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Evaluation of IICA's Agricultural Health and Food Safety Program

**THE MULTIPLE ROLES OF
AGRICULTURAL HEALTH AND FOOD SAFETY:
BASES FOR EVALUATION AND FOR THE ORIENTATION OF
IICA'S ACTION¹**

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Executive Summary

The level of development and rate of growth in the vast majority of the countries in the Americas is still dependent on their agricultural economies, and this in turn, is tied to the overall effectiveness and efficiency of their agricultural health and food safety (AHFS) institutions. In the past, the traditional role of AHFS programs has been to prevent or control diseases and pests that reduce productivity and profitability, generally at the farm level. In recent years, however, there have been new and additional demands as a result of globalization, the Free Trade Area of the Americas (FTAA) agreement, the World Trade Organization (WTO) agreement on Sanitary and Phytosanitary (SPS) standards and other external factors heretofore not present.

To address the growing demands in today's environment, AHFS programs must reflect a broader mandate and expanded vision. The revamped AHFS institution will build on the traditional agricultural health organization within ministries of agriculture to include stronger alliances and integration with ministries of health, commerce and exterior relations. Actions will be taken to not only assure a strong and productive agricultural economy, but also to increase trade and competitiveness, improve food safety, promote public health, advance food security and tourism, and enhance environmental stewardship. To accomplish these objectives, AHFS programs will need to extend beyond traditional animal and plant health issues to include the entire agri-food chain, from inputs for production to final consumption.

In the Americas today, the adequacy of AHFS institutions varies significantly with regard to their regulatory mechanisms, technical capacity and overall sustainability. As a result, the ability of countries to take advantage of emerging market opportunities, satisfy international SPS standards and comply with multilateral trade agreements is severely limited. A primary role of AHFS institutions is to instill confidence in their constituents and trading partners based on the quality of policies carried out. To gain and maintain this confidence requires the active participation of all parties across the entire agri-food chain.

Forming effective AHFS institutions begins with the articulation of the complementary roles of the public and private sectors. A shared responsibility and coordinated approach on the part of these two sectors should ensure that all of the stages in the entire agri-food chain are identified, that decisions are based on scientific criteria, that regulations are consistent with international standards and that all parties recognize the impact AHFS policies and actions can have on production, food security, public health, trade, competitiveness, tourism and the environment.

AHFS institutions usually operate at the national level, but now must also include regional and hemispheric components. Financial institutions and technical cooperation agencies need to adopt policies and practices that facilitate the creation of these components. In essence, AHFS programs require a comprehensive approach that takes into account the needed technical, economic and regulatory mechanisms. In the future, countries that invest and improve their AHFS institutions will realize the greatest benefits.

I. The Changing Environment of Agricultural Health and Food Safety

Over the last four decades agriculture has been largely viewed as a mechanism to produce increasing amounts of food and fiber. The objectives of AHFS programs were threefold: (i) protect domestic agriculture production through the application of quarantine measures, (ii) implement emergency actions in the event of entry into the country of an exotic pest or disease and, (iii) conduct treatment regimes to control or eliminate already established pests and diseases. The state assumed overall responsibility with only limited and indirect support from the private sector.

Today, globalization is taking hold and the external factors that affect AHFS have changed dramatically. Agricultural products as well as people travel vast distances daily. In partial response to global trends, 142 countries joined together to create the World Trade Organization (WTO) whose protocols include an Agreement on the Application of Sanitary and Phytosanitary (SPS) Measures. The agreement affirms the right of member countries to protect their animal, plant and human health, but in an effort to not inhibit trade, it also requires that countries base any SPS trade restrictive actions on defensible scientific principles. In the Americas, with one exception, all countries are signatory members of the WTO and are obligated to the provisions contained in the SPS agreement. In addition to the WTO/SPS Agreement and Committee, SPS measures are also routinely discussed in the Free Trade Area of the Americas (FTAA) initiative, as part of the Committee on Agriculture.

