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Improving the effectiveness of national food control systems in the Americas and the Caribbean

A case study of Belize

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A. INTRODUCTION

As early as 1983, a joint FAO/WHO Expert Committee on Food Safety concluded in its report "The Role of Food Safety in Health and Development" that disease caused by contaminated food is one of the most widespread threats to human health, and an important cause of reduced economic productivity.¹ It is estimated that up to 30% of the population in developed countries may be affected by food-borne disease each year and the incidence in less developed countries remains largely unknown².

Food-borne disease outbreaks and food contamination has caused food safety to become a major focus of public health policy, making regulatory authorities revisit their food control systems to ensure that the programmes instituted to ensure food safety are effective and sustainable. A major driving force for the implementation of effective food safety control programmes are consumers who expect governments to operate effective food control systems and to take greater responsibility for food safety and consumer protection.³

In addition, the rapid expansion of international trade in high value food products from developing countries has been governed by a growing array of food safety and agricultural health standards developed to address various risks including those associated with microbial pathogens, pesticides, veterinary pharmaceuticals, environmental contaminants, naturally occurring toxins and the spread of plant pests and animal diseases.⁴ The increased attention to food safety and agricultural health risks stems in part from scientific advances, but it is also substantially driven by shifts in consumer demand and by a series of food safety scandals and disease outbreaks in industrialized countries, adding to the impetus for governments to institute significant institutional changes in food safety oversight and reforms⁴.

Confidence in the safety and integrity of the food supply is important to consumers. The establishment of effective and sustainable food control systems in developing countries such as Belize necessitates the adoption of strategic approaches to agricultural health, trade and food safety that require the collaboration of the public and private sectors and assistance from international agencies and institutions that have demonstrated competence in this area.

This document is intended to provide an example of one country in the Americas and the Caribbean that has worked to strengthen its national food control system. FAO and WHO have also published Guidelines for Strengthening National Food Control Systems¹ which provide advice to national authorities on strategies to strengthen food control systems. The Guidelines delineate the overarching principles of food control systems and provide examples of possible infrastructures and approaches for national systems, enabling authorities to choose the most suitable options for their food control systems.

B. STRATEGY FOR IMPLEMENTING EFFECTIVE FOOD SAFETY PROGRAMMES IN BELIZE

To protect human health from food-borne diseases and contribute to sustainable development in developing countries, the following phases⁵ are suggested:

1. Development of a formal national food safety policy
2. Upgrading of food control systems
3. Improving laboratory infrastructure
4. Improving food safety education programmes
5. Strengthening programmes for surveillance, investigation and control of food-borne diseases.

The following is the Belize situation with respect to food safety and the achievement of the above stated goals:

1. Development of a formal national food safety policy

Belize formally launched a Food and Nutrition Security Policy on 20 February 2001. This policy, developed largely through the efforts of the Ministry of Agriculture, Fisheries and Cooperatives, with collaboration from the Ministry of Health, the Ministry of Human Development, and other government and non-government partners who have ratified the policy, has food safety as one of the six programme areas that make up the national policy. The Food and Nutrition Security Policy outlines key strategies that seek to ensure the sustainable supply, accessibility and use of safe, high quality, nutritious, diversified and culturally accepted foods for all Belizeans in order to improve their well-being and quality of life⁶.

The six programme areas addressed by the policy are:

1. Information, Education and Communication on Food Production, Preparation, and Nutrition
2. Diversified Food Production, Food Processing, Marketing, Storage and Credit Mobilization
3. Maternal and Child Care, School Feeding and Nutrition for the Elderly and the Indigent
4. Creation of Employment and Income Generating Opportunities at the Local Level
5. Food Safety
6. Analysis and Reform of National Policies for Food and Nutrition Security

The policy allows for the establishment of a multi-sectoral **National Food and Nutrition Security Commission** (officially formed in 2002), responsible to the Belizean Cabinet and whose role is to coordinate and advocate with all sectors of the economy and other stakeholders on national food and nutrition security matters, including the monitoring of the food and nutrition security status in the country, and to make recommendations to Cabinet for its improvement. The Commission also ensures that national initiatives are in compliance with the international commitments made such as the

¹ Available from: http://www.fao.org/es/ESN/food/control_FCS_en.stm

“International Conference on Nutrition” of 1992 and the “World Food Summit” of 1996. The Chairman of the Commission is the Minister of Agriculture, and the work of the Commission is facilitated through a national coordinator.

