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STUDY MEETING HIGHLIGHTS

INTRODUCTION

The Study Meeting on Enhancing Food Certification Systems for Better Marketing, which was organized by the Asian Productivity Organization and hosted by the Government of Japan was held in Tokyo from 21 to 28 January 2004. The program was implemented by the Association for International Cooperation of Agriculture and Forestry in cooperation with the Ministry of Agriculture, Forestry and Fisheries. Eighteen participants from 16 member countries and seven resource persons/speakers from Japan, Netherlands, Thailand and USA attended the study meeting. Three resource persons from Netherlands, Thailand and USA also accompanied the participants during the field visits, and provide further technical advice to the participants.

The objectives of the study meeting were: 1) to review the current status of food certification systems (FCS) for marketing in member countries, and 2) to identify issues and problems in enhancing FCS for better marketing and formulate strategies to address them.

The study meeting started with the presentation of resource papers by the selected experts. The resource papers focused on the following specific topics: 1) Current Food Certification Systems in the Asia and Pacific Region - Issues and Strategies; 2) Enhancing Export Capacities of Developing Countries through Strengthening their Food Certification Systems - Challenges and Opportunities; 3) Institutional Setting in Japan for Better Food Quality Assurance and Safety; 4) Current Food Certification Systems in the European Countries - Issues for Market and Trade Development; 5) Achieving Safety and Reliability in Food; 6) Systemization of JA Group Food Manufacturing Process; 7) Assuring Food Safety and Quality for Consumer. This was followed by presentation of country reports wherein the participants gave an account of the current FCS in their respective countries, as well as issues and problems confronted in enhancing those FCS, a workshop to stimulate creative thinking among the participants as well as to provide an opportunity for further discussion and sharing of views and experiences among them, and the field visits which provided the participants an opportunity to observe the latest situation of FCS in the host country.

The highlights of the study meeting are given below:

RESOURCE PAPERS

Current Food Certification Systems in the Asia and Pacific Region - Issues and Strategies
(Mr. Cornelis Sonneveld)

- HACCP (Hazard Analysis Critical Control Point)

The HACCP system involves the identification of specific hazards throughout the process involved in the production of a food product and focuses on the preventative measures for their control to assure the safety of the food. HACCP is the ultimate system to assure the safety of the food product and no other system could replace HACCP so far. The recent developments of HACCP implementation and subsequent process of certification emphasize strongly on validation and verification. Various countries have prepared their own standards to verify whether or not the HACCP system complies with the requirements as laid down in their standards. Internationally these standards vary substantially in content resulting in different levels of HACCP systems. Usually the standards include Traceability and Product recall but, for instance, Risk Assessment is left out.

- ISO standards

The international standard: ISO 22000 Food Safety Management Systems - Requirements is under development. This document emphasizes on certification requirements for HACCP and contributes to the standardization and harmonization of certified HACCP systems worldwide. Another document under preparation is the ISO/ WD 22519 "Traceability system in the Agriculture Food Chain - General Principles for Design and Development". Though the ISO 9001:2000 standard can be applied for the Food Industry, it is not a common practice to use it as a single system and recommended to be used in conjunction with HACCP implementation, to have a complete Quality Management system. ISO has developed a new standard; ISO 15161: 2001; Guidelines on the application of ISO 9001:2000 for the food and beverage industry. This is

based on the ISO 9001:2000 guideline and includes HACCP. It is not an auditable standard but a tool for the Food Industry to implement ISO in conjunction with HACCP.

- SAFE QUALITY FOOD 2000 (SQF 1000cm and SQF 2000cm)

SQF 2000 - Safe Quality Food 2000 is a HACCP quality code (system) designed in Australia specifically for business in the Agro food industry. The code is aligned with the Codex Alimentarius Commission Guidelines for the application of HACCP. SQF focuses both on Food Safety and Quality issues including GMP, SOP's and HACCP and is compatible with the ISO 9000 standard. The SQF 1000cm Quality Code was developed in 1999 in response to the demand for a simple HACCP based approved supplier food safety system for primary producers.

- BRC (British Retail Consortium)

The British Retail Consortium has developed the Technical Standard, which is a Checklist, for those companies supplying Retailer branded food products. The Standard has been developed to assist Retailers in their fulfillment of legal obligations and protection of the consumer, by providing a common basis for the inspection of companies supplying retailer branded food products.

- EFSIS (European Food Safety Inspection Services)

EFSIS is a third party independent inspection service organization, providing retailer, manufacturers and caterers, throughout the world their services. They apply the EFSIS Standard (Checklist) for companies Supplying Food Products which is not exactly the same as the BRC standard but incorporate all the BRC requirements.

- IFS (International Food Standard)

The IFS has been created by the Federations of German Distributors (after which it was supplemented by French distributors) in order to make possible a systematic and uniform evaluation of Food product suppliers. The IFS standard is based on the philosophy of the ISO 9001:2000 standard. The IFS standard (also a Checklist) like BRC and EFSIS concerns primarily the setting up of the HACCP system.

- Global Food Business Network (CIES) and Global Food Safety Initiative (GFSI)

CIES is the independent global food business network. CIES activities are designed for CEOs, Corporate managers and main functional directors. Two hundred retailers and 200 suppliers in over 50 countries are part of the international CIES Network. CIES Programs are made up of international congresses and conferences. They cover themes like strategic management, food safety, and supply chain management. CIES has facilitated the initiative to enhance Food safety, ensure consumer protection, strengthen consumer confidence and set requirements for food safety schemes. As a result the GFSI was launched in May 2000. A Task Force was established with the key priority, amongst others, to benchmark Food Safety Standards. As a result four compliant standards have been published; the BRC standard, the Dutch HACCP Code, the EFSIS Standard and the International Standard for Auditing Food Suppliers (International Food Standard, IFS).

- Euro-Retailer Produce Working Group - Good Agricultural Practices (EUREP GAP)

The objective of the EUREP, which is made up of leading European food-retailers, is to raise standards for the production of fresh fruit and vegetables. The prepared document (Checklist) sets out a framework for Good Agricultural Practice (GAP) on farms, which defines essential elements for the development of best-practice for the global production of horticultural products (e.g. fruits, vegetables, potatoes, salads, cut flowers and nursery stock). Agriculture produce from Asia nowadays is subject to EUREP GAP certification.

- The Quality of an Auditor

Quality, experience and education of the auditor play an important role in certification. The FAO/WHO publication "Assuring food safety and quality: Guidelines for strengthening National Food Control Systems" which is actually prepared to enhance the Food safety control systems at governmental level, recognizes this aspect and emphasizes that a Food Inspector must be trained in Food Science and Food Technology to understand the industrial processes. The GFSI guidance document also lays down specific requirements applicable to auditors.

- Issues

Various HACCP requirements or criteria being developed and applied in different countries differ largely in content and level and the auditors have also a different level of experience and knowledge, resulting in non-uniform and inconsistent certified HACCP systems.

The new ISO 22000 Food Safety Management Systems - Requirements to be developed soon is further expected to enhance harmonization of standards. Auditors will have to be qualified and must have experience in the respective areas of Food-Technology. Harmonization of Codes of Practices for Auditors will also contribute to quality improvement in auditing and subsequent certification.

The certification bodies must meet "the General requirements for bodies involved in assessment and certification/ registration of quality systems ISO/IEC Guide 65:1996. Certification bodies in return are audited on regular basis by an Accreditation Body or Board of Accreditation, to assess the reliability and competence of the certifying body.

SQF 1000 and SQF 2000 are Food Quality and Safety systems widely known in the Far East, North America, Middle East and South Africa. However, these systems are now getting popular with European companies also for the purpose of certification.

BRC, IFS and EFSIS are checklists and are basically the same in approach. HACCP is included in all the three, while the Risk Assessment is a recommendation in the IFS checklist. Products from the Far East and the Pacific destined to Europe are already subject to inspection against the BRC and EFSIS standards and familiarization with these standards is useful to all concerned. Decision on the applicability of a particular standard for auditing and certification largely depends on the destination to which the goods is meant for.

While benchmarked Standards of the GFSI are recommended for adoption, strategic approach for certification of Food safety systems should be emphasized on ISO 22000 once issued keeping in view the globalization and the need for harmonization.

Enhancing Export Capacities of Developing Countries through Strengthening their Food Certification Systems - Challenges and Opportunities (Dr. Saipin Maneepun)

As food processing is one of the well-recognized value added activities undertaken in developing countries for export earnings and promotion of economic growth, the basic food safety control program can provide the necessary safeguards on which the sustainable development of this sector relies. The national plan of action to establish food safety program requires appropriate food safety legislation that assures food safety and consumer protection. The role of national governments is evolving to one of inspecting thorough and verifying that industry management systems for food safety assurance are working effectively. There are number of principles in both design and use of food certification systems that developing countries can structure their capabilities to ensure the optimal outcome consistent with consumer protection and facilitation of trade. Certification of food may be, as appropriate, based on a range of inspection activities including on-line inspection, auditing of quality assurance systems and examination of finished products. The validity of certification for exporting food products may require from those importing countries. The opportunities for developing countries to develop exporting certification of foods may need the assessment of food safety infrastructure and problems at national level with the preparation of a country profile. Preparation and implementation of national food safety program with evaluation shall be accorded priority to meet the objectives and goals food safety and quality. Formulation of national food safety policy and national plan of action should facilitate to coordinate expert groups to have effective food safety law and legislation for enforcement.

Implementation of food certification systems for exporting fishery products from Thailand has been formulated by integrating the available resources and details of compositional requirements being developed from international organizations and major importing countries. The Fish Inspection and Quality Control Division (FIQD) under the Department of Fisheries (DOF) is the competent authority and responsible for developing certification systems with revision every 2-4 years as needed. The successful plan of action consists of four parts,

Part 1 Legislative Framework: The principle government agency interacting with fishing industry is responsible for the development of the sector including introduction of new technologies, extension, research, regulation and inspection. Under this authority, the agency has to lay down conditions and guidelines for approved fish processors. DOF has been authorized under the Import and Export Control Acts to inspect and control fish and fishery products exported to other countries under conditions specified in the Ministerial Notification of the Ministry of Commerce.

Part 2 Governmental Structure: The government has issued policy guidelines for DOF to develop and to provide reasonable assurance of compliance with product and process standards for fish and fish products in both domestic and export markets. Major program elements of inspection and control system for ensuring quality and safety need to include; monitoring of sanitary conditions and environment conditions,

using chemicals and drugs, establishing handling and processing, product compliance, quality and safety surveillance, approval of process establishment for export, certification service and research.

Part 3 Adequate Resources/Tool: The DOF has the authority to set standards, conditions, policies and procedures for; product safety and wholesomeness, harvesting or processing fish and fish products, operate in compliance to the requirements of DOF and/or current international standards or standards agreed under specific agreements, enforcement of action against processors violating legislative requirements and conditions and taking control of products not meeting the requirements.

Part 4 Verification of Inspection and Certification System: Fisheries Internal Quality Department (FIQD) designates an audit team to carry out internal audit of various activities. Each audit team includes technical manager, senior food technologist (lead auditor or lab supervisor) and a food technologist (inspector or lab technologist) who are independent from audit area. Internal audit plan is drawn up annually and revised at an interval of every six months. Report is submitted to the quality management team for system review. The third party audit by an international auditor needs to be carried out every two years.

Certification Systems for Other Food Product Commodities: Meat and poultry products and fruits and vegetable products have different standards and requirements and pose challenges to governments in developing countries to propose and implement quality systems to conform to importing countries' requirements.

Institutional Setting in Japan for Better Food Quality Assurance and Safety (Ms. Atsuko Okajima)

A. Background

In September 2001 the first cow with BSE was discovered in Japan. After that incident, number of disturbing incidents concerning food came to light such as falsification of origin of food, amounts of residual agricultural chemicals in imported vegetables exceeding the levels allowed by the Food Sanitation Act and usage of agricultural chemicals that have not been authorized for use in Japan. All of these incidents led to increased anxiety among the consumers with regard to food safety and food safety administration. Thus, the government has started to review the legislation and the administrative organizations related to food safety.

B. Review of Legislation Related to Food Safety

(1) Enactment of the Food Safety Basic Act (May 2003): The basic principles of this Act are:
   a) Protecting the health of the people is of the utmost importance.
   b) Take necessary measures/precautions at each and every stage of the food supply process.
   c) Introduce risk analysis methodology consisting of risk assessment and risk management.

   There are different departments in MAFF to deal with risk assessment and risk management.

(2) Revision of the Food Sanitation Act, the Agricultural Chemicals Control Act and other Acts related to risk management (June 2003)

(3) Enactment of the Cattle Traceability Act (June 2003)

C. Review of Administrative Organization Related to Food Safety

(1) Establishment of the Food Safety Commission (July 2003)
   This commission was established within the Cabinet Office under the Food Safety Basic Act to objectively and scientifically assess risks, and to oversee the conditions related to monitoring of risk management and risk communications.

(2) Reinforcing the Risk Management Organization within the Ministry of Health, Labor and Welfare. For this purpose:
   a) The "Department of Food and Health" was renamed as the "Department of Food Safety."
   b) A councilor in charge of risk communications was named, and the Imported Food Safety Measures Office was established.
   c) The number of food hygiene officers was increased to reinforce the imported food inspection organization.

(3) Reinforcing the Risk Control Organization within the Ministry of Agriculture, Forestry and Fisheries (MAFF)
   a) The sections related to risk management for food were separated from the industry promotion departments, and a new Bureau of Food Safety and Consumer Affairs was established to comprehensively handle consumer administration and food risk control.

b) The Food Offices established in each prefecture were abolished and reorganized into “Local Agricultural Policy Offices” that are in charge of food risk control in addition to administration related to rice and wheat.

(4) Currently the Food Safety Commission, Ministry of Health, Labor and Welfare, and the Ministry of Agriculture, Forestry and Fisheries are promoting food safety administration based on risk analysis methodology.

