between agencies.
- ii. Development of a training programme that would incorporate in-service and academic training, both in country and abroad, with specific emphasis being placed on the areas of greatest need as identified;
- iii. Utilization of existing partnerships with countries that offer development aid, such as Japan, Korea, Taiwan, the European Union and the USA, to develop mechanisms for training and development of human resources.
- iv. Development of a system for the 'sharing' of expertise between agencies to alleviate the shortage of trained persons in the short term or on a needs basis.