The food safety programme of the policy (Programme 5) supports the development of national standards for food products, adherence to national and international standards and the development of monitoring mechanisms. It also includes the education of the public in matters relating to food quality and safety. The objectives are to regulate and control the safety and quality of food products according to the established norms of Codex Alimentarius and FAO/WHO. The programme seeks to *improve the mechanisms* for quality control and monitoring the safety of food products, to develop national standards for food labelling and safety and to disseminate information on food quality and safety to the Belizean public.⁶

The Food and Nutrition Security Commission, through stakeholder workshops and participation, has recently (May 2005) developed a 5-year work plan which forms the basis for implementation of the policy objectives, with the key entities from government, statutory bodies, non-government organizations, international agencies and the private sector identified that will take the lead in the carrying out the tasks identified in the six programme areas of the policy.

The **Belize Agricultural Health Authority (BAHA)** is a statutory body in Belize established by legislation (the Belize Agricultural Health Authority Act of 1999) under the Government of Belize “Modernization of Agricultural Health Services” project funded by the Inter-American Development Bank (IDB). The main objective for the creation of BAHA was for the enhancement of the competitiveness of Belizean agricultural products, especially in foreign markets, by strengthening the animal (including fisheries) and plant health services with increased participation of the private sector, and for the reduction of losses from diseases, and for ensuring the safety and quality of agricultural products for domestic and foreign markets. The consolidation of the functions of the plant and animal health services of the Ministry of Agriculture provided for the efficient administration of agricultural health programmes in Belize (Annex I Fig 1 BAHA Structure). BAHA is the competent authority for animal and plant health in Belize, plays a lead role in the implementation of the food safety policy objectives (Programme 5), and is increasingly being recognized nationally as well as internationally as the competent authority with respect to food safety issues in Belize. (Annex 11 Fig 2 BAHA food safety services)

2. Upgrading of food control systems

Food control is still largely under the Ministry of Health in Belize. Traditionally, the Ministry of Health, largely through the under-funded and overburdened department of public health, was responsible for the inspection of food establishments (including food processing establishments) as well as for performing meat inspection duties. With the establishment of BAHA, legislation empowered BAHA officers to regulate and establish cost recovery mechanisms in all food processing plants with respect to sanitary measures and designated BAHA as the sole authority for the regulation of Hazard Analysis and Critical Control Points (HACCP) systems in Belize. A number of recently enacted legislative actions in the form of Statutory Instruments further expanded the role of BAHA in food safety.

2.1 BAHA’s Regulatory Mandate for Food Safety

2.1.1 The BAHA ACT, 1999 (Chap 211 of the Laws of Belize)

- Regulates importation of food;
- Prescribes fees for inspection, services and treatment;
- Prescribes measures regarding the issue of sanitary and phyto-sanitary certificates;
- Prescribes procedures for carrying out risk analysis and HACCP;

- Regulates the inspection, approval and certification for all food processing plants;
- Designates the Authority (BAHA) as the sole organization responsible for inspecting food and plant processing industries for compliance with HACCP; and
- Gives designated officers powers of entry, inspection, collection of samples, and enforcement measures, including closing down of premises;
- Provides for the regulation, import and export of bio-engineered plants and animals (GMOs) in Belize.

2.1.2 Food Safety Regulations (Statutory Instrument No. 25 of 2001)

- Designates BAHA as the Competent Authority in Belize with responsibility for monitoring, inspecting, approving and controlling food safety systems in respect of all enterprises that produce or process food for export from Belize or for consumption within Belize.