The JAS standards are used to ensure the production of clean agricultural/food products. However, they do not mention any thing about product safety. A registration system is used for agricultural chemicals through which they are checked for safety based on toxicity test data.

D. Traceability System

As yet there is no internationally acceptable traceability system (TS) except the livestock TS that was introduced by the EU countries in response to the BSE incident. Responding to BSE incident in 2001, Japanese government introduced Cattle Traceability Act in June 2003. As yet, TS is applied to meat only and may be applied to other food products in future. While application of TS is mandatory for cattle/meet produced in Japan , for imported cattle/meat it is still on voluntary basis. Application of TS will: 1) simplify the recovery of food products when a problem occurs, 2) create a system in which consumers, producers and businesses will be able to recognize one another in a better way, and 3) lead to securing the trust of consumers and assuring their safety**.**

There is a specific mechanism provided in the JAS Standards for disclosure of “Cattle Production Information”. The mechanism consists of : 1) Subject production information, 2) Recording, storage, disclosure of production information by certified production process managers, 3) Dividing and making of lots of beef with disclosed production information by certified dealers, and 4) Providing information to consumers.

With regard to domestic beef, the “Special Act Concerning the Management and Communication of Information about Individual Cattle” (hereafter referred to as the “Cattle Traceability Act”) has been applied, and a system to provide the breed, slaughter date and other production information is already in place. Therefore, the JAS standards shall specify that feed information and veterinary medicine information be added to this production information and disclosed. The Cattle Traceability Act is not applicable to imported beef, but the JAS standards shall specify that the production information based on that law, feed information and veterinary medicine information be disclosed.

Current Food Certification Systems in the EU - Issue for Marketing and Trade Development
(Dr. Morton Satin)

The increasing concerns among today’s consumers regarding the safety and value of foods are one of the greatest challenges facing the global food industry today. Incidents involving food poisoning, adulteration or mislabeling in products that are traded internationally not only affect the reputation of the companies that have produced those products but also the countries in which those products were produced.

Food quality management and food certification systems are universally recognized as being the most appropriate way of preventing these unfortunate incidents from happening. As a consequence, food certification systems have become one of the most powerful tools in the international marketing of foods.

Modern certification systems differ from the traditional quality assurance approach by relying on a systematic and disciplined approach that is backed up by full documentation on product origin, properties and history. The increased focus on health and safety of foods has led to the added demand for the function of traceability - an issue that simply cannot be dealt with in the absence of documentation. Third party verification of the integrity of the quality management system is an added level of oversight that provides an extra measure of confidence to assist in the marketing of products.

System certification ensures compliance with specific norms such as ISO 9,000 (quality focus) or 14,000 (environmental focus), while product certification certifies compliance of products with specific technical characteristics.

The main EU certification standards for the different stages of the supply chain that were discussed included GAP and GMP, HACCP, ISO 9000 and 14000, EFSIS and BRC.

The last two decades have witnessed a profusion of new food standards and certification systems brought into being, particularly in the EU. While food safety and quality are the reasons behind these new developments, trade is the issue that is most directly affected. Once standards and certification systems are

in place, there is little choice but to adhere to them if market access is the objective. Therefore, it is incumbent upon exporting countries to engage in the international or regional standards/certification debates, if they wish to exert any influence upon the final outcome.

Achieving Safety and Reliability in Food (Dr. Yoshihisa Onishi)

Several major incidents involving food contamination heightened the call and awareness of food safety and reliability among Japanese consumers.

Despite the efforts of the government establishing supportive tow laws for HACCP, numerous cases of contamination of food by foreign matter and agricultural chemical residues, mass food poisoning, and the fraudulent declarations of BSE infection suspected beef procurement were discovered recently, and the trust of consumers with respect to food products was shaken.

A consumer's usual recourse is to rely on popular brands of major companies, but even that is not solving the problems some of the established companies were involved in recent scandals. For ensuring safety of food products, application of HACCP is considered to be the most effective method. However to ensure a feeling of reliability coupled with the renewal of trust in certain food brands, introduction of traceability is being viewed as a method of winning back the intrinsic trust.

Ministry of Agriculture, Forestry and Fisheries (MAFF) has defined the traceability in "Guidelines for Introduction of Food Traceability System". Despite this definition, "traceability" in Japan is generally divided into two components: 1) "traceability" in the narrow sense which provides retroactive and proactive history and tracing of the entire food production process, and 2) "accountability" which means providing direct consumers' pertinent information on the product.

With regard to the prevention of BSE, government took the initiative of assigning an identification number for every head of cattle and the formation of a system for uniform management in Japan. The most important point of the traceability system is to give identity number (ID No.) for each material and product, and linking this with the material, production and distribution to retrieve any information.

To restore the lost confidence of the consumer the food industry and the government of Japan are trying to introduce traceability system. Government is putting numerous efforts to promote traceability to the whole food supply chain and provided guidelines for the introduction of traceability.

Even though the system of traceability and HACCP are expected to ensure the food safety and consumer confidence, the most important point is to go back to the fundamental measures like 5S, GMP, professional ethics, compliance, and then introduce HACCP and traceability to make them more effective.

Systemization of JA Group Food Manufacturing Process (Mr. Shiro Sakamoto)

Japanese Agricultural Cooperatives (JA) run the food manufacturing and processing business as part of their distribution and sales business handling rice, grains, vegetables, fruits, meats, eggs, and milk produced by farmers. Domestic raw produce sold by JA Group is given the catch phrase "fresh, tasty, safe, and reliable," and is widely accepted as "expensive but safe" produce. However, the occurrence of the BSE problem in Japan in 2001 and some misconduct and violations of the law by food manufacturers created social tensions. This led to consumers' distrust in food manufacturers and the displayed information on the food products.

In order to dispel such distrust, food manufacturers are now trying to provide more specific product information than ever. The JA Group also has started to provide product information by keeping records of production, harvest, storage, and distribution of food. In October 2002, the Food Manufacturing and Processing . JA group is determined to work towards acquisition of the ISO Quality Management System Certificate, and is now working towards acquisition of HACCP, SQF2000, and ISO9000.

Work started for the ISO certification when the "Enhancement of the Quality Assurance and Sanitation Inspection Functions" policy was announced in 1998. The company then held the "Quality Assurance System Workshop" to achieve effective systematization (ISO9000 and HACCP).

All milk factories have implemented the HACCP system and sequentially implement ISO9000 after the HACCP system is well established. Majority of beverage factories are also HACCP certified for certain beverage filling lines.

The meat processing factories are working towards implementation of ISO9000 based on the understanding that factories with old equipment are ineligible HACCP certification. One of the HACCP certified

meat processing factories is manufacturing various types of line items, and all of them are subject to HACCP quality and sanitation control.

Rice milling plants are working towards implementation of ISO9000, referring to IS9001 acquisition experience by an affiliate company. Frozen rice factories are not subject to HACCP approval, but they nevertheless implemented the HACCP system to facilitate the efforts to obtain ISO9001. The HACCP system projects can only be carried out by internal members of the company or with the help of consultants.

Assuring Food Safety and Quality for Consumer (Mr. Kazuo Onitake)

Effective national food control systems are essential to protect health and safety of consumers. Consumers are taking keen interest in the way food is produced, processed and marketed, and are increasingly calling for their Governments to bear greater responsibility for food safety and consumer protection. The FAO and WHO have a strong interest in promoting national food control systems that are based upon scientific principles and guidelines, and which address all components of the food chain. This is particularly important for developing countries as they seek to achieve improved food safety, quality and nutrition, which will require a high level of political and policy commitment.

1) Food Safety

Food self-sufficiency rate in Japan is 40 percent and the remaining food is imported from other countries. Food-borne health hazards could be prevented through the concerted efforts of the individual/family as well as food manufacturers and administration. An individual and the family should be responsible for ensuring that there is no excess or deficit in nutrient intake while the responsibility of food manufacturers and administration is that there are no microbiological and chemical hazards associated with food.

2) The Joint FAO/WHO Food Standards Program

The Joint FAO/WHO Food Standards Program, The Codex Alimentarius Commission (CAC), is an intergovernmental body that coordinates food standards at the international level. Its main objectives are to protect the health of consumers and ensure fair practices in food trade. The CAC has proved to be most successful in achieving international harmonization in food quality and safety requirements. It has formulated international standards for a wide range of food products and specific requirements covering pesticides, food additives, veterinary drug residues, hygiene, food contaminants, labeling etc. Codex recommendations are used by governments to formulate and refine policies and programs under their national food control systems. More recently, Codex has embarked on a series of activities based in risk assessment to address microbiological hazards in foods, an area previously unattended. Codex work has created worldwide awareness on food safety, quality and consumer protection issues, and has achieved international consensus on how to deal with them scientifically, through a risk-based approach. As a result, there has been a continuous appraisal of the principles of food safety and quality at the international level. There is increasing pressure for the adoption of these principles at the national level.

3) Consumer Information Service

Japanese Consumer Information Service (CIS) provides free phone service to consumers to provide them information on food-related issues and get feedback from them and the service operates 6 days a week. In the year 2001 maximum number of consumers inquired about safety of food followed by product inquiries and food quality.

4) Improving the Japanese Food Safety System

Japanese Consumers' Co-operative Union (JCCU) has been leading a nationwide movement since 1998 for the establishment of a social system to secure food safety including fundamental reform of the Food Sanitation Law. During the Diet session of spring of 2003, bills to revise the Food Sanitation Law and the New Basic Law on Food Safety in connection with the reexamination of the administrative system for food safety were discussed and passed. The JCCU responded to this decision of the Diet by welcoming it and continue to make every effort to secure the confidence of consumers with each and every food item Co-op deals with.

COUNTRY REPORTS

Bangladesh

National food safety programs include building up of infrastructure, formulating and accomplishing standards, following guidelines/procedures of the CODEX, complementing ISO, HACCP etc., promoting awareness, and dissemination of information. But central to all initiatives is the certification of conformity to the requisite parameters/standards.

Bangladesh Standards and Testing Institution (BSTI) is the only institute in Bangladesh authorized to determine the quality and standards of Bangladeshi products. BSTI performs the task of formulation of National Standards of industrial, food and chemical products. BSTI is a member of Codex Alimentarius Commission and already adopted ISO 9000, ISO 14000 and HACCP as Bangladesh Standards and it is the National Enquiry point of standards in Bangladesh.

Department of Fisheries (DoF) under the Ministry of Livestock and Fisheries is the agency responsible for controlling safety standards of Fish and Fishery Products intended for export. The Department of Livestock (DLS) under the Ministry of Livestock and Fisheries arranges inspection of imported animals, poultry birds, and look for signs and symptoms of pests and diseases. The Director, Plant Protection Wing (PPW) of Department of Agriculture Extension (DAE) is responsible for execution and implementation of the national or international Plant Quarantine Legislation and Agreement.

Directorate General of Food (DGF) under Ministry of Food maintains food safety standards and has one central food-testing lab to look into the quality, safety and certification issues of the public food stocks.

City Corporations, Municipal Corporations and "Pourashavas" under MoLGRD are entrusted with the task of certifying cows and goats to be slaughtered. Public Health Institute of Ministry of Health and Family Welfare is working on the quality of food. Public Health Laboratory is responsible for checking the quality of food in order to protect the consumer from unsafe, adulterated, or contaminated food. Import of food and food products, is subjected to testing of radiation levels by the Bangladesh Atomic Energy Commission. In Bangladesh, there are few other organizations, engaged in testing of food and food products.

Major Issues in the implementation of Food Certification Systems (FCS) include problems of standards in domestic market, SPS and TBT agreements, substantial reduction in support and protection by trading partners; harmonizing food inspection and certification systems, lack of co-ordination among the government agencies dealing with the food safety, standards and certification, lack of resources, technology and skilled manpower; inadequacy of laws, rules and procedures, absence of proper enforcement, lack of knowledge of standards, laws/regulations among the producers and consumers and lack of motivation and awareness building activities by the government, presence of arsenic in food chain due to contaminated irrigated water, and high cost of maintaining food safety and standards system.

Government efforts to improve the national FCS include - Public-Private Sector Interaction and linkage building activities by BSTI, 19-point steps for implementation of HACCP, sanitary and phytosanitary measures adoption by DOF, formulation/updating of laws and policies related to food safety, standards and certification, membership in trade blocks and agreements, strengthening the information, surveillance and alert service at DLS.

An institutional framework to analyze, prescribe and monitor policy actions to face the challenges and to capitalize the opportunities stemming from the global trade regime under the WTO is the need of the hour.

Republic of China

There are many food certification systems (FCS) that have been adopted successfully in Taiwan, such as Chinese Agricultural Standards (CAS), Good Manufacturing Practices (GMP), Good Hygienic Practices (GHP) and the standards of the International Organization for Standardization (ISO). Each certification system is supported by government authority and promoted by concerned associations or agencies. The CAS certification, supported by the Council of Agriculture (COA) of Executive Yuan since 1989, mainly focuses on products made from domestic raw materials. In order to promote the local agriculture business and to make sure that both the quality and the safety issues are well implemented by manufacturers, it is important to extend the CAS food certification system to food manufacturers not only for product promotion but also for protection of the consumers. Certification is granted only to those manufacturers whose factories and products have been carefully inspected. After the application from the manufacturer and on-site evaluation

by expert inspectors, regular product checking is performed by the authorized organizations to ensure that the production and the products are always safe and wholesome. After the certification, regular follow-up inspections are also conducted. There are 12 categories of food items that can be certified; they are meat products, frozen foods, vegetable and fruit juices, rice, pickled vegetables and fruits, instant foods, chilled prepared foods, fermented foods, desserts, fresh egg products, and fresh cut vegetables. Regular promotion activities for consumer awareness are also carried out by the Chinese Frozen Food Institute to provide wider publicity. With certification mark on the products, the system is successfully promoting the products to consumers in Taiwan.