The formal agreement on SPS standards is one of several actions underway. The negotiations of multilateral agreements and mechanisms to harmonize regulations are increasingly recognized as critical in order to facilitate trade. Consumers and special interest groups are assuming a more active role to influence government policies and the actions taken by private enterprises. These groups sway public attitudes and lobby for more to be done in order to enhance food safety and quality, protect the environment and minimize the risk to human health from pathogens. In a recent study on the demand for meat, economic factors, e.g. price, were compared with non-economic factors such as food safety, animal welfare and the environment. Between 1955 and 1979, the importance of economic factors was 95% while non-economic factors were 5%. In the decade of the 1990s, the importance of the economic factors had declined to 68% while that of non-economic factors had climbed to 32%¹.

Another external factor to be taken into account is the advance in different technologies. The growth in information technology allows greater understanding and precision in conducting risk assessments and making policy decisions when dealing with diseases and pests. Technology that offers opportunities can also introduce uncertainties. Some products of biotechnology promise to increase the quality and quantity of the food supply while simultaneously reducing the levels of harmful agents or residual chemicals. While promising, some of these purported benefits for health and the environment are being met with uncertainty and doubt as to their long-term effects.

A final factor is the heightened attention being paid to the environmental impact from agricultural practices and includes increased scrutiny of animal and plant pest and disease control methods. For example, the FAO reports that 30% of the pesticides marketed to developing countries do not meet

international standards². The dilemma is, while the environmental advocacy groups grow in numbers and influence, agriculture itself has seen its role diminish as a participant in determining public policy. Confronted by agreements that have emerged from international events, such as the Rio Convention (1992) and Kyoto Conference (1997) that highlight concerns about agricultural practices degrading the environment, agriculture in general, and animal and plant health programs in particular, must continue to seek out and adopt the most environmentally compatible disease and pest control technologies available.

II. Institutional Requirements of Agricultural Health and Food Safety, Past versus Present

Traditional AHFS programs began at the country's borders and were focused inward. The overall mission was to protect domestic agriculture and resources were channeled to controlling disease and pest agents that could adversely affect primary production. The credibility of the AHFS programs with the private sector, as well as with other countries, revolved around effective domestic programs, continual inspection and surveillance and emergency response to unexpected incursions. Inspection systems, ports of entry and surveillance were established to prevent the introduction and spread of unwanted diseases or pests. Eradication programs were geared toward specific agents such as hog cholera, avian influenza, or citrus canker. Initiatives were labor intensive, requiring skilled technical expertise in disciplines such as veterinary medicine and plant pathology. The disease or pest profile was generally well understood, but required large financial outlays, often over a number of years.

The last ten years have shown that the traditional approach is not always sufficient to meet today's challenges. Bovine spongiform encephalopathy in the European Union, dioxin in Belgium, and foot-and-mouth disease (FMD) in the United Kingdom are diseases that can be traced back to the introduction of adulterated foods and feeds but whose consequences were manifested further downstream in the agri-food chain. The liberalization of trade can affect production. In Latin America's southern cone, substantial amounts of cereals for poultry production that contained mycotoxins were imported³. A country's exports can be subject to rejection, further testing or treatment. In the last five years, the volume of cargo for import arriving at the Miami international airport has increased by 20% annually. In one year alone, inspectors processed 3 million tons of cargo, approximately 9 million passengers and detected 14,000 pests of economic importance including fruit flies, citrus canker, screwworms and exotic ticks⁴.

Today's reality requires AHFS institutions that operate with an expanded international vision and broader mandate. The traditional agricultural health organization within ministries of agriculture is restructured to include stronger alliances and integration with ministries of health, commerce and exterior relations. The private sector joins forces with the public sector to define complimentary roles for which each has specific responsibilities in order to enhance AHFS. Programs are developed and implemented that go beyond the farm level to encompass the entire agri-food chain. The critical role of active participation in international fora is recognized; on-going involvement in international standard-setting bodies to help determine new norms is regarded as equally important

as the smooth operation of quarantine stations. Program decisions are taken based on risk analysis, harmonization, equivalence or other elements as contained in the SPS agreement.