2.1.3 Other relevant regulations that impact on Food Safety

- The Belize Agricultural Health Authority (Food Processing Plants) (Potable Water) (Minimum Standards) Regulations, 2001;
- The Belize Agricultural Health Authority (Fish and Fishery Products) (Inspection) Regulations, 2001;
- Belize Agricultural Health Authority (Biological Residues) Regulations, 2001;
- The Belize Agricultural Health Authority (Veterinary Drug) (Registration) Regulations, 2001;
- National standards (e.g. milk, honey, street-vended food, bottled water, fresh-meat, pasta, Good Agricultural Practices (GAP), specific vegetable standards and others).

2.1.4 Regulatory Mandate Internationally (Codex Alimentarius and SPS Agreement)

In addition to local regulations, Belize also has an international regulatory mandate through the Codex Alimentarius and the Sanitary and Phyto-sanitary Agreement (SPS Agreement) to develop food standards based on international standards that protect the health of consumers, and whose imposed sanitary measures are based on risk assessment thereby ensuring fair practices in food trade.

2.1.5 Belize compliance with Codex standards

Belize has referenced (adopted) a number of Codex standards, guidelines and codes of practice under its sanitary (food safety) legislation and through a number of national food standards which, if effectively applied, will give the consumer the necessary assurance of food quality and safety. Codex based standards, code of practices and guidelines in effect in Belize include:

- HACCP Guidelines
- General Principles of Food Hygiene
- MRLs for Certain Veterinary Drug Residues
- Labelling Standards
- Code of Hygienic Practice for Fresh Meat
- Code of Practice for Street Vended Food
- Bottled (packaged) Water Standards

2.2 Collaboration between regulatory authorities

Notwithstanding these legislative achievements, and with the exception of BAHA's major role in the regulation of the fish and fishery products processing industry, (BAHA has recently been favourably audited by the Food and Veterinary Office (FVO) of the European Union (EU) and Belize enjoys List 1 status with respect to the placing of fish and fishery products on the EU market), BAHA

has not expanded to the regulation of other food processing industries as efficiently and effectively as is needed, leaving much of the regulation to the Public Health Department. Part of the reason for this has been the fact that the Ministry of Health is governed by the Food and Drugs Act (Chap 291 of the laws of Belize) and the Public Health Act (Chap 40 of the laws of Belize) which gives public health officers sanitary jurisdiction over food establishments, contributing to duplicity of roles and turf battles between BAHA food safety inspectors and Ministry of Health inspectors with regard to inspection duties. An MOU has recently been agreed upon between BAHA and the Ministry of Health where the Ministry of Health *recognizes* BAHA as the competent authority for food safety at the farm level, (on farm food safety) and in food processing plants (including meat and poultry slaughter plants), and for the regulation of food transport. The Ministry of Health thus retains food safety responsibility at the retail level (restaurants, distributors, meat outlets, hotels, supermarkets etc). This agreement has contributed significantly to efficiency of inspection duties where the role of BAHA Inspectors and Public Health Inspectors had not been clearly defined. The Ministry of Health is currently in the process of undergoing legislative reform to update its legislation and BAHA forms part of the legal steering committee to ensure compatibility with existing agricultural health and food safety laws under taken by BAHA.

BAHA also work closely with the Public Health Department and the Bureau of Standards (the Codex Contact Point in Belize) in developing sanitary standards for the various food industries as well as working to develop hygienic standards for food vendors, particularly in the tourist industry. Sanitary measures (Good Agricultural Practices) to be employed by farmers for the production of safe fruits and vegetables are also being developed by BAHA. An area that Belize needs more capacity is in the training of new food safety inspectors/regulators and industry personnel in food safety inspection or audit procedures that reflect current risk avoidance or mitigation measures, especially in the meat and poultry sectors.

2.3 Imported food control

BAHA has quarantine officers posted at all official border and entry points to Belize. All food imported into Belize for commercial purposes has to go through an import permit process where the sanitary conditions of importation are requested in applications approved by BAHA officers. The quarantine inspectors inspect the products imported at the border points and vet all relevant documents for compliance with sanitary requirements. As these inspectors form the first line of defense in safeguarding Belize's agricultural health and food safety status, it is paramount that these officers are kept updated in requirements to be met for effective imported food control. National workshops are held regularly where these officers are updated on new developments in animal health, plant health food safety and SPS measures which is delivered by the directors of those departments in BAHA. A manual of inspection procedures, including the procedures for the collection of samples to be sent for laboratory analysis, has been developed by BAHA and distributed to all quarantine officers at the border and entry points to Belize.