Fiji

Fiji's food certification system is currently covered under its Pure Foods Act, Animal Importation Act, and the Meat Industry Act. These Acts provide the guidelines on the following: 1) importation of food for consumption purposes, 2) hygiene of abattoirs and canneries, 3) the premises where food items are sold, 4) the working of health inspectors, 5) the working of meat inspectors, 6) penalties for non compliance, and 7) authority to specific personnel to amend the regulations when needed.

The Department of Health and MASLR (Ministry of Agriculture, Sugar and Land Resettlement) have key roles in ensuring the safety and wholesomeness of food for Fiji. The Department of Health is responsible for the Pure Food Act that aims to formulate and prescribe standards for the wholesomeness and purity of food. While MASLR is responsible for quality issues from the farm to the abattoir, the Department of Health is responsible from the abattoir to the point of purchase for consumption.

MASLR has responsibilities across the dairy, meat, poultry and crops. There is a range of legislation in place that supports the delivery of safe food to consumers (such as the *Diary Act* cap 118 and the *Meat Industry Act* cap 237).

The Quarantine section of MASLR also plays a key role in protecting Fiji's relatively disease and pest free status. A number of Acts regulate the importation of animals, plants and goods to prevent the introduction or establishment of certain diseases and pests (such as *Quarantine Act* cap 112, *Plant Quarantine Act* cap 156 & *Animal Importation Act* cap 159). There are also regulatory controls in relation to the export of certain foods such as those contained in the *Fruit Export and Marketing Act* cap 154 and *Banana Export and Marketing Act* cap 155.

Fiji's commodity markets do not currently fully operate under Total Quality Management (TQM) or HACCP principles. The only exception to this is the fisheries industry as progress has been made in some sectors adopting HACCP to promote trade with the European Union countries. Limited resources to provide supporting infrastructure is impeding progress in these areas.

Also Fiji is becoming a full member of the International Organization for Standardization (ISO) in 2004 and this may provide fillip to adoption of international standards.

The successful development of enhanced food safety standards in Fiji will require a strong collaboration between the Government and the private sector and Fiji has taken the first steps to enhance food safety standards for the nation.

India

WTO agreement and SPS measures have opened up new vistas in the domain of quality certification for marketing of food. India, being the second largest producer of food, besides its vast untapped potential has to play a major role in food certification for international marketing. Major issues include harmonization of standards, uniformity in certification, introduction of one standard-one test for a commodity and simplification of legislation and food laws. Current food laws in the country revolve around Prevention of Food Adulteration Act, Meat Food Products Order, Food Products Order 1955 and third party certification under Agmark and Standards of Bureau of Indian Standards (BIS).. A number of boards, agencies owned by Govt. like Spices board, Tea board, Coffee board, Directorate of Cashew, Marine Products Export Development Authority (MPEDA), Agricultural and Processed Food Products Export Development Authority (APEDA) etc. are engaged in promotion of export of food under their certification system and quality standards. There is also a system of self-certification for quality of a food through accredited food testing laboratories for the purpose of export and internal marketing. Involvement of various govt. agencies in formulation of quality standards of the food crops and food and their certification is a cause of concern for the food manufacturers/ exporters.

Emphasis has been laid down for creating the infrastructure and testing facilities along with need on training, education and awareness to various functionaries. Encouragement of organic food production and improving the hygienic condition of street foods is of great concern to India. Food quality assurance system at farmers' level along with cleaning, grading, testing, standardization and certification with facilities for scientific storage, transportation and e-marketing to food processors and sellers have been identified as a thrust area for the quality production and marketing of safe food crops.

Integrated quality production and marketing approach from pre-harvest to post-harvest is an important aspect of the food certification system. For harmonization of quality and safety standards, code of hygiene etc. with that of Codex, generation of scientific data and practices followed for different food commodities in the country is worth consideration. Genetically modified food needs propagation only on established facts of its safety. Development of a viable and sustainable agro-ecosystem in the production environment for food crops and processed food should be encouraged. Food certification system based on national standards should be acceptable internationally for commodities for which there are no Codex standards. Government agencies engaged in mandatory food certification should give priority to quality assurance system, education, training and awareness in food sector instead of relying on end product testing. Review of food certification system and standards should be through unified efforts of industries, farmers, regulators, scientists, academicians and consumers keeping in view the Codex requirements.

Indonesia

The Government of the Republic of Indonesia has great concern to protect consumers' health from any hazard arising from consuming food of agriculture origin and as such food safety is accorded top priority.

Regulatory reforms towards international standards of agricultural products can be seen through a quality assurance system within a system of standardization. A system of standardization of agricultural products is derived from Agricultural Standardization System and National Standard System based on the Agriculture Ministerial Decree No.170/2001 and Presidential Decree No.102/2000 (previously Presidential Decree No.7/1989).

The system mainly consists of two sub-systems namely Standardization and Accreditation. The main function of Standardization is to formulate Indonesian National Standards (Standard National Indonesia or SNI) and the function of Accreditation is to facilitate the certification body or testing laboratory to achieve the accreditation status.

In practice, SNI is formulated gradually, first based on the local national standard and moving towards international standard. Usually, regional standards, such as ASEAN Standards or International standards recommended by the Codex Alimentarius Commission (CAC), are being used as a reference in the formulation. Hence, domestic standards are gradually harmonized with the international food standards.

To ensure proper working of Standardization System on Agricultural Products, the Indonesian Government assigns a Center of Standardization and Accreditation as the institution responsible for the application of system. Secretary General of the Center of Standardization and Accreditation is designated arbitrarily as the SPS notification body.

The Ministry of Agriculture is establishing and strengthening a certification body on quality system based on HACCP and a testing laboratory for testing residual pesticides, microbiological contaminants, additives and heavy metal.. These efforts are aimed at meeting the requirements of developed countries, which are potential export destinations.

To achieve credibility, all the certification bodies are required to be recognized by trading partners in terms of their system and assessment procedures and capability of human resources. The recognition could be reached through a Mutual Recognition Arrangement (MRA). Both private sector and government institutions are eligible to become certification bodies. The operation of the National Accreditation Committee/ KAN is based on ISO/IEC Guide 58 for Laboratory and Inspection Body Accreditation and ISO/IEC Guide 61 for Certification Body Accreditation. KAN is the member of ILAC/IAF as well as APLAC/PAC.

Food produced and distributed within the Indonesian territory shall meet the requirements of health and safety as well as the regulation of the Ministry of Health RI. No.329/1976 (on production and distribution of food) and No.382/ 1990 regarding Food Registration in addition to complying with the SNI.

The exported and imported food should not fall below the SNI requirements or other standard referred to and acknowledged. Cooperation with international organizations/bodies, such as Codex

Alimentarius Commission (CAC), International Organization for Standardization (ISO), ASEAN Coordinating Committee for Standard Quality (ACCSQ), International Laboratory Accreditation Conferences (ILAC), Asia Pacific Economic Cooperation (APEC), ASEAN-Australia Economic Cooperation Programs (AAECP), and SPS/ASEAN is sought for harmonizing standards and for mutual recognition to facilitate food trade.

Islamic Republic of Iran

Food laws were initially ratified by the Iranian National Parliament in 1961 which have been amended many a times ever since. Administratively food quality control is the responsibility of the Ministry of Health & Medical Education (MOH&ME), Ministry of Jihad-e-Agriculture (MOJA), and Institute of Standards & Industrial Research of Iran (ISIRI). Veterinary Organization (IVO) also plays a significant role in enhancing national food certification system.

More than 5500 Iranian Food Industries had received 18285 food product certificates and more than 100 GMP certificates from the MOH. Similarly ISIRI had issued 700 certificates for food products, 30 national laboratory accreditation certificates and 6 professional export control certificates. About 400 food enterprises had established ISO 900 system while 40 established HACCP system followed by 20 with ISO 14000 system.

Major issues and problems in enhancing food certification system of Iran are Inadequate internationally accredited food control laboratories, administration of food safety systems implementation, limited knowledge base and food research commitment, and limited participation in standard setting committees. Few suggestions to address the above issues are listed below.

1) Inadequate Internationally Accredited Food Control Laboratories
   - Expedite establishment of Laboratory accreditation system
   - Review food inspection activities and human resource requirements
2) Administration of Food Safety Systems Implementation
   - Technical support for design and application of HACCP plans
   - National programs to ensure quality, scientific validity and consistent application of HACCP systems
   - Regulatory sanctions if food industry sector fails to take up HACCP on voluntary basis
   - Regulatory verification and audit, including access to industry records
   - Regulatory response to inadequate HACCP plans
   - Regulatory guidelines for appropriateness and severity of corrective action
   - Regulatory response to failure to take corrective action
3) Limited Knowledge Base and Food Research Commitment
   - Training of key personnel and other staff within each department
   - Review of food research needs and commitment
4) Limited Commitment and Participation in Standard Setting Committees
   - Active participation in Codex meetings should be encouraged to adequately reflect inherent conditions prevailing in Iran.
   - Consideration should be given to the application of the concept of “equivalence” to quality assurance, so that GMP can be accepted as an alternative to the more complex HACCP.
   - Developed countries and international agencies might consider limiting mandatory requirement of HACCP for export to only those countries/enterprises which are known to have high risk of hazards to human health.

Republic of Korea

The food certification system (FCS) in Korea includes 1) GH (Goods of Health) certification for processed foods, 2) quality certification for agricultural products, 3) Eco-friendly produce certification, 4) KS certification for processed agricultural products, 5) Waterfall mark for the traditional Korean food products, 6) quality certification for fishery products, 7) HACCP for general food, animal and milk products, and fishery products, and 8) ISO - Quality and Environment Management system for agriculture, fishing, food and beverage.

GH mark is given to the health products including food by the evaluation of the product quality as well as production line by the Korea Health Industry Development Institute (KHIDI), a government-

supported institution under the Ministry of Health and Welfare. GH certification aims to promote the development of high quality health products based on sound scientific research and to provide high quality health products and correct information to the consumers.

For the agricultural products, mark is given to the products by The National Agricultural Products Quality Management Service (NAQS), a subsidiary organization of the Ministry of Agriculture and Forestry (MOAF), to improve the quality and competitiveness of Korean agricultural products.

Eco-friendly product certification is to protect the environment by minimizing the environmental degradation due to agricultural practices and to set up a sound supply system of organic produce in Korea. .

KS mark is provided to the processed agricultural products meeting the Korean standards specified by the Ministry of Agriculture and Forestry.

Waterfall mark is given to the Traditional Korean processed agricultural products specified by the Minister of Agriculture and Forestry, which was designed to provide value addition to traditional Korean products.

Quality certification of fishery products is provided for 3 types of products: fishery products, special fishery products, and traditional fishery products.

HACCP is implemented in Korea by three governmental bodies depending on the food category, namely KFDA, National Veterinary Research and Quarantine Service, and National Fishery Products Quality Inspection Service. So far 97 plants had been designated as HACCP-compliant plants.

Korea Accreditation Board (KAB) has been entrusted with the task of ISO9000/ISO14000 accreditation by the Korean Agency for Technology and Standards, which is under the MOCIE. It plays a main role in administering the accreditation system in Korea using the Quality Management & Industrial Product Safety Management Act (ISO9000) and Promotion of Industrial Structure Act (ISO14000). Korean government provides various benefits to the certified industries such as tax exemption, funding for certification, etc.

The aim of the most food certification systems in Korea is to secure food safety, increase competitiveness of Korean food products, and provide high quality products to the consumer. The major problem with the most FCS is that the certification system or the certification marks are not widely recognized by the public and the small food industries, which constitute a large chunk of Korean food industry, pay less attention to the system and hygiene management. Collaboration among government, industry, and research institutions is necessary to promote the FCS in Korea. Appropriate government support to industry, industry's commitment to food safety measures, and the research institutions involvement in providing sound scientific information about new and emerging hazards would go a long way in further improving the FCS in Korea.

Lao PDR

Laos become a member of the Codex Alimentarius Agreement in 1995 and bound to fulfill its obligations. The Decree No 035/PCM had established Food and Drug Control Committee to manage Food Certification systems. Food and Drug Department, Ministry of Health acts as Secretariat of Food and Drug Control Committee (FDCC) and has the authority to certify quality of food products, register and accord approval for food imports. The Ministry of Agriculture and Forestry is responsible for sanitary and phytosanitary (SPS) certification.

Laos imports more than double of her exports. The exports include power, garments, wood and wood products, coffee, etc. while imports include fuel, construction materials, food products, vehicles and equipment.

During the last decade the FDCC had issued about a dozen regulations regarding both import and export of food products. Major problems in implementation of food certification are lack of modern technology, limited operational budget and scientific expertise.

Malaysia

Food safety is a complex issue, which is addressed by the health authorities, consumers and it is also an issue of equal importance to the producers. Malaysia has recognized the importance of establishing a safe food supply chain. Concerted efforts have been made to enhance food safety and quality standards in order for Malaysia to be able to compete in regional and world markets.

With the full implementation of ASEAN Free Trade Area (AFTA) in January 2003 and the World Trade Organization (WTO) regulations, greater emphasis is laid on food safety for Malaysia to remain competitive in the ASEAN and the world food markets. Increased awareness among consumers on public health has also underlined the need to address the issue of food safety more vigorously.

In Malaysia, authorities involved in ensuring the safety of food are mainly the Ministry of Health and the Ministry of Agriculture. Food safety is regulated right from the farm to the table to ensure that food products are of good quality and safe for consumption.

The food certification Schemes that have been developed in Malaysia indicated the seriousness on part of the government in promoting the food safety. The schemes are the Malaysian Certification Scheme for Hazard Analysis and Critical Control Point System (MCS HACCP) which describes procedures to be applied to food premises to secure HACCP certification and The Farm Accreditation Scheme of Malaysia (SALM) which recognize and accredit farms that adopt good agricultural practices (GAP), operated in an environmentally friendly way and yielding products that are of quality, safe and suitable for consumption.