A final point to be emphasized regarding AHFS institutional requirements is the need to strengthen and improve the level of management skills for individuals occupying senior and/or supervisory positions. Enhanced management capabilities can make a significant contribution to the effective and efficient operation of AHFS programs and institutions; in many instances improved management abilities alone can resolve longstanding budget and personnel issues and program execution problems.

III. The Importance of Agricultural Health and Food Safety Institutions on Different Sectors

The importance of AHFS programs to the agricultural production sector has been well recognized, but the impact of effective AHFS programs extends beyond production to other areas such as food security, trade, competitiveness, tourism, public health and the environment. Regarding *production*, important achievements have been made including the elimination of FMD and screwworms from Central and North America. The challenges to protect and enhance production will continue. For example, the pink hibiscus mealybug (PMB), diagnosed in the Caribbean in 1986, has now spread to North, Central and South America. Left unchecked, potential losses from PMB in countries currently free of infestations could be as high as US\$84 billion, equivalent to 30% of all exports from those countries⁵.

With regard to *food security* and AHFS, a recent U.S. Department of Agriculture study predicted that from 1999 to 2009 the additional grain required to satisfy nutritional requirements in Latin America and the Caribbean would increase 25,402 tons, boosting overall grain imports to 53%⁶. Worldwide it is estimated that the total population will grow by 30% to 7.5 billion and will require a 40% increase in cereal production⁷. To enhance food security will require that AHFS institutions be able to evaluate and facilitate increased amounts of imports to meet growing domestic demand while not putting at risk domestic production.

Food security also includes programs that can counter unexpected acts of *bioterrorism*. Even before the recent detections of anthrax in the U.S. that heightened public concern about what could happen in the absence of moral limits, it had already been well established how centralized food sourcing can lead to widely dispersed and sometimes fatal outbreaks of food-borne diseases. Programs and related actions must cover the entire agri-food chain and include sound surveillance and response systems in order to counter the adverse affects, such as harmful components introduced in animal and plant production, that may not manifest themselves until the end of the agri-food chain.

The *trade* of agricultural products and AHFS are very interdependent. Trade in fresh products, which includes vegetables, fruits, meat and seafood, accounts for nearly half of the agricultural and food exports of developing countries⁸. In the Americas in 1999, US\$ 116 billion in agricultural exports and US\$ 79 billion in agricultural imports were facilitated by AHFS regulations, standards

or norms or by actions such as inspection and risk assessment⁹. In the three WTO/SPS committee meetings held in 2001, 73% of the specific trade concerns raised involved countries in the Americas¹⁰.

The level of *agricultural competitiveness* in countries is frequently a function of the level of investment in AHFS institutions. The recent FMD epidemic in the United Kingdom was not due merely to bad luck, but also to a decline in support for AHFS programs. In the last 10 years, the number of veterinarians had dropped by 20% and the number of regional offices cut by 50%¹¹.

Tourism is also closely linked to AHFS programs. The monetary cost from lost tourism in the United Kingdom as a result of the FMD outbreak is estimated to reach US\$ 7 billion in 2001, US\$ 3.6 billion in 2002 and US\$ 1.4 billion in 2003¹². In addition to location-specific agricultural health problems or illnesses from contaminated foods or the environment, tourists can also act as vectors for specific diseases and pests. In Venezuela, the PMB was first introduced on the island of Margarita and then unknowingly carried by tourists to the South American continent. In 1997, an outbreak of St. Louis encephalitis in the state of Florida required that parks and attractions, where large crowds gather such as Disney World, close their water parks and areas containing bodies of water during those periods of greatest mosquito activity in order to minimize the risk of disease transmission.

AHFS can also affect *public health* from problems that can emerge at any point along—production, processing, and transportation stages—of the agri-food chain. Transmission to humans of zoonoses such as bovine tuberculosis can occur through consumption of unpasteurized milk and cheeses, others through contact with contaminated products during processing. Bacteria, viruses, parasites, and protozoa can contaminate food through the use of contaminated water, poor hygiene or improper handling. Other contaminants include antibiotics and pesticide residues or undesired substances such as dioxin. In Belgium, dioxin was unknowingly introduced into animal feeds and later determined to be responsible for 97% of the reported human cases of illness from the consumption of meat and dairy products. The estimated loss to farmers, feed and food processors was almost US\$ 1 billion¹³.