3. Improving the laboratory infrastructure

A National Food Control Laboratory has been established. A 556 m² food testing laboratory has been established through the renovation of the veterinary laboratory complex in Belize City. This laboratory (Central Investigation Laboratory - CIL) is the only food testing laboratory in Belize. The lab currently has a functional staff of four technicians who are active in processing food samples taken as part of the inspection and regulatory procedures of the Food Safety Services of BAHA. The laboratory operates on a cost recovery basis, and the majority of samples processed come from the fishery sector for microbiological testing. The laboratory recently purchased residue testing equipment and has expanded the capability of the range of testing that it can offer to the various food industries. BAHA is now able to test for residues in food such as aflatoxin, Chloramphenicol, veterinary drugs, pesticides, (organophosphates and carbamates). Equipment installed at CIL includes 2 Gas Chromatographs for the detection of herbicides and pesticides, High Performance Liquid Chromatography (HPLC) for

veterinary drug residues analysis, and an Atomic Absorbance Spectrophotometer (AAS) for the detection of heavy metals.

Establishing a well equipped residue lab that is able to perform more sophisticated chemical analysis gives consumers and international trading partners the confidence in the safety of food products imported into, or exported from Belize. Staff has received IDB funded and BAHA sponsored training in analytical procedures and the laboratory has enrolled in an internationally recognized quality assurance and proficiency testing programme to assure the various industries of the validity of reported results. BAHA's Central Investigation Laboratory is part of the Inter-American Network of Food Analysis Laboratories (INFAL), which is a network of food testing laboratories in the Americas that promotes the assurance of food safety and quality in order to facilitate trade and protect human health by preventing the transmission of food-borne diseases. INFAL achieves this objective through harmonization of methods, systems development and the implementation of quality management and technical scientific cooperation among member countries⁷.

BAHA is now seeking support to build capacity through training technicians in compositional analysis procedures which will help verify labelling claims and provide Belize with nutritional testing capabilities.

4. Improving Food Safety Education Programmes

Food safety education has been done minimally in Belize. Initiatives to improve the safety of foods produced in the CARICOM region that have been implemented by international agencies and national governments have been largely focused at the regulatory level (development of standards, inspection, surveillance and monitoring etc) rather than on food safety education programmes for consumers⁸.

An objective of Programme 5 (food safety) of the Food and Nutrition Security Policy for Belize calls for the dissemination of information on food quality and safety to the Belizean public. The Public Health Department, through their weekly food handlers clinics disseminates basic food safety information to those people seeking a food handler's certificate. This is insufficient and inadequate. The food safety programme of BAHA will need to devote a significant component of its overall programme to food safety education – utilizing a number of media and collaborative efforts, particularly with those international organizations or regulatory authorities recognized for their expertise in this area e.g., FAO and WHO/PAHO.

BAHA had an opportunity to effect such collaboration by designing and implementing a food safety education campaign in early 2005². The campaign was developed in response to the findings of a survey conducted in 2002, on food safety awareness among Belizean consumers which was sponsored and supervised by the Caribbean Food and Nutrition Institute, (CFNI). The objective of the CFNI survey was to provide information on the current food safety knowledge, attitudes and practices of household consumers in Belize and was part of a wider survey also conducted in Barbados, Jamaica and St. Vincent and the Grenadines.⁹ The results of the survey would then be used to develop comprehensive and effective food safety public education programmes.

In the Belize survey, the greatest problems identified were those associated with the misconceptions or lack of knowledge for the requirements for refrigeration of leftover meat, fish or poultry. The public's main source of information on food safety was discovered to be friends and family but other sources included news programmes on television and radio followed by educational institutions. Food labels were ranked as the sixth most important source. Overall responsibility for food safety was perceived to lie chiefly with the consumer, but it was felt that the responsibility of setting and regulating standards rested with the Ministry of Health.⁹

² See Conference Room Document from Belize on this subject for more detailed information.