Fifty seven premises have already been certified under MCS HACCP and 71 farms succeeded in obtaining SALM certificate.

Mongolia

While implementing the open economic policy, one of the main issues encountered by the policy makers is how to enhance the competitiveness and quality of food products to be supplied to the domestic market. Mongolian National Center for Standardization and Metrology (MNCSM) is a government regulatory agency responsible for coordinating and managing metrology, standardization, testing and quality (MSTQ) issues throughout the country. MNCSM is also responsible for standardization, quality assurance and accreditation to ensure safety of food stuff, protect environment and consumer rights, improve the quality and competitiveness of products and services.

Besides MNCSM, State Professional Inspection Agency through its Local Inspection Departments, and Mongolian Food Association are engaged in dealing with issues related to food certification system in Mongolia. A draft Food Law came into force in 1995. Quality Assurance and Conformity Mark Law was introduced in 2003. In Mongolia a total of 508 standards are followed of which 196 have reached the international level. By the year 2001,171 products of 28 companies were granted conformity marks. As yet, the Quality Management Certificate is granted to only one enterprise “Gobi” which implemented ISO 9000 system. Besides many national brands are preparing to meet the requirements for obtaining quality management certificate.

MNCSM has already developed close rapport with concerned, regional, international and foreign, agencies and is a member of many international organizations working for food standards and safety. To reduce technical difficulties and facilitate smoother trade and commerce, Mongolian government has specified conformity assessment procedure and technical regulations. Also several agreements on product certification and quality were entered with China and Russia.

While sixty percent of the Ham and meat manufacturers had failed in HACCP assessment in 2003, 45 percent of the beverage manufacturers failed chemical and microbiological tests.. Main problems in enhancing FCS of Mongolia are lack of expertise with the concerned organizations, limited financial resources, lack of well-equipped laboratories, lack of technical manpower, low awareness among small and medium food enterprises about the food safety.

Mongolian FCS is still in infancy and further improvement require concerted efforts of all the stakeholders as well as strong political commitment and the FCS also need to secure the trust of consumers by proving its effectiveness in domestic markets.

Nepal

The Food Act 1966 and Food Regulation 1970 form the basic legislative framework with a clear mandate to ensure safety and quality of food meant for consumers. The major food control infrastructure consists of inspectorate, laboratory facilities and enforcement mechanism. The Dept. of Food Technology and Quality Control (DFTQC) with five regional laboratories is the main Government Organization responsible for Food Control mechanism with overall responsibility of Food Certification Systems.

DFTQC conducts inspection, laboratory investigations in local markets, import points and industries. The Chief District Officers are responsible for enforcement activity. Laboratories of DFTQC are equipped for proximate analysis, adulterant and contamination detection like pesticide residues, aflatoxin, heavy metal, radioactivity, and microorganisms.

Food certificates are issued for food import/export business, licensing to industries, legal action, lot/batch certification and various other purposes. For importation of food in to the country, supporting

documents related to quality, originality, fitness for consumption, labeling of the product is compulsory from exporting countries. The product is imported only after the test report is provided by DFTQC about its quality and similar type of quality assurance services are extended to exporters also.

Nepal Quality Certification Mark (NS Mark) provided by the Nepal Bureau of Standards and Metrology (NBSM) under the Ministry of Industries (MOI) on any product gives the third party guarantee of the product. NBSM fixes the quality standards and assign quality marks to the branded products. NBSM provides voluntary standard, whereas standard fixed under Food Act is the minimum mandatory standard required for the food products.

DFTQC has several activities for ensuring the safety and quality of food products such as amendment of Food Act/Regulation to harmonize in the context of WTO with codex principles, standards and guidelines, strengthen food safety control structure and mechanism, introduction of GAP, GVP, GMP, GHP in food production, processing and business, shifting of food standards from vertical to horizontal as well as to enhance consumer awareness. GMP has already been implemented in Dairy Plants with satisfactory results.

Food Safety problem is very challenging and complex due to product development in unorganized small scale sector and import of sub-standard quality items through open borders with neighbors. The issues and problems associated with food control system are -Inadequate quality control infrastructure, uncontrolled use of food additives, pesticides, fertilizers, inadequate consumer awareness about quality and safety, Ill equipped laboratories and lack skilled personnel and training facilities.

To enhance national FCS, the Food Acts and Regulations need to be harmonized with Codex Standards and food control infrastructure strengthened. GAP,GVP,GMP,GHP are required to be implemented effectively with more emphasis on consumer awareness programs.

Pakistan

Despite experiencing phenomenal industrial development, Pakistan is still a predominantly agrarian economy. Agriculture still accounts for 29.2 per cent of the GNP, and is the largest single sector of the national economy. At National Pakistan Standards and Quality Control Authority (PSQCA) and Pakistan National Accreditation Council (PNAC) are responsible for assessing quality and supervise certification agencies, laboratories, provide training and personnel in the relevant fields. At provincial level food standards are adopted from Pure Food Rules 1965 and are governed by Provincial Health and Food Departments, and District Governments. A food inspector is a key person in the enforcement of pure food rule 1965. Public Analyst institution works under pure food rules 1965 following the prescribed standards.

Pakistan generally follows Codex rules and guidelines regarding the importation of bulk food items as well as food ingredients. Pakistani exporters and manufacturers have geared up efforts to obtain ISO-9000/ISO-14000 certificates. Government of Pakistan has announced a subsidy of PK Rs.200,000 (about $US 3509 @ $US 1= PK Rs. 57.00) for each unit as an incentive for certification. Currently, 13-14 international bodies are operating in private sector, providing quality and environment certificates to local companies. In view of the present scenario government has established an ISO 9000 Cell, staffed with experts, within the headquarters of Export Promotion Bureau. Training courses are conducted in areas like Quality Management systems.

Food safety situation in Pakistan is not encouraging as the incidents of food contaminated with pesticide residues, usage of non food grade colors in confectionery and untreated polluted water in production of vegetables have been detected.

The main food marketing organizations in the public sector are Directorate General of Food (DGF), Pakistan Agricultural Supply and Storage Corporation (PASSCO) and Trading Corporation of Pakistan (TCP) and each handles specific food stuff and marketing strategy. The potential of Pakistan's agriculture is much more than its existing; but the marketing inefficiencies like lack of quality intelligence, insufficient infrastructure, exaggerated role of middlemen, adulteration, hoarding and profiteering, over pricing of various services, collusion amongst traders to control prices and mismanagement of input-output markets are the important shortfalls resulting in small amount of marketable surplus.

Pakistan's trade and investment regime is fairly liberal. Pakistan is a member of the WTO, ECO (Economic Cooperation Organization) and SAARC (South Asian Association for Regional Cooperation). There are concerns that Pakistan might continue to face serious challenges in its socio-economic development , as it moves towards integrating WTO laws into its economy. Product standards under Technical Barriers to Trade (TBT) and Sanitary and Phytosanitary Measures (SPS) are also a source of concern in Pakistan.

Implementation of quality control systems is hitting road blocks due to non availability of trained manpower, equipped analytical laboratories and updated food laws and regulations. Review of quality control laws and standards in tune with the international standards, improving food inspection and sampling process, strengthening food laboratory analytical techniques and setting up of national export food certification program, marketing of quality products could help to improve FCS in Pakistan.

Philippines (1)

There are two types of food certification systems (FCS) being implemented by the government of Philippines. The first type is the provision of FCS to comply with the requirements of export markets.

The second type is the provision of FCS as a government strategy to promote food quality and safety for domestic consumers and food exports on a voluntary basis. The system is also being implemented by the Joint Management Committee (JMC) which consists of the following government agencies: 1) the Bureau of Food and Drugs (BFAD) of the Department of Health, 2) BFAR of the Department of Agriculture, 3) the Food Development Center (FDC) of the National Food Authority, Department of Agriculture, and 4) the Bureau of Export Trade Promotion (BETP) of the Department of Trade and Industry. The JMC was created in response to a Presidential Directive dated May 27, 1997 to harmonize certification and accreditation programs in the Government.

Presently fifty-seven (57) seafood plants are certified by the BFAR complying with the EU requirements. The JMC has certified 37 food plants for GMP and 22 food products for HACCP implementation.

The Philippines FCS has contributed to strengthen the Philippines food industry by improving its capability to meet the requirements of importing countries, creating greater awareness of food safety requirements and understanding of the application of food safety principles in government and industry and streamlining government procedures for food inspection.

The FCS found to be most extensive in the seafood sector primarily because of importing countries' regulations and application by the SMEs is slowly increasing for the same reason.. However, there is a need to provide assistance to SMEs to acquire and maintain their certification through continuous information dissemination and training, provision of soft loans for plant modernization, and subsidies.

Philippines (2)

The application of Food Safety Systems is an inevitable part of ensuring food safety and consumer health in the country. The Philippines government, through different agencies continues to strive for the adoption of the highest level of food safety. Different laws and legislations serve as the basis and support for the implementation, monitoring and regulation of food safety concerns.

The Department of Agriculture (DA) and the Department of Health (DOH) are the lead departments involved in food safety. Regulatory agencies involved in food safety are mainly the BFAD which is under the DOH; the Bureau of Plant Industry (BPI), Bureau of Animal Industry (BAI), BFAR, Bureau of Fisheries and Product Standards (BAFPS), Fertilizer and Pesticide Authority (FPA), and the National Meat Inspection Commission (NMIC) are the frontrunners in food safety under the umbrella of the DA.

The large number of detention cases encountered by the Philippine exports indicates a dire need for inspection, surveillance and monitoring of traded goods. Similarly, major issues on food certification systems in the Philippines include the need for: education and development of food safety systems applicable to the micro firms and small and medium industries (SMI), monitoring and surveillance of food industries, lack of laboratories and infrastructure for the analysis and verification procedures, testing of more models of collaborative approaches to food safety, and preparing consumers for the technology innovations.

The JMC involving the BFAD, FDC and BFAR has been active in the accreditation of food industries, especially in the exporting community.

Meeting the challenges of enhancing FCS requires education, especially on the part of SMEs and intensive networking among government, academia, industry and NGOs. Moreover, capacity building, training and infrastructure support are needed to strengthen the FCS in the country.

Sri Lanka

Sri Lanka maintains strict standards to ensure the quality of the food commodities. The main controlling body for local standards is the Sri Lanka Standard Institute (SSI), while there are other semi-governmental organizations and private organizations, which are mainly issuing quality certificates especially to

fulfill the export market requirements. The SSI with the assistance of other Governmental Departments, universities and food Industry, formulates and implements quality parameters for the local market. In addition, the SSI is awarding ISO, HACCP and GMP certification on demand.

Local standards were set for about 60 food items. However, at present, only 9 food items are required to comply with the minimum standards set by the institute. In Sri Lanka about 65 organizations obtained certification for the standards, which is not mandatory. In food sector, there are 22 organizations with ISO, while 10 organizations have obtained HACCP certificate already. The GMP certification process has just been initiated by the Institute, but no certificate is awarded as yet.

In the context of current world trends in marketing, Sri Lankan Government has identified the importance of certification systems, which are accepted by the global consumers. As a first step awareness programs and training programs on ISO, HACCP and GMP systems are being conducted on regular basis. The current consumer concerns about safe foods and food contamination problems remind the general public to be more concerned about quality assurance systems. In addition, product certifications in Halal, organic and bio-dynamic labels add value to the food products in niche markets.

Taking the current world trends into account the Ministry of Agriculture and Livestock has already launched a series of programs to produce and market, high quality and safe food for local and international markets. In this regard, the ministry is in the process of drafting a legislation of procedures to ensure adherence to international standards for maintaining quality. Also, the concerned authorities have launched programs to promote environment friendly production methods such as organic agriculture, which maintains high standards of quality for niche markets, as a strategy to increase export income.

At present Sri Lanka exports fair amount of tea, spices & condiments, fruits, coconut, cashew as certified organic products. However, the certification is carried-out by international organizations and the high cost involved in the certification is hindering the popularization of organic cultivation. Recently the Ministry of Agriculture and Livestock has amended the agricultural policy and included organic agriculture as a sub-sector. Availability of a local certification system for organic agriculture will be a boost to local organic cultivation program, as it will reduce the certification costs and make the process accessible to small and medium scale cultivators. The quality improvement programs and internationally valid certification systems would help in increasing the international market share of the local food industry.

Thailand (1)

Food industry, as compared to other industries, does not employ sophisticated and advanced technology. On the other hand, it is exceptionally diverse with a variety of raw materials and products, food processing machinery and equipment.

Because of the perception that the food production does not require high technology, number of food companies, which started off as home businesses inside the kitchen, have grown over the years all over Thailand. Many of these companies are small and were established primarily to utilize agricultural harvests in nearby areas. Since the government has switched its national policy from Import Substitution to Export-promotion, which emphasizes production for export, Thailand become the world's leading exporter of agricultural and food products. Thailand is one of the top global food producers producing a wide range of food products. The major food export markets include Japan, the United States, and the European Union.

Thailand has a total of 57,217 food factories with 4% in large scale and the remaining in small and medium scale sector. Mostly large and medium scale factories are involved in producing food products meant for exports.

Laws and regulations including the customer requirements of the importing countries have a major bearing on the quality assurance systems in the food factories in Thailand. The important quality assurance and food certification systems implemented in food industry in Thailand are GMP, HACCP, ISO 9000, and ISO 14000.

Food safety system certification such as GMP&HACCP is a big issue in Thailand. The principal regulatory organization for food safety system implementation and certification is the Ministry of Public Health with the Department of Health and the Food and Drug Administration (Thai FDA) as the supporting departments in charge of the food service sector and food industry, respectively.

Because of the country's export-oriented policy and the large number of food processing plants, the Ministry of Public Health's duty as the principal regulatory agency has become increasingly overwhelming. Therefore, there are several supporting departments, which also assist food manufacturers in implementing

food safety system. These organizations include the Department of Fisheries and the Department of Livestock Development under the Ministry of Agriculture and Cooperatives, the Department of Medical Science under the Ministry of Public Health and the Thai Industrial Standard Institute under the Ministry of Industry.