Changes in the *environment* as manifested through the loss of biodiversity and the contamination of food and sources of water can also be related to AHFS programs. The World Health Organization (WHO) reports that 10% of all preventable diseases are due to the deterioration of the environment, adding that the principal causes of such diseases include a lack of sanitary measures, the contamination of water sources and unsafe foods¹⁴. As a further example, in one country in Latin America, 35% of total pesticides are applied on banana plantations that occupy only 5% of the arable land. And although the crop is known for using large amounts of pesticides, the resulting pesticide use across all arable land averages 44 kilograms per hectare per year (k/h/y) versus 2.7 k/h/y in developed countries. Furthermore, the improper disposal of pesticide containers (90 k/h/y) and plastics used to cover the banana bunches (55 k/h/y) have permanently contaminated the soil with copper and polypropylene. Not surprisingly, the intoxication of workers is at least six times greater in fields planted in bananas than in fields planted in other crops¹⁵.

IV. The current status of Agricultural Health and Food Safety Institutions in the Americas

The WTO/SPS agreement articulates and formalizes several concepts such as harmonization, equivalence, regionalization and risk assessment that countries have agreed to adopt and follow. Although for many of the countries these concepts are new, the WTO/SPS framework assumes that each member country already has or is currently developing the necessary implementation capability. How prepared are AHFS institutions to comply with and benefit from the WTO agreement on SPS standards?

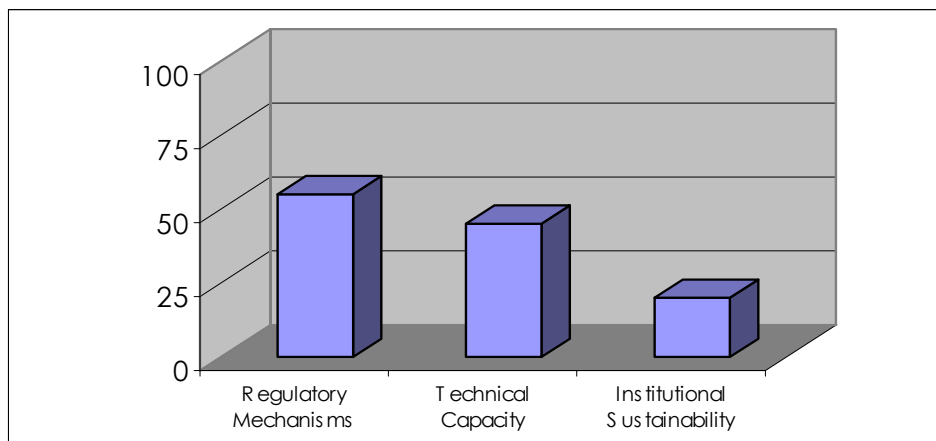


Figure 1. Degree of development (in percentage) of AHFS institutions in 31 countries in Latin America and the Caribbean.

Figure 1 summarizes for 31 developing countries in the Americas, the results of an IICA analysis where the overall country capability is separated into three components: regulatory mechanisms, technical capacity and institutional sustainability. The regulatory mechanisms component refers to the necessary legal framework of laws, regulations, standards and norms and enforcement capacity to help assure that the countries AHFS institutions can operate in a way consistent with international norms and standards. Technical capacity focuses on that level of advancement and operational capability necessary in order to carry out the critical functions such as surveillance, quarantine, diagnosis and emergency response. The institutional sustainability component refers to the countries' AHFS organizations ability to continually advance and improve over time as conditions and opportunities change. Examples of critical functions include achieving manageable levels of turnover of technical personnel, establishing scientific independence in order to carry out risk analysis, and participating in international standard-setting bodies.

For the 31 developing countries analyzed and based on the measures used, the overall degree of development is 40%. Moreover, there exists a substantial difference in the level of advancement among the three components, with the lack of institutional sustainability the most notable. In essence, the countries' AHFS institutions require fundamental changes and enhanced capabilities in all three components in order to conform with and benefit from international standards. Unless significant changes are made, the outcome of poorly performing AHFS programs, as measured in

terms of lost market opportunities and adverse effects on the animal, plant and human health of the countries, will increase.