The purpose of the food safety campaign "Safe Food Handling Awareness Campaign 2005." conducted during the period February/June 2005 by the Belize Agricultural Health Authority was to correct wrong perceptions and promote better practices, especially among housewives and school children who, together, do most of the food handling in the Belizean home. The Food Safety Awareness Campaign, 2005 also sought to promote better food handling practices through a coordinated campaign of school visits, community forums, public service announcements on radio and TV, talk show discussions, the distribution of educational materials, posters, brochures and refrigerator magnets that Belizeans were encouraged to carry into their homes and schools.

The Food Safety Awareness Campaign of 2005, which has been a collaborative effort between the Belize Agricultural Health Authority, (BAHA), the Ministry of Health and PAHO/CFNI, has allowed regulatory agencies responsible for food safety in Belize to address the food safety issues identified in the food safety awareness survey of 2002 by delivering key safe food handling messages to consumers through multiple media sources, some of which would otherwise be very difficult to achieve given the financial resource constraints faced by these regulatory agencies.

The consensus about the campaign is that it has been successful, with very positive responses from the public. The challenge now is developing the sustainable mechanisms that will make food safety education programmes an ongoing activity, and a key component in the delivery of effective food control systems.

In addition, BAHA will need to be kept updated in food safety issues and, along with the international community, get involved in the standard setting process by participating in relevant meetings where food safety education is current and scientifically based, such as those involving Codex Alimentarius. It is encouraging to see the FAO/WHO Trust Fund established to financially support delegates of developing countries' attendance and involvement in the international standard setting process, as launched at the Twenty-fifth (Extraordinary) Session of the Codex Alimentarius Commission¹⁰

5. Strengthening Programmes for Surveillance, Investigation and Control of Food-borne Diseases

Food-borne disease surveillance programmes in Belize are inadequate. It is estimated that around the world almost 2 million children die annually from food or water-borne pathogens and even in developed countries up to one out of three consumers contracts disease from food-borne pathogens every year¹¹. Keeping track of the incidence of food-borne diseases requires collaborative efforts and significant resources in order to put in place effective preventative measures that will reduce the risk to public health. Belize currently lacks such an effective food-borne disease surveillance system and will require international technical cooperation from such institutions as PAHO, CAREC or CDC in order to develop a workable system that is effective. Effective surveillance is especially important in the areas of the spread of new and emerging disease such as BSE and the human form of Avian Influenza (H₅N₁).

A major concern to public health officials is the ability to perform (and pay for) necessary laboratory testing if there is a food-borne disease outbreak or for surveillance activities related to the "public good". Since BAHA operates its food testing laboratory on a cost recovery basis, such testing will have to be funded by the Ministry of Health. But such "public good" testing can also be subsidized by funds received from industry by offering other laboratory services such as nutritional analysis for processed food or providing chemical analysis for environmental monitoring as part of industries' Environmental Compliance Agreement with the Government of Belize. Agreements similar to the MOU established with the Ministry of Health regarding the performance of inspection services by regulatory authorities in Belize will need to be established so that the proper mechanisms are in place to effect timely testing of food implicated in food-borne disease outbreaks.

Testing of human patients for food-borne disease is effected through the Ministry of Health's Central Medical Laboratory which has the capability of testing for the common *bacterial and parasitic* causes of food-borne illness - testing for food-borne disease of suspected viral etiology is virtually non-existent in Belize. In addition, proper reporting of food-borne disease by medical personnel needs to be instituted so that the regulatory personnel involved in the outbreak investigation can do the necessary traceback to the source of infection which will contribute to an effective surveillance system. BAHA has teamed up with the Ministry of Health with the support of PAHO and CAREC in developing a protocol for food-borne disease outbreak investigation which identifies the key personnel involved in such an investigation and outlines the manner in which proper reporting should flow. Although this protocol has been drafted, it has not yet been used, so there is a need to conduct a simulation to see if the protocol is effective. Waiting for a food-borne disease outbreak to test the protocol would be folly.