Lack of management and implementation of GMP and HACCP systems at national level, lack of management commitment, lack of qualified personnel, lack of coordination between the industry, government, and certifying agencies, lack of suitable educational programs for development of human resources and the lack of research data to support GMP&HACCP system implementation are some of the issues hindering the progress of FCS in the Philippines.

Thailand (2)

Thailand is one of the world's leading producers of agricultural products such as rice, sugar, tapioca and pineapple. At present most of the food factories in Thailand are categorized as small-and-medium- sized enterprises (SME) and the management practices of these companies is rather poor.

The current quality management and food safety certification systems being implemented in food industry in Thailand are GMP, HACCP, ISO 9000, and ISO 14000.

The major problems in the implementation of Food safety system are old machinery, inefficient production process, lack of awareness about food safety and hygiene and lack of legislation and enforcement. The principal regulatory organization for food safety system implementation and certification is the Ministry of Public Health supported by the Department of Health and the Food and Drug Administration (TFDA).

The primary role of the TFDA is to control and monitor the safety of food products manufactured in Thailand as specified in the Food Act of B.E. 2522. The TFDA also has the responsibility to ensure that the development of such control measures are in tune with international standards .A total of 377 factories have received HACCP certification, though majority of SMEs are waiting for the government support to acquire the same. Thai Industrial Standard Institute (TISI), National Food Institute and Thailand Productivity Institute are providing training to SMEs in food safety and quality related issues. With all these efforts the certification process has gained momentum among Thai companies. Further GMP, HACCP and ISO 9001 could be integrated together to make them highly cost-effective and penetrate the food industry.

Vietnam

Vietnam is exporter of many food items with seafood (frozen fish, shrimps, etc.) accounting for $US 2.23 billion. Major export of agricultural products include rice, tea, coffee, spices and vegetables.

Growing domestic demand for processed fruits and confectionary coupled with the promotion of canned food and frozen seafood in the domestic market has resulted in the capacity increase in the food processing sector.

In Vietnam, there are two kinds of food certification namely system certification (especially GMP/HACCP) and product certification. At present customers have little trust in domestic products and the problem is further aggravated due to lack of efforts to promote certification services.

Government efforts for enhancing food certification include development of standards, food inspection control and labeling requirements, among others. After several delays, the Food Act has been enacted and in force since Nov. 2003. Certification process is mandatory by self-declaration in conformity to Vietnamese National standards.

FIELD VISITS

The participants visited the following facilities in Hyogo Prefecture, Japan:

1. Co-op Food Plant, Rokko Island, Kobe
2. Co-op Happy Days Ashiya Shop, Kobe
3. Hyogo Prefecture Government Office

1) Co-op Food Plant, Rokko Island, Kobe

The Co-op Food Plant (CFP) is located in Rokko Island of Kobe with a land area of 30,000 sq. meters and approximately 400 employees. It is directly operated by Consumers Co-operative Kobe (CCK) which is the oldest (established in 1921) and the largest co-op in Japan with 1.4 million members. The unique characteristic of the CFP is that it is operated by using revolving funds as shares of the consumers and

supplies food only to the CCK members. The total revolving funds are 34 billion Yen. The CKK enjoys annual sales worth 300 billion Yen, of which 200 billion Yen come from the supermarkets' sales and 100 billion Yen from the home delivery sales to the members.

The goals of CFP are the same as their members; to make products that satisfy all facets of the consumption of food. The CFP makes food that tastes good, consistent in safety and quality control and sold at the most reasonable price. The CFP manufactures 500 kinds of foods. The main foods include bread, confections, noodle and tofu. The co-op brand was introduced in 1987. The plant's slogan is "*attractive, tasty, safe and easy to use food"*.

Since consumers' demand has changed over the recent years, the CFP is trying to satisfy consumers' demand by using traditional raw materials containing no additives, and by producing diverse food products. After the incidence of food hazards like BSE problem, bird flu (influenza), contamination of snow-brand dairy products, etc. consumers become very much conscious of food safety. Thus CFP is not using any genetically modified soybeans or any other materials, and products with post-harvest chemicals. Plant has introduced traceability system and all components of the food products are labeled with comprehensive safety measures for improving the sanitary conditions of plant in place. The CFP observes much stricter standards for food product certification than Japanese National Standards and food poisoning bacteria are kept virtually at zero. The plant has a well equipped laboratory for checking the safety of food products.

The plant was certified with ISO 140001 in 1999. The plant has established its own Waste Treatment Facility, which recycles about 21 tones of waste food residues produced every day. About 95-97 percent of the food residues are recycled to produce electricity and minimize waste production.

2) Co-op Happy Days Ashiya Shop, Kobe

The participants visited the Food Section of the Co-op Happy Days Ashiya Shop of the Consumers Co-operative Kobe (CCK), whose logo is *Happy Days*. The shop provides its members nearly everything they need under one roof. The shop is meant only for members of the CCK and any one can become member of CKK by paying a membership fee of 5000 Yen. However to become eligible for dividend final deposit should be 30,000 Yen. The balance of 25,000 Yen could be paid in installments of 1,000 Yen. The dividends of the Co-op are distributed among its members based on their shares.

The Food Section of the shop has all sorts of domestic and imported food items. Each food item is unique because of its quality and safety. For example, fruits and vegetables are almost organically produced with minimum use of chemicals, fish are produced on aqua-farms without using antibiotics, etc. Though prices of the fruits, vegetables, fish and other food products seemed to be a bit higher than those in supermarkets, the shop was crowded with customers. It was evident that a benign cycle was going on, i.e. CCK management was trying to provide its members with safe food products of best possible quality, while members are ready to spend more to get good quality and safe food showing their confidence in the CCK management.

3) Hyogo Prefecture Government Office

Mr. Michio Fujiwara, Deputy Director of Agriculture Department, Hyogo Prefecture Government welcomed the participants. Mr. Fujiwara briefed the participants on salient facts about Hyogo Prefecture. Thereafter, he discussed the various measures Hyogo Prefecture Government was undertaking to provide the citizens of prefecture with safe and good quality food products.

Hyogo Prefecture has an overall area of 8,390 square kilometers, with a population of about 5.5 million. Most of the Prefecture's population (about 90 %) resides in the urban areas. Forests cover approximately 67% of the total land area. Fisheries are another major industry followed by cultivation of seaweed and young sardines. Food self-sufficiency rate in Hyogo is only 17 % due to high population. Both the Central and Prefecture governments are striving hard to raise the self- sufficiency rate but as yet much success could be achieved.

The Prefecture Government has also undertaken special measures to improve quality and safety of food products. For this purpose, they have introduced independent unique brand systems for the processed food and raw farm products as follows:

A) Hyogo Food Brand (HFB)

The HFB was introduced in 1990 for improving quality and safety of the processed food. The objectives were: a) to increase farmers' income, and b) to increase supply of safe and quality food to the citizens of the Prefecture. To attain this brand farmers' groups (a minimum of 3 farm households per group) or agricultural cooperatives are required to manufacture food products of higher standards than the Japanese national standards, and food must be in compliance with the national law.

In 2003, this brand was provided to 173 food items coming from 130 enterprises. The Hyogo government is providing support in getting this brand by: a) guiding the enterprises in food processing technology, conducting on-site inspections to ensure safety and quality of food, and providing new business opportunities with the necessary logo. This logo is also called the "triple E" logo, which means excellent quality, exact expression and harmony with ecology. The food products with HFB logo are becoming very popular as indicated by significant increase in the sales of branded products over the past 3 years. For example, their annual sales increased from 1.326 million Yen in 2001 to about 3 million Yen in 2003. Buoyed by the success of HFB, 23 other Prefectures have also introduced their own food brands to improve quality and safety of food for their citizens.

B) Hyogo Safe Farm Product Brand (HSFPB)

The Hyogo Prefecture Government introduced the HSFPB in December 2001. The objective of this brand was to encourage farmers to use environment-friendly agricultural practices in order to produce good quality, safe and reliable farm products for the Hyogo citizens. In response increasing number of farmers' groups/agricultural cooperatives are producing organic products or products with very low level of chemicals (10 percent of the national standards). In 2003, about 3,573 tones of farm products were produced under the HSFPB, vegetables being the main item. This brand is granted to a farmers' group comprising at least 3 farm households or to agricultural cooperatives. Mr. Fujiwara explained responsibilities of different parties as well as basic requirements for getting this brand. The issues the Prefecture was facing include low value of the farm products in absolute terms, lack of a safe brand for livestock and green products, non reflection of cost of certification in the price of products, distrust of consumers in food safety due to incidence of BSC and Bird Flu, and Scandal of Snow-brand dairy products, and declining purchasing power of consumers.

WORKSHOP OUTPUT

A workshop was conducted to stimulate creative thinking among the participants as well as to provide an opportunity for further discussion and sharing of views and experiences among them. They were given a hypothetical case study to work on. A challenging scenario of "development of standards for a new food product for better international competitiveness and marketing" was presented. To promote interaction among the participants, they were divided into three small groups as follows:

Group I: Mr. Abdur Rouf (Bangladesh), Dr. Riteshni Tarak (Fiji), Dr. Prem Kumar Jaiswal (India), Ms. Altangerel Khajidsuren (Mongolia), Mr. Alberto R. Cariso, Jr. (Philippines), Dr. Suwimon Keeratipibul (Thailand)

Group II: Dr. Mehrdad Tajkarimi (Islamic Republic of Iran), Dr. Jeong-Weon Kim (Republic of Korea), Mr. Bounta Athitang (Lao PDR), Ms. Sandhya Karmacharya (Nepal), Dr. Faqir Muhammad Anjum (Pakistan), Ms. Janna Sanguanroongvong (Thailand)

Group III: Ms. Guey-Pyng Lin (Republic of China), Ms. Ennatha Sri Haryani (Indonesia), Ms. Norma Othman (Malaysia), Mr. Gilberto F. Layese (Philippines), Dr. D. B. T. Wijeratne (Sri Lanka), Mr. Nguyen Quang Dung (Vietnam)

In order to stimulate creative thinking on part of each group, they were asked to associate their approach to the challenge with an inanimate object picked at random by one of the team members from the "idea bag". The objective of this approach was to force members of each team to think laterally when coming up with a solution/approach to the challenge. Each team was asked to work to solve the problem and arrive at a creative yet practical solution.

The Challenge Scenario

Our changing food habits have opened up many new opportunities for products from developing countries. Tremendous quantities of natural herbs are now being sold to Europe and North America in the health food markets. Exotic fruits are appearing in more and more supermarket shelves.

Now we discover that there is a tremendous new potential market for freeze-dried or concentrated coconut water (not coconut milk) in Europe. Because coconut water has an excellent balance of electrolytes it is considered an isotonic beverage and can easily fit into the enormous market for sports drinks. The great advantage of coconut water is that it is natural and not a blend of synthetic chemicals. However, because it is such a new product, there have not been any international (i.e. CODEX) or national standards set out to define the product as yet. The first country/company to set such a standard for the product and have it

accepted will gain a tremendous head start in the marketplace. Of course, a specific high quality certification would lend confidence to the product in the marketplace as would a well-designed HACCP system to control this delicate product.

The challenge then is how to go about the process of getting standards accepted internationally and providing national producers a commercial advantage of being first on the market with a certified product. The planning, timing, logistics, and coordinating out of government ministries, national standards associations and industries have all to be taken into account as well as ensuring the highest quality standards for products.

The members were encouraged to spend as much time with each other as possible in order to gather together and refine their thoughts.

Each team was asked to make a 30-minute PowerPoint presentation demonstrating how they associated their approach with the object selected at random; what their approach was; how they planned the timing to meet the challenge; coordination; logistics, etc. Each presentation is summarized as follows:

GROUP-I

1. Problem

How to forward a standard for freeze-dried young coconut water to an International Standard setting body and how to do this by associating an inanimate "object" that was received.

2. Inanimate Object Received

A packet of eight bouncing balls of different sizes and colors.

3. Solution

The group agreed that the standard to be formulated would be submitted to CODEX. The group reviewed the procedure on how the CODEX establishes a standard.

Following are the steps to be taken that are recommended by the group in forwarding to CODEX a standard for freeze-dried young coconut water:

1) A draft standard is to be formulated by the concerned exporting Asian country. The draft standard will contain all the required sections following the format of CODEX. This will include sections on product description' physical, chemical and microbiological specifications, and others. The draft standard will be explicit in requiring that the product shall be made from fresh young coconut water only. It will also explicitly specify the potassium and ion contents of the finished product to differentiate the product from other types of similar drinks. This activity is expected to complete in six months.
2) The draft standard will be submitted to other country groupings for comments to seek their support for its approval in CODEX. In this step where the group associated the "bouncing balls" that were received. The "bouncing balls" represent the "different country groupings" that are to be approached and sought their support. Examples of these groupings are: a) ASEAN, b) USA, c) EU, d) SAARC, e) NAFTA, f) BIMSTEC, g) OIC, and h) OECD. The comments from the different country groupings are expected to come within a year.
3) The National Codex Contact Point of the concerned exporting country who drafted the standard will follow-up the support of the country groupings. The follow-up activity will take about a year to complete.
4) While doing the steps #2 and #3, the draft standard will also be forwarded to CODEX Executive Committee for consideration and approval. This is done through the CODEX ASEAN as this will give more weight on the submission. Review and consideration by the CODEX Executive Committee is expected to be complete within another year.
5) The approval of the standard by the CODEX Executive Committee could be achieved within another year. As a CODEX standard is adopted through the consensus of its members, the success of the approval of the standard could only come from the efforts and success of getting the support of the individual country groupings.

4. Conclusion

As we agreed that standard setting should be based on science and the specifications established should be measurable, it must be recognized that support of individual members of the international setting body must be sought. This is applicable in CODEX as presently the approval of standard is based on consensus.