V. Establishing Agricultural Health and Food Safety Institutions for the Future

The first step to establish effective AHFS institutions begins with the articulation of the complimentary roles of the public and private sectors. A coordinated approach is essential as the success or failure of AHFS programs is a shared responsibility. Nonetheless, there are certain non-delegable public sector roles that include: establishing rules and standards based on international legislation, overseeing and ensuring compliance by applying sanctions in those cases of non-compliance, and actively negotiating in the country's best interest within the relevant international organizations and standard setting fora. The private sector will always be the beneficiary of effective AHFS programs and much of the success to develop technical capacity and ensure institutional sustainability will depend on the level of private sector leadership, involvement and investment.

To create effective AHFS institutions will also require a broader approach than previously practiced on the part of financial institutions. Historically, the limited loans provided to countries for AHFS, focused on building up the technical capacity with much less emphasis given to strengthening regulatory mechanisms and institutional sustainability. As an example, from 1968 to 1998, the Inter-American Development Bank (IDB) invested only 3% of its overall portfolio in agricultural health with the vast majority of capital flowing into the building of new laboratories and quarantine posts along with a one-time purchase of equipment¹⁶.

To support and build sustainable AHFS institutions, technical cooperation agencies will also need to change. Technical assistance offered to countries has traditionally reflected in-house expertise or interest rather than a plan of assistance based on a country's carefully pre-determined priorities. Training and technical assistance are routinely repeated over time without jointly evaluating with the country, the efficacy of the content and approaches used and then modifying the products and delivery methods accordingly. In this regard, technical cooperation agencies are reluctant to recommend approaches that are unpopular, require longer-term commitments or areas of expertise that they themselves cannot offer. Finally, to be of greater support to countries and to improve AHFS institutions, technical cooperation agencies will need to take realistic steps to work cooperatively amongst themselves.

VI. Conclusions

For the vast majority of developing countries in the Americas, their overall level of development is directly related to improvements in health and agriculture and effective AHFS programs are critical to their overall level of agricultural economic growth. In Central America, 48%¹⁷ of all exports derive from agriculture. In low-income countries, food expenditures command a significant portion of total income and agriculture employs the vast majority of the workforce. To build and sustain efficient and effective AHFS institutions is fundamental in order to achieve greater prosperity. In

today's reality, the scope and operation of AHFS institutions and the risks and rewards to the country as a result of globalization, are much greater than in the past.

Properly structured and sustained, AHFS programs provide far ranging benefits in multiple areas from primary production to public health, tourism, trade, competitiveness, food security and the environment. To fully realize these benefits, the next step is to enlist broad support from across the entire agri-food chain. A concerted effort between the public and private sector, along with the assistance of financial institutions and technical cooperation agencies, will enable countries to capitalize on opportunities heretofore not realized. Recognizing that diseases and pests do not respect political boundaries or geographical borders and that AHFS programs must address regional and international concerns, a primary goal of an AHFS institution is to earn the confidence of its constituents and trading partners through the policies adopted and actions taken.

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⁵ IICA (Inter-American Institute for Cooperation on Agriculture). 1998. The emergence, reproduction and spread of the pink mealybug in the Americas. n.p.

⁶ USDA (Department of Agriculture, US) 1999. Food Security Assessment. n.p.

⁷ IFPRI (International Food Policy Research Institute, US) 1999. World Food Prospects: critical issues for the early twenty-first century. (on line). Washington, D. C. Available at: www.ifpri.cgiar.org/pubs/fps/fps29.html

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¹⁴ WHO (World Health Organization, US) 2001. Available at: www.who.int/infectious-disease-report/pages/textonly.html

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¹⁶ BID (Banco Interamericano de Desarrollo, US). 2001. s.n.t. Disponible en www.iadb.org/publicinformation/service.

¹⁷ IICA (Instituto Interamericano de Cooperación para la Agricultura). 1999. Sistema de Información del Area de Políticas y Comercio. San José. C.R. s.p.