C. Mechanisms for Effective Partnerships in Food Safety

1. Formation of "user groups"

One of the most effective mechanisms that BAHA has found to assist in the carrying out of its mandate for food control is via the establishment of "User Groups" i.e. industry or users of BAHA services made into consultative groups according to similar interest or commodity.

These stakeholder groups are informal but meet regularly with BAHA (and other regulatory personnel such as the Bureau of Standards and Public Health Department) to discuss regulatory issues, cost recovery options, comments on services rendered or for general problem solving purposes. The meetings also serve as a forum for training, industry or regulatory updates and discussion on market access strategies. Memoranda of Understanding (MOUs) may be established with these groups and fees for services rendered agreed upon.

User groups formed in Belize include representatives from the Fishery Industry (2 groups: aquatic animal health and fishery products processing), the Poultry Industry, Meat Processors, Fruit and Vegetables (Growers/Importers/Exporters), Dairy Industry, Bottled Water and Juices Industry, and the Tourism Industry (new).

2. Collaborate with those International organizations that have a food safety focus e.g. FAO, IICA, OIRSA, WHO/PAHO

By seeking out and collaborating with those international organizations that have a similar focus, food control agencies in an individual country can dovetail their work programme to complement/augment what food safety programmes or tasks need to be done in the country with less duplication of roles and effect conservation of scarce financial resources. Many of the food safety programs and plan of work established by BAHA has been augmented and supported by international organizations having the same focus and wanting to achieve similar goals. Partnering with these agencies avoids duplication and strengthens collaborative efforts in food safety.

3. Lobby for and provide industry funded training for regulatory personnel

In countries that have little or limited access to educational institutions or costly means of gaining continuing education or training for capacity building, food control agencies can lobby for support from those industries that will benefit from having a trained regulatory personnel. An added benefit is that training in conjunction with industry personnel provides for transparency in the execution of regulatory duties. In those instances where the food control agency is the beneficiary of external expertise training, invitation for industry to participate at a cost can provide a source of financial support to fund further training. Caution must be exercised, however, in the degree of dependence on this partnership - the regulators must always be aware of the possibility of collusion (real or perceived) when collaborating with industry.

4. Develop specific MOUs with other regulatory departments to ensure that their food safety services are budgeted and provided for

A number of services performed to protect consumers may not be able to be fully cost recovered. However, certain “public good” services can still be achieved on some cost recovery basis if food control agencies can access international financial support to affect those services or if governments can budget for them from their tax base. Where other collaborating agencies have a food safety component in their mandate (e.g. Public Health Department, Bureau of Standards, Environmental Health, etc.), specific MOUs can be developed to ensure that funds are budgeted to provide the specific services (e.g. laboratory testing) for those departments that may not have the infrastructure or personnel to provide the services required by that department.

Conclusions

From the foregoing, it is clear that it will take much collaborative effort with our international trading partners and colleagues in the areas that have been delineated above to help ensure that consumers at home and in the global marketplace will have access to safe food irrespective of origin.

Other countries of the region may be able to benefit from the experiences of Belize in strengthening their own national food control system.

Summary

In Belize, BAHA is taking the lead in the assurance of food safety and it does this in a manner that fosters effective partnerships. The establishment of a food safety unit in BAHA with the capability of implementing cost recovery mechanisms has helped both regulatory and industry personnel to effectively deal with the food safety issues affecting international trade and consumers in Belize. To continue to protect human health from food-borne diseases and contribute to an effective food control system in Belize, BAHA will pursue sustainable development in these key areas:

1. Continued development and implementation of the national food safety policy
2. Upgrading of food control systems
3. Improving the laboratory infrastructure and services
4. Initiating and improving food safety education programmes
5. Establishing and strengthening programmes for surveillance, investigation and control of food-borne diseases

Strategies that effect the achievement of the above stated goals will not only improve food safety for the consumer but will also provide for capacity building in BAHA and encourage a robust demand for BAHA food safety services.