The support of individual members could be effectively sought through the "country groupings" which this group would like to associate with the "bouncing balls" that we received.

The standard when approved hopefully will be used to facilitate trade and not to restrict marketing in countries that like to consume it.

5. Addendum

This group also discussed on how to help the national producers in successfully manufacturing the product. Following steps were suggested:

1) *Apply for Patent:* The Department of Science and Technology who developed the technology would submit an application for patent. The application for patent will be submitted to different countries that can manufacture it, to protect the product from copying by others. The submission of application for patent is expected to complete within a month.
2) *Market Survey:* A market survey will be conducted to establish the market requirements of the product and the volume of raw materials available to produce it. The survey will be carried out by the Department of Trade and Industry and completed in six months.
3) *Transfer and Adoption of the Technology:* Transfer of technology to collaborating industries will be done by the Department of Science and Technology. In this step, the group also associated the "pack of bouncing balls" as a "pack of inputs that are needed to successfully manufacture the product". The "pack of inputs" include a) GMP procedure, b) HACCP plan, c) Code of practice of manufacturing the product, d) training manuals and others. This activity is expected to be complete in six months.
4) *Actual Manufacture of the Product:* The product will actually be manufactured in the plant of a collaborating industry. Troubleshooting on manufacturing problems will be provided by the Department of Science and Technology. This activity is expected to be complete within 12 months.
5) *Inspection and Certification:* Inspection and certification of the food plant and the product will be carried out by the Department of Health. This is expected to be complete within 12 months.
6) *Promotion and Marketing:* Promotion and marketing of the product within the country and in export markets will be carried out by the Department of Trade and Industry. This is expected to be complete within 24 months.

GROUP-II

What Is the Challenge?

The object in the box contained a medical kit containing a syringe, thermometer, medicine and stethoscope. These items are used for diagnosis, health care and treatment when a patient arrives at a doctor's clinic. Therefore, the group decided to approach with a concept of 'health': food safety and health benefits. And our strategy is how we can produce concentrated coconut water that is safe and better than the competitors.

What Is the Market?

The coconut water is sold either in natural form or in various forms of packaging (Tetra-pack, canned etc.). Our team decided to choose the consumer product instead of commodity due to wider market size and profit levels. The group decided to address the following issues:

1. How can we differentiate our product from others?
2. How can we ensure the safety and quality of our product?
3. How can we sustain the market amidst global competition?
4. How can we utilize the legitimate systems to get domestic/international standard such as Codex?

1. Characteristics of Our Product

The product is concentrated coconut water, pasteurized with micro-filtration and concentrated with ultra filtration, which retains the unique natural flavor. The product is rich in natural K and fortified with vitamins C & D and mineral Ca. It is be free of any preservative having three months shelf life. The company will be the first to adopt the national and international standards for the concentrated coconut water. The product will be certified for the following:

- Level of K
- Level of all vitamin contents
- Level of sugar
- Free of any additives and preservatives
- Three-month shelf life at 10 Degree Centigrade
- HACCP

- ISO9000/2000
- ISO14000
- Accredited laboratory with ISO17025
- "Natural' as well as 'health-oriented'.

2. Product Safety and Quality

Safety and quality of the product is ensured by adopting the following systems from cultivation to consumption .

1) Good Agricultural practice (GAP)
2) ISO 9001 / HACCP - ISO 15161
3) Traceability system from farm to playground.

1) *GAP:* The national agricultural department and association of coconut producers will be approached to procure high quality coconuts free of undesirable contaminants adopted with codex MRL and with high standards including the following:
   - Location of the farm
   - Soil analysis including nitrate, Cd and Pb
   - Qualified and educated personnel
   - Pesticide analysis
2) *ISO and HACCP:* Adoption of ISO 9001:2000, ISO17025, ISO 14001 and HACCP for both quality and safety of the product will be ensured. Establishment of quality control laboratory with ISO 17025 to control all ingredients of coconut water such as potassium, vitamins, and microbial, chemical contaminant analysis is contemplated.
   It is proposed to sterilize the product by bactofugation, which is the state of the art micro-filtration technology without any heat treatment and loss of nutritional value and natural flavors.
   Training of personnel in GMP and other safety practices is also visualized.
   HACCP system approved by the USDA and FSIS for juice is to be adapted to expand market to the USA and other major countries.
   Product is to be patented for domestically as well as to other major countries.
   Product has to obtain a special trademark for domestic and international marketing.
   To ensure the system for the safety and quality of the products training in following areas is contemplated:
   - Farm workers: regular GAP courses
   - Factory workers: regular GMP, C&D, and HACCP courses
   - Lab technicians: regular GLP and ISO 17025 courses
   - Internal HACCP auditors: regular HACCP courses, EUROGAP, BRC, FDA HACCP etc.
   - All people involved: IT system**,** ISO 14001

   Internal auditing frequency of three-months, external auditing each year, and third party auditing every two or three years except for the major changes in the processing lines is proposed.
3) *Traceability:* Traceability system is proposed be applied and documented in the food safety plan. This is expected to help in identifying the problems by reviewing the information available at each step.
4) *Marketing:* A unique advertising company for marketing is proposed; Health benefits of product will be highlighted through labeling; EUROGAP, BRC or SQF 2000 will be implemented to tap European markets.
   To expand the global market for our product, food certification system will be improved as far as possible in accordance with new food certification system at the international level.
   Improvement of market based on '4 P principle', price, product, place and promotion is proposed.

4. Acquisition of Domestic and International Standards

To become the first company to have the national standard for the concentrated coconut water, close liaison with the Ministry of Agriculture, Ministry of Health and Ministry of Commerce will be maintained in addition to coconut growers to set up the standards.

A draft is to be submitted to the National Codex Contact Point with national standards and a meeting of the National Codex Committee for coconut water is also contemplated (concentrated and freeze-dried) to set up a Codex standard.

Time Table

Category	Project	Time (Yr) 0	0.5	1.0	1.5	2.0	2.5	3.0
Product								
Safety/Quality GAP								
	HACCP							
	ISO 9000							
	ISO 14001							
	ISO 17025							
	BRC, SQF2000							
	USDA HACCP							
	Education & Training							
Marketing	Advertisement							
	Health Labeling							
	4P Principle							
Standards	National Standard							
	National Codex Committee							

GROUP-III

Coconut Water Concentrate

Nut water from the Desiccated Coconut (DC) Industry, will be used to keep prices competitive. It must be noted that nut water from DC Industry and that of young coconut differ only in sugar content and not in mineral content, which is the key element in sports beverages. The SWOT analysis had shown that producing the intermediate concentrated nut water is more advantageous than producing freeze dried product or the final sports drink. The use of expensive freeze drying methodology is not necessary for a non-heat sensitive commodity such as coconut water. Production of the final product (sports beverage) is also not feasible as producer has to spend heavily on transportation, storage and product promotion. The product will be concentrated 20 times to achieve Brix 60 level without affecting the functional properties. Also, high concentration is possible with a normal triple effect concentrator due to non-existence of fiber and other water insoluble particles in coconut water.

The critical control points of the product process line were identified and the waste management was regulated so that the system can achieve HACCP and ISO 14001 certification. The product specifications and packaging requirements were determined taking potential buyer requirements into account. The cost calculation was done based on 200-liter packs. The factory will produce 50 packs per shift and operate 3 shifts a day for 6 days in a week. The by-products of the coconut water will be processed either at the facility or traded to concerned industries. The flesh of the coconut will be processed in-house (separate facility) into canned coconut cream, which has high market potential and a good profit margin. However, the husk will be sold to coconut fiber and coconut powder brick makers and the nutshell will be disposed to active carbon manufacturer. The oil from the wastewater is separated at the processing facility and will be sold to soap manufacturers.

This activity will generate a high profit margin, as we are using a by-product of DC industry. At present, many countries run either DC industry and/or coconut cream canning industry with comfortable profit margins. The total investment is in the region of US $ 8 million and the pay back period is less than 4 years according to projections.

A multi disciplinary marketing strategy is contemplated. Since the product is an intermediate product, target of promotional activities will be towards sports beverage manufacturers in Europe and North America. Launching of a web site and participation in relevant trade fairs, especially “Food Ingredients” in Europe and “Natural Products” in Baltimore and Anaheim in USA is planned.

Implementation of Product certification system at the earliest is proposed to achieve gain long-term confidence of buyers and competitive marketing edge.

CONCLUSIONS

Problem	Cause	Solution	Action Plan
Fragmented structure of the Food Quality Assurance / Control responsibilities, legislation and mechanism, due to involvement of various ministries in providing certification	Different Ministries issue (the same) certificates for the same products.	- Reorganize the system of Food control and minimize the Ministries or aim for one agency or a National Food Authority - Harmonize legislation	- Formulate national Food safety Strategy - Follow the FAO/WHO document: "Assuring Food Safety and Quality: Guideline for Strengthening National Food Control Systems" - Apply for FAO/WHO trust funds
Local laboratories in some countries are accredited at the national level but not at international level.	Cumbersome procedures and lack of expertise and infrastructure meeting international standards and lack of mutual acceptance and recognition agreements	- Establish a national institutional framework for certification and accreditation and at least one accredited laboratory and a board of accreditation - Mutual acceptance and agreements between two laboratories	- Carry out assessment by the WHO/FAO to identify suitable laboratories for accreditation - Provide technical assistance to upgrade the laboratories to the level of accreditation (WHO/FAO) on ISO 17025 - Apply for membership of the IAF - Realization of a National accreditation body by ILAC
Parallel certification by both International and Governmental agencies which becomes a costly affair.	Governments are not recognizing HACCP certificates issued by the international certifying bodies and vice versa.	Establishment of an accredited body within the concerned Ministry to recognizes the certificates	Follow international practices and developments on their merit, as being done by the Ministry of Agriculture in Thailand implement if they are suitable and advantageous under local conditions
Various levels of certified HACCP systems	Countries have different HACCP requirements, which are used for certification purposes by the certifying bodies.	- Certification versus CODEX Standard - Carry out HACCP certification versus ISO 22000 requirements	- Follow HACCP guidelines and Codes of Practices - Follow the developments of ISO 22000 and GFSI
Inadequately trained and limited number of Auditors and Food Inspectors	Lack of training facilities and high expenditure involved in training and accreditation and lack of code of practice	- Prepare a Code of Practice for food inspectors which is internationally accepted - Train Food Inspectors and Auditors in an integrated manner (involving both the private and public sectors)	- FAO/WHO shall prepare a Code of Practice for Food Inspectors, and Auditors. - Allocate/increase technical and financial resources through bilateral and regional programs, FAO/WHO, and national budget
Full certification on ISO or HACCP by international companies is very expensive.	Countries lack local knowledge at various levels for HACCP implementation, auditing and inspection.	- Training, education and implementation of HACCP - Training on an integrated approach for inspection	UNDP/ FAO/WHO/APO to conduct these trainings
HACCP is not yet in the legislation.	Lack of understanding of food safety laws and regulations and its implications by the planners and policy makers	Include HACCP in legislation and provide reasonable time for transition.	Adapt legislation with the assistance and guidance of WHO/FAO

(To be continued)

Higher number of ISO certified food processing companies than HACCP certified companies	- Certification companies strongly promote ISO rather than HACCP. - Lack of awareness of Food Industry about HACCP	A stronger and active role for the concerned Ministries, Commodity Boards, Chambers of Commerce and the Food Processing Associations in launching awareness programs to familiarize the food industry with HACCP	- The competent agencies conduct seminars for the Food Industry to disseminate the benefits of HACCP. - The concerned Ministries contact the certifying companies and make them aware of their responsibilities.
Certifying companies carry out both training and certification.	A conflict of interest arises when the same company is doing training, HACCP implementation as well as certification.	- Certifying companies comply with professional ethics and not involve in both training / implementation and certification. - HACCP training shall be conducted by certified trainers.	- Competent agencies like the concerned Ministries and Chamber of Commerce shall follow up these issues. - The Government ensures a system of certified trainers providing training.
USA and EU have different requirements on Hygiene, GMP and HACCP based on different standards.	Governments have to comply with fish inspection requirements stipulated both by USA and EU.	A memorandum of agreement (MOA) shall be signed for uniformity in inspection requirements.	Initiative by those Ministries involved in the control of Food safety
USA and EU practice different approaches for HACCP inspection.	USA inspects directly where as EU accepts inspection by a local accredited body.	Uniform system of inspection need to be accepted by the respective countries.	FDA and EU shall come out with uniform inspection procedures and systems.
Nationally developed standards which are yet to be internationally recognized	For instance Malaysia has prepared GAP guideline for fresh fruits and vegetables which are yet to be recognized internationally.	Bench mark the standards with the international standards.	Involve Global Food Business Network (CIES) and Global Food Safety Initiative (GFSI) in this endeavor
A lot of regional expertise is available which needs to be exploited and disseminated.	Countries vary largely in their knowledge and level of certification and accreditation.	Regional expertise shall be used to enhance the level of certification and accreditation.	- Involve regional agencies like APO and bilateral cooperation programs - Creation of a website to provide and disseminate information on certification and accreditation
Lack of resource laboratories for comparison of analysis	Harmonization of sampling and analysis methods within the region	Establish laboratories and equip them with trained staff	Involve WHO for technical and financial assistance

1. ENHANCING EXPORT CAPACITIES OF DEVELOPING COUNTRIES THROUGH STRENGTHENING THEIR FOOD CERTIFICATION SYSTEMS--CHALLENGES AND OPPORTUNITIES

Dr. Saipin Maneepun
Director
Institute of Food Research and Product Development
Kasetsart University
Bangkok, Thailand

INTRODUCTION

The agricultural sector has dominated the economies of many developing countries in terms of food security, employment, and export earnings. The important role for governments is assuring that the competitive evolution of industries, including food sector, occurs in an orderly and efficient manner. As food processing is one of the well-recognized value added activities undertaken in developing counties, the basic food safety control program can provide the necessary safeguards on which the sustainable development of this sector relies (WHO, 1999). Globalization of food trade presents a transitional challenge to food safety control agencies in that food can become contaminated in one-country and cause outbreaks of foodborne illness in another. The development of inspection and control systems in food supply chain would be the most appropriate means of ensuring food safety for the consumers.

The most important element of having food safety program established at national level is to provide market access to food products from developing countries, where trading partners increasingly require harmonization with international food standards. As trade in food commodities expands internationally, food safety can no longer be considered only as a domestic issue. There are guidelines, standards and recommendations that international organizations established as the benchmarks for l harmonization. The development of modern food control and safety programs by national governments is vital in order to ensure consumer protection, facilitate international food trade and promote economic growth.

The national plan of action to establish food safety program requires appropriate food safety legislation that assures food safety and consumer protection. The legislation should be sufficiently flexible to meet the changing needs of food sector, the introduction of modern technology and development of new products. The intent of legislation in food safety has been traditionally concerned with the introduction of a control system to address problems of food contamination and to protect consumer health. National governments and major world trade partners are in the process of updating their approach to food safety legislation. Presently, the approach has been changed from “vertical” to “horizontal” to emphasize on risk analysis that apply to all foods. The subject of food quality is seen as matter of principal for food industry to ensure thorough self-regulation.

Normally, inspection of food should have at any stage in the production and distribution process. In some foods, inspection oversight of harvesting, processing, storage, transport, and other handling product would be the most appropriate means of ensuring food safety. According to the methods of preservation used, it should be necessary to maintain inspection oversight on continuous basis up to the time of retail sale. Inspection systems can be focused on the foodstuffs themselves, on the procedures and facilities employed in the production and distribution chain, on the substance and materials which can be incorporated into or contaminate foodstuffs (FAO/WHO, 2000).

As food certification systems becoming important that normally mean to have the effectiveness of food inspection and control measures, there are number of principles in both design and use food certification systems that developing countries can structure their capabilities to ensure an optimal outcome consistent with consumer protection and facilitation of trade. Certification of food may be, as appropriate, based on a range of inspection activities including continuous on-line inspection, auditing of quality assurance systems and examination of finished products.

The validity of certification for export food products may require from those importing countries. Validation measures by exporting countries may include achieving confidence that official or officially recognized inspection systems have verified that product or process referred to in certificate conform to requirements. Measures by importing countries may include point of entry inspection systems; auditing of exporting inspection systems, and ensuring that certificates are authentic and accurate.

The opportunities for developing countries to develop export certification of foods may need the assessment of food safety infrastructure and problems at national level with preparation of a country profile. Although a substantial part of worldwide trade in food, for example in meat and meat products, depends upon the use of inspection and certification systems, the requirements may significantly impede international trade in foodstuffs, therefore, the design and application of these systems should reflect appropriate principles. The paper will provide information on infrastructure required and proposed certification systems that have been successful models in exporting fishery products from developing countries.

DEVELOPING FOOD SAFETY INFRASTRUCTURE AT NATIONAL LEVEL

Developing food safety infrastructure at national level should strengthen the export capability by establishing food certification systems of the country. In regard to protecting consumers to have an effective food quality and safety, governments and other concerned parties have to consider adopting and strengthening comprehensive measures. The control of food quality and safety should be covered with a view to protecting the health of consumers and producers and ensuring sound production, good manufacturing and fair trading practices. The countries have to ensure that regulations should fully take into account the conformity of foodstuffs and the requirements of international standards. The establishment of food safety program at national level requires sharing the responsibility of many different government departments such as health, agriculture, trade and industry, tourism, environment, and import and exporting controls. Coordination between these various departments is essential for an efficient and effective food safety program.

Priority setting during the preparation of food safety program by a government should be based on risk analysis and the use of the hazard analysis critical control (HACCP) system to improve food safety assurance and ensure the effective use of available resources. The HACCP is a cost effective management tool for food safety assurance, that can be applied to all sections of food chain, from primary production to processing, manufacturing, distribution for both export and local retail market to the point of consumption. It is now recognized as an essential tool for use by food industry in the control of food contamination and enhancing food safety. The government should consider to strengthening from the model which has been provided in the publication Guidelines for strengthening a National Food Safety Program (WHO, 1996). The model approach has specific sectors in food chain which consists of 4 steps.

Assessment of Food Safety Infrastructure and Problems at National Level Preparation of Country Profile

The major problems of control and prevention of foodborne diseases have been identified by government authorities with a systematic assessment of all factors that may be relevant to food safety at each stage of food chain. Such information is required at central government level so that effective decision-making is possible. A review of health and socioeconomic issues related to foodborne hazards and identification of functions of all sectors has to include food safety directly and indirectly The strengths and weaknesses of food safety program should be clearly identified and mechanism for periodic review should be established to monitor its continued relevance and effectiveness. The type of information should be collected for the preparation of the country profile and assessment of food safety infrastructure includes; government organization, food production and consumption, food imports and exports, food legislation, epidemiological information, human resources and training programs, extension and advisory services and public education and participation.

Preparation of a National Food Safety Program

A national food safety program has to be carefully developed with a plan and extensive consultation with relevant government departments and food sectors. The program will generally be country-specific because of different cultural, social, political and economic environments. They will also depend on how developed a country is and on the degree of sophistication in the food sector. However, there will be certain fundamental similarities regarding the protection of consumer from unsafe food supply and prevention of

foodborne diseases. The contribution of food safety program can also improve productivity and competitiveness of food products in export markets.

The status of food safety programs varies from country to country. Many countries are still in the process of developing national food safety policies, while the developed policies of others do not fully reflect the true nature and extent of current or emerging food safety problems. The development of food safety policies have to be identified based on information gathered for immediate and long-term actions of the country, especially for export food products.

- ***Formulation of National Food Safety Policy and National Plan of Action***

For facilitating the planing, implementation and evaluation of policies and programs to ensure food safety, the preparation of country profile and database is desirable to providing information on factors that may influence food safety. There are many different sectors and disciplines involved in food safety, with responsibilities allocated between government agencies, industry and consumers. With in governments, many different specialized agencies are involved such as department of health, agriculture and trade. Therefore, the formulation of food safety policy and plan of action is best achieved by the formulation of a food safety committee (FSC) or similar body, that would be assisted by expert working groups, national consultants through organization of national seminars and workshops. The FSC should coordinate the work of expert panels made up of representatives from government, industry, food research institutes, consumer groups and academic organizations, that are formed and assigned specific tasks in drafting policy papers on specific food safety issues for presentation to Ministers for final decisions. In formulating the policy document, the FSC should be aware of standards, guidelines, and recommendations from the work of international organizations in the area of food safety and food control.

- ***Developing and Updating Food Legislation***

An effective national food safety program has to based on appropriate food safety legislation that assures food safety and consumer protection. The legislation should be flexible to meet the needs of the changing food sectors, the introduction of modern technology and the development of new food products. In global food legislation and requirements for international trade, national governments should be encouraged to strengthen their legislation by developing the framework food safety law, which contains specific details for enforcement and penalty procedures.

- ***Strengthening Food Control Systems***

Food control is a mandatory regulatory function for national and local authorities to provide consumer protection and ensure that all food items during production, handling, storage, processing and distribution are safe, wholesome and fit for human consumption, conform to quality and safety requirements. Many countries do not have a well integrated or a nationally coordinated food control system especially where functions, activities and authorities of government agencies are ambiguously defined in legislation and regulation. In the absence of coherence in national food control programs and lack of inter agency cooperation international trade is bound to suffer negatively, where the confidence and credibility of food control service is invariably tested.

An effective food control system should consist of 3 elements namely administration, inspection and analytical capabilities supported by a national food control administration structure comprising a management board and senior government officials. Food inspection has to verify that all foods are produced, handled, processed, packed, stored and distributed in compliance with legislation and regulations. Functions of the inspectors usually include inspecting food premises, initiating necessary action for non-compliance with food laws, investigation of foodborne disease outbreaks, handling consumer complaints and advising food sector.

Food control programs require a basic analytical capacity to monitor the quality and safety of a nation's food supply. A broad range of analytical capabilities is required for detecting food contaminants such as pesticides, pathogenic bacteria, foodborne viruses and parasites, radionuclides, environment chemicals and biotoxins. Capabilities are also required to determine food adulteration and compliance with official food quality standards. The structure and operational procedures of Official Food Control Laboratories should conform to the internationally recognized guidelines specified in the ISO/IEC 25 (1990) and 17025 detailing the General Requirement for the Competence of Calibration and Testing Laboratories (International Standard Organization (ISO/IEC) Guide 25, 1990).

- ***Promotion of Voluntary Management Systems for Food Safety Assurance in the Food Sector***

The responsibility for production of safe food is that of the food industry and also necessitates developing expertise and skills by food manufacturers, food caterers and the informal food sector, in order to comply with food safety regulations. Training is integral to supporting food safety throughout the food chain in order to assist the promotion of voluntary management systems for food safety assurance. There are specific roles to be played by government, food processing and manufacturing industry in promoting voluntary safety assurance systems.

- ***Education of Food Handlers in Food Safety Matters Commensurate with their Work Activity***

Food-handlers play an important role in prevention of foodborne diseases. They may act as a source of food contamination, through inadequate personal hygiene or handling food when medically unfit. Educating food handlers to adhere to good personal hygiene food-handling practices is an essential component of a national food safety program. Guidelines are needed for food-handlers working in a professional capacity in the food processing and manufacturing industry.

- ***Research and Data Collection***

National governments have the responsibility to support research and the collection of information on foodborne diseases, through epidemiological investigation and surveillance. Reliable information on food safety concerns is necessary when setting priorities for allocation of resources, consumers confidence in food supply, and supporting trade Particularly National Exports.

Implementation of the National Food Safety Program

Strengthening of national food safety program shall be preceded by careful planning and consultation between government departments, food industry and the consumers at national level It should also involve liaison with international bodies, national directors or coordinators of food safety programs in the countries with close trading partnerships. The planning strategy involves setting objectives and goals for development or strengthening of the national food safety program with identifying time-bound activities that must be completed to achieve these objectives, identifying resources that are available to support activities, setting intermediate targets or milestones to monitor progress, identifying factors that may have a positive or negative influence on the outcome of planned activities and setting a management review process in motion to evaluate the activities that are being undertaken.

Evaluation of Food Safety Activities

The integral part of developing a national food safety program is a management review process that includes a mechanism for evaluation to ensure activities that are being undertaken are relevant and achieving substantial improvements and meeting the objectives and goals. National authorities throughout the world, particularly those in developing countries, face a wide range of factors that make the development, implementation and maintenance of effective and efficient food safety and food control programs difficult to achieve. Detailed guidance on evaluation is available in the publication, Evaluation of Programs to Ensure Food Safety: Guiding Principle (WHO, 1989).

IMPLEMENTATION OF FOOD CERTIFICATION SYSTEMS FOR EXPORTING FISHERY PRODUCTS FROM THAILAND

The Fish Inspection and Quality Control Division (FIQD) was established in October 1992. Previously, the office had been a sub-division under Fishery Technological Development Institute since it was found in 1956. Due to rapid expansion of seafood exports of the country resulting in significantly increased requirements for inspection and certification, the institute has been promoted as a Division under the Department of Fisheries (DOF) to provide services to private sector (Department of Fisheries, 2000). The Division had been participating in ASEAN-CANADA Fisheries Post Harvest Technology Project-Phase II since 1992 and focused on improving quality control, fish inspection and processing and technology transfer (ASEAN-CANADA Fisheries Post Harvest Technology Project-Phase II, 1995). Since then, the Division has further gained trust from government inspection bodies of major importing countries such as Australia, Japan, Canada, European Union (EU) etc. for its active enforcement in controlling the performance of the industry.

With the accompanied certificates issued by the DOF, privilege to enter those countries without being detained for further full examination is enjoyed by the processors. In 1997, FIQD through the DOF has

signed a Memorandum of Understanding (MOU) for inspection of fishery products with the Department of Fisheries and Oceans of Canada. As a result qualified Thai processors are given "Preferred Status" and the inspection is minimized at all Canadian ports. Since 1994, EU officially recognized DOF as the "Competent Authority" in Thailand. Fishery products produced by processors and not approved by the DOF and/or unaccompanied by certificates issued by the competent authority are not allowed to enter for distribution in the EU member states.

Development of food certification systems for exporting fishery products from Thailand has been established with revision every 2-4 years as needed. Preparation of action programs has been integrated with available resources and compositional requirements being developed by the international organizations and major importing countries. The successful plan of action consists of four parts.

LEGISLATIVE FRAMEWORK

The DOF under the authority of the Fisheries Acts B.E. 2444 (1901) is the principle government agency interacting with the fishing industry and is responsible for the development of this sector including introduction of new technologies, extension, research, regulation and inspection. The Fisheries Act provides authority to the competent official to lay down conditions for registration of establishments involved in trading of fish and fishery products and the fishery industry.

Under this authority, the DOF lays down conditions and guidelines for approved fish processors. Currently, the Department of Fisheries (DOF) is authorized under the Import and Export Control Acts B.E. 2522 (1979) to inspect and control fish and fishery products exported to other countries under conditions specified in the notification of the Ministry of Commerce.

The DOF, through the approval of the cabinet, is designated by the Thai government to control fish and fishery products exported to EU. Furthermore, the cabinet authorized DOF to establish Fish Inspection and Quality Control agreement or Memorandum of Understanding with importing countries. Currently, Thailand has the Agreement on the Equivalence on Fish Inspection and Control of the Government of Canada where DOF is the competent authority.