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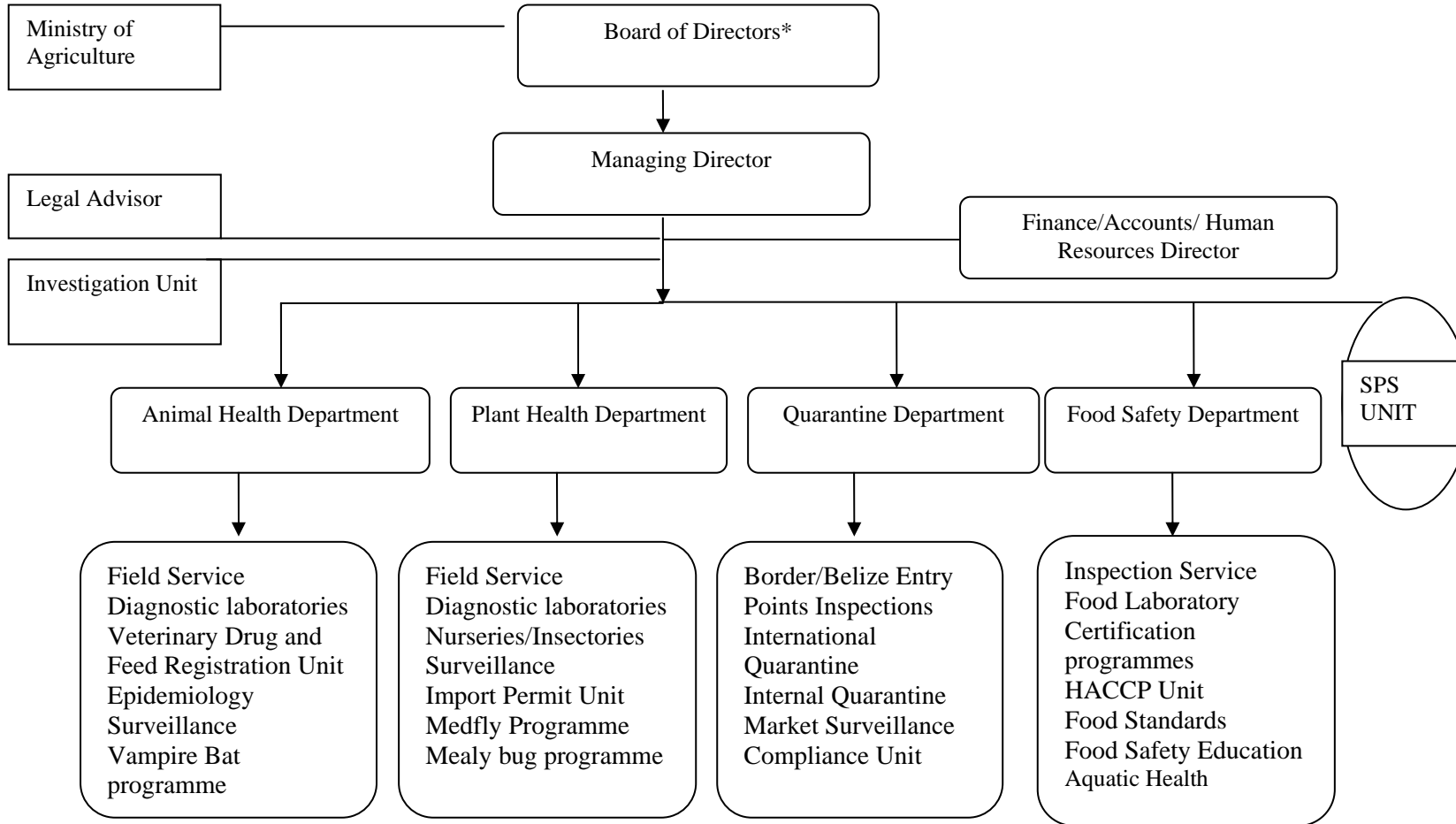


Fig. 1 Structure of BAHA

- **Board of Directors**
- Public Sector Representatives:**
 - a. **Agriculture**
 - b. **Trade**
 - c. **Health**
 - d. **Economic (National) Development**
- Private Sector Representatives:**
- Fish/aquaculture industry: 1 Director**
- Agribusiness: 4 Directors**
(Banana/citrus/sugar/livestock//Chamber of commerce and industry other agribusiness)
- Ministry of Agriculture appointed : 1 Director**
- BAHA Managing Director: 1 (no vote)**

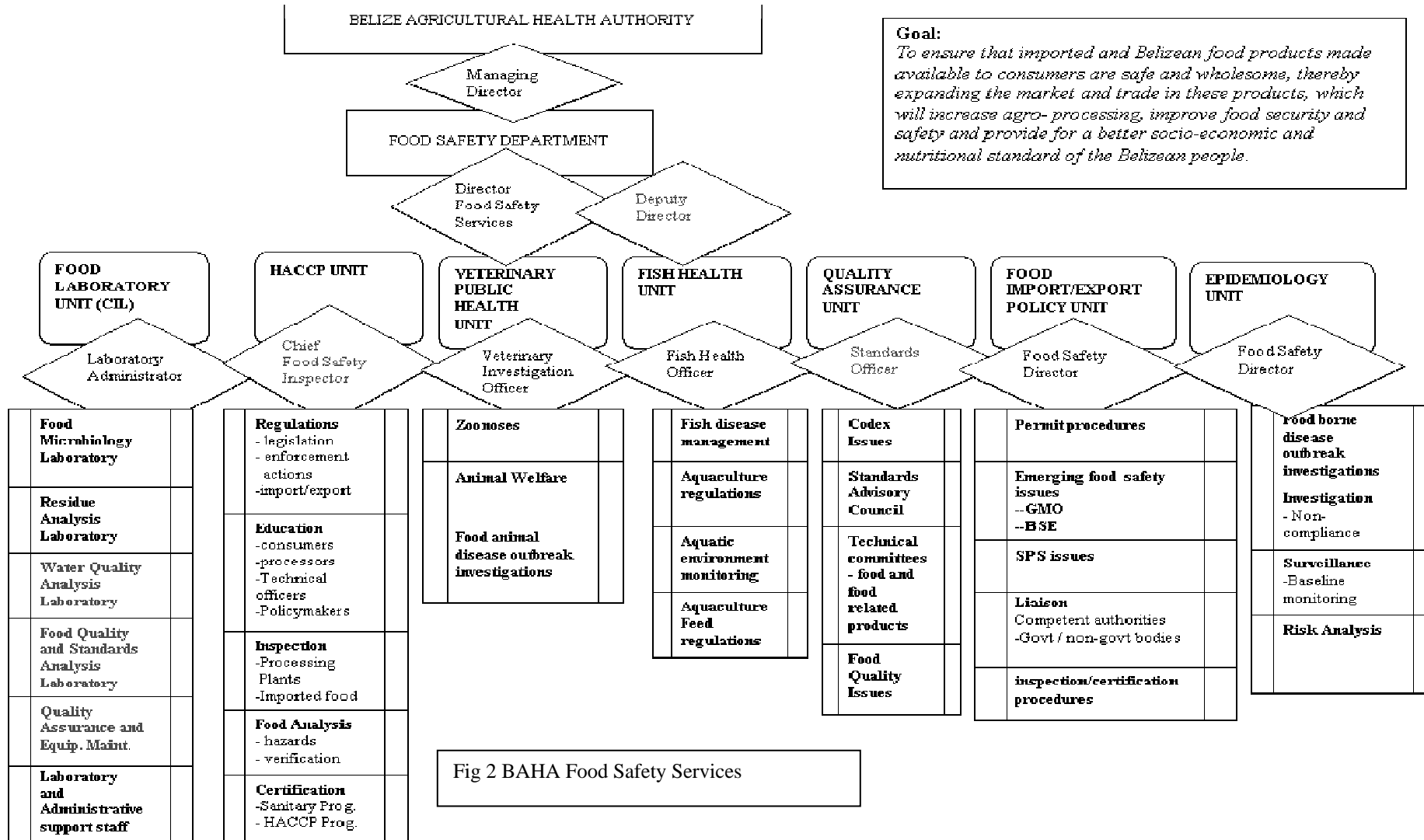


Fig 2 BAHA Food Safety Services