Based on authority of the Fisheries Act and Ministerial Notification under the Import and Export Control Acts B.E. 2522 (1979) of the Ministry of Commerce, DOF has authority to:

1. Conduct monitoring and control activities related to fishing, fish harvesting/aquaculture area, environmental and disease control, aquaculture feed control, aquaculture practices, handling, processing and marketing;
2. Collect samples for inspection and certification of fish and fishery products;
3. Register of fishery related activities including processing establishments;
4. Approval of fish processors for export to specified destination;
5. Control of products of approved processors;
6. Access transportation, unloading, handling, holding of fish/fish products; and
7. Monitor and approve harvesting zone for bivalve mollusc.

GOVERNMENTAL STRUCTURE

Policy

- To achieve and maintain fish harvesting, aquaculture and processing industry and market where consumers and industry alike are assured of the value, wholesomeness and marketability of fish and fish products - both those consumed in Thailand and those produced for export markets.
- To develop and promote appropriate product and process standards which contribute to the achievement of acceptable quality, safety and identity of fish and fish products, and to provide reasonable assurance of compliance with these standards.
- To have in place a fair, visible and effective system that provides reasonable assurance of compliance with product and process standards and include the requisite trained personnel, equipment, laboratories, protocols and procedures.
- To achieve and maintain a high standard of quality in all aspects of the work of the laboratory and field inspection.

Major Program Elements of Fish Inspection and Control System

The Thai DOF, realizing the importance of quality and safety of fish and fishery products operates the following programs:

- Monitoring of sanitary conditions and environment conditions of harvesting waters and aquaculture areas
- Bivalve mollusc production and sanitation program
- Aquaculture Drug and Chemical Monitoring Program
- Monitoring of fish handling and processing establishments
- Product compliance, quality and safety surveillance
- Approval of fish processing establishments for export
- Certification Services
- Research

General Organization

The DOF, under the Ministry of Agriculture and Cooperatives, consists of 22 Divisions actively involved in research development on marine science, brackish and fresh water fisheries, genetics, taxonomy, post harvest fisheries, fisheries resource exploration and services on aquaculture, conservation, fish inspection and environmental studies and other administration divisions. There are research laboratories, inspection centers and fisheries stations relating to fresh water fisheries, coastal aquaculture and marine fisheries throughout the major provinces and also provincial fisheries offices in all provinces. Among these there are 8 Divisions supporting the implementation of fish inspection and control system, where the Fish Inspection and Quality Control Division is designated as the core division.

Competent Authority

The Fish Inspection and Quality Control Division is the competent authority on fish inspection and control activities. Products covered by the Department of Fisheries is fishery products including fresh, chilled, frozen, canned, heat treated, preserved (dried, salted, smoked, fermented) and traditionally preserved products including chili based products and sauces. This includes ready to eat products that have fish as major ingredient. Pet foods containing mainly fishery products are also under DOF jurisdiction.

Roles

1. Improve quality of fish as raw material through research on fish handling and transportation.
2. Provide reasonable assurance that fish used as raw material are free of chemical contaminants, environmental contaminants and toxins through a frequent monitoring program that tests for level of those contaminants.
3. Apply a risk based and preventive control inspection by implementing a quality management program based on Hazard Analysis and Critical Control Point (HACCP).
4. Ensure implementation of basic food hygiene, good manufacturing practices and preventive quality control systems by the fish processing establishments.
5. Provide assurance to the import authorities of the effectiveness of inspection and control systems and assurance of product safety and compliance, where relevant.
6. Ensure that the allocated resources are effectively utilized.

Organization of the Fish Inspection and Quality Control Division

The Division is lead by a Director who has complete responsibility for overall management of the Fish Inspection and Control system. The division is organized in to subdivisions and regional centers, which is led by Chief of subdivisions and chief of centers and report directly to the Director of FIQD. Under each regional center, there are subdivisions dealing with technical activities led by a chief who reports directly to the chief of the centers. The organizational responsibilities of the Division are as follows:

Subdivisions (Administrative Services)

1. *Administration Subdivision* - The unit is responsible for the administrative affairs of the Division and handling of inspection applications.
2. *Standard and Inspection Agreement Subdivision* - This Subdivision is responsible for administrating the development of policies, procedures and quality system of inspection program, to provide assurance to the importing authorities that the inspection and quality control programs implemented by the Division are according to international standards. The Subdivision is also responsible for international collaboration

in inspection of fish and fishery products, identify consultants for the development and upgrading of programs, including administrating a training program for fish inspectors and quality control people.

3. *Certification Subdivision* - The subdivision is responsible for maintaining a list of approved establishments and preparing and issuing certificates, maintaining data related to certification. The Sub division is also responsible for sampling of products for certification and programs related to surveillance sampling of fishery products from approved establishments.

Regional Centers (Fish Inspection Services)

There are currently four Regional Fish Inspection Centers. The responsibility includes monitoring factors affecting the environment and hygiene practices at landing sites and harvesting areas of raw material and product quality, establishment and process inspection, quality and safety inspection of products and evaluation of the quality control program of the processors.

1. *Fish Inspection Center (Bangkok)*: The Center is responsible for the inspection and laboratory services to Bangkok and central and eastern seaboard areas.
2. *Fish Inspection Center (Songkhla)*: The center is responsible for inspection and certification services to the fish processors and exporters in the lower southern provinces.
3. *Fish Inspection Center (Suratthani)*: The center is responsible for inspection and certification services to the fish processors and exporters in the upper southern provinces of Thailand.
4. *Fish Inspection Center (Samutsakorn)*: The center is responsible for inspection and certification services to the fish processors and exporters in four major provinces around the inner Gulf of Thailand.

All centers are organized as follows:

i. Field and Facilities Inspection Subdivision

This unit is responsible for carrying out establishment inspection and monitoring the performance of those establishments to assure that the establishment meets and maintains construction and operation standards set by the Department of Fisheries, as well as international standards. The sub-division is also responsible for auditing a quality system based on Hazard Analysis Critical Control Point (HACCP) Principles. The sub-division is responsible for approval of fish processing establishment and communicates the recommendation to the Certification Subdivision through proper line of authority. Results of inspection are recorded and maintained by the subdivision.

ii. Physical Quality Subdivision

This unit is responsible for the assessment of physical and sensory quality of the samples, identify any products' physical quality problem, which may lead to quality safety and economic fraud and make and maintain records. The work also involves implementation of quality system based on policies and procedures developed, maintaining competence graders and providing advice to private and commercial laboratories engaged in the sensory assessment of fishery products.

iii. Microbiological Analysis Subdivision

The laboratory is responsible for the assessment of microbiological quality in relation to hygiene and public health aspects, identify any product quality or safety problems and make and maintain records. The work also involves implementation of quality system based on ISO 17025 and providing advise to private and commercial laboratories engaged in the analysis of fishery products.

iv. Chemistry Analysis Subdivision

The laboratory is responsible for the assessment of chemical additives and residue, toxin, chemical quality index, decomposition of fish and fishery products. The work also involves implementation of quality system based on ISO 17025 and providing advise to private and commercial laboratories engaged in the analysis of fishery products.

The Department of Fisheries sets the priorities for fish inspection activities through the planning committee led by the Director of Fish Inspection and Quality control division. Annual plans for field inspection activities, certification services, training for technical staff, development activities on quality improvement, and international activities are developed and implemented for each fiscal year (1 October - 30 September). Inspection frequency and product sampling for certification and monitoring are based on performance of the processors and history of the shipments exported. When necessary, the processors will be under close surveillance for inspection of raw material and product sampling**.**

OTHER AGENCIES INVOLVED IN FISH INSPECTION AND QUALITY CONTROL ACTIVITIES

Involvement of various government agencies in fish product quality, safety and compliance is as follows:

Ministry of Commerce

The Ministry has the regulation "Export and Import Act B.E. 2522 (1979)" governing the import and export of food products. It has delegated authority, to technically competent agencies through Ministerial Notification, on matters related to fish and fishery products. These Notifications include provisions for:

i. The Department of Fisheries (Notification #43/1987) which has authority to control processing facilities and practices including the export of fish and fishery products to the U.S. and the E.U. This Notification provides authority to DOF to inspect and approve (certify) processors who intend to export their products to the U.S. as well as other countries;
ii. Custom's offices which require that export products be accompanied with a product quality certificate from DOF or the Department of Medical Science (Ministry of Public Health) and must bear a sanitary certificate (for plant sanitation) from DOF.

Ministry of Public Health

The Food and Drug Administration (FDA) of the Ministry of Public Health is responsible for the regulation of food safety for domestic and imported products including seafood. The Food Act requires a license to import food including fish and fishery products into the Kingdom of Thailand. This license must be renewed every three years. The Food Acts B.E. 2522 (1979) provides the necessary authority in this matter.

The Foods Act classifies food into 3 categories:

1. Specifically controlled food which requires registration. Legal provision is established regarding quality standards, specifications, packaging, labeling requirements, as well as other aspects of GMP's. Currently there are 39 types of food under this category. Of these, the fish sauces are the only fish products identified as a specifically controlled food.
2. Standardized food of which the standard will be defined by regulation. Currently there are 9 types of food under this category.
3. General food - foods that are not listed as category 1 or 2 above. Regulatory procedures involve four stages:
   a) Pre-marketing Control
      - Establishment of Food Standards
      - Control of Manufacturing
      - Control of Food Importation
      - Control of Products
      - Control of Labeling
   b) Post marketing Control
      - Monitoring on Compliance with the regulations
      - Food surveillance
   c) Control of Food Advertisements
   d) Control of Good Manufacturing Practices

Major agencies administering the Food Acts are the Food and Drug Administration and the Department of Medical Sciences. The Thai FDA enforces and administers the Food Acts, while the Department of Medical Science (DMS) performs the inspection of product, Process, GMP and quality system of food processing establishments including other fishery products and also provides certification services products meant for exports.

DOF inspectors apply relevant standards under the Foods Act and Regulations during the inspection of processing facilities and products for export where the requirements of the country of destination are not known. The Foods Act and Regulations are also applied for products intended for local consumption.

Ministry of Industry

The Industrial Standards Acts B.E. 2511 (1968) authorizes the Ministry to improve standards of manufactured products both for export, domestic and import. Thai Industrial Standard Institute (TISI), in

collaboration with FDA, DOF, DMS, the Office of Commodities Standards and the private sector has developed voluntary standards for various fishery products (including industrial standards for fish, shrimp, crabmeat, tuna, clams).

ADEQUATE RESOURCES/TOOLS

Control Program

The DOF has the authority to set standards, conditions, policies and procedures for:

- ensuring product safety and wholesomeness and that the products are not fraudulently presented;
- ensuring facilities of harvesting or processing fish and fish products operate in compliance to the requirements of DOF and or current international standards or standards agreed under specific agreements;
- enforcement of action against processors in violation of legislation, requirements and conditions; and
- taking control of products in violation of requirements.

DOF has authority to set standard, conditions, policies and procedures for:

- monitoring, inspection and audit of fish production, holding, handling, fish processing establishments and fish and fishery products;
- inspection and approval of fish processors and fishery products to be exported to specific destinations, according to the authority under the Act, specific mandate of the Government and agreement with the import authorities;
- certification of quality and safety of products;
- enforcement of standards, conditions set under the Fisheries Acts and Food Act, including standards agreed with the import authorities; and
- initiating appropriate action when required.

Current Fish Inspection Program

The current fish products safety and quality control program is based on Good Manufacturing Practices and General Principles of Food Hygiene as a prerequisite program and all processors under the DOF approval must implement the Hazard Analysis and Critical Control Point (HACCP) principles. The program emphasizes continuous problem solving and prevention from water to marketing rather than relying on analysis of product samples (lot by lot analysis) prior to exporting. DOF regularly monitor the establishments and their products for compliance.

All fish processed for export to countries DOF is authorized as competent agency or have an agreement with must be carried out in a DOF registered and approved establishment. To qualify for registration and approval, the establishment must meet the construction, equipment and basic food hygiene requirements and the HACCP requirements set out by DOF and have a documented HACCP based quality program in operation. To maintain their approval status, the establishment must maintain compliance with the previous conditions and must demonstrate that their products consistently comply with DOF criteria. DOF will provide, when requested, a health certificate to the approved processors for their export shipment.

Field inspections, laboratory analysis and certification are carried out in accordance with various policies and procedure manuals formulated and prepared by the concerned departments and agencies.

Establishment Inspection

The Division would carry out full inspection at a frequency of 2-4 times/year based on hygiene and quality system compliance rating, product risk categories and past history of product compliance. Follow-up inspection will be carried out depending upon the need g on noncompliance identified during each inspection.

Plant Inspection Frequency Schedule	
Level I	Once every 6 months
Level II	Once every 4 months
Level III	Once every 3 months
Level IV	Once every month or more

Inspection and HACCP audit is performed according to policies and procedures set in DOF manual. These requirements are based on FAO/WHO codex guidelines and standards of various importing countries. The inspection is done by trained inspectors specialized in raw material handling, process operations and establishment hygiene, inspection team is made up of two to three inspectors.

The inspection involves observations, measurement, interview, record review and sample collections, as necessary covering:

- condition and maintenance of construction and equipment
- establishment sanitation and hygiene
- personnel hygiene
- raw material quality and traceability
- processing practices
- products and
- quality system audit.

Quality System (HACCP) Audit

The Department conducts a system review of the documented HACCP program of the establishment and will evaluate the implementation of HACCP a program on site. DOF will assess the processing plant's quality program in three ways:

1. By verifying the appropriateness of the documented program to product and processing conditions of the establishment.
2. By conducting on-site audit of facilities construction, hygiene and sanitation; personnel, raw material and products to evaluate adequacy of prerequisite program.
3. By auditing the implementation of HACCP activities.
   - If the establishment was found not in compliance to the requirements, it will be allowed to correct such non-compliance items within 1-3 months, depending on the category of non- compliance. Processors who wish to export their products during this period, must have their product inspected for every shipment.
   - Processors may be suspended from approved status, if repeated records of noncompliance are found. Processors will be informed of definite time of suspension and during this period their product will not be allowed for export to specific countries. In case if another authority performs export control for the same country of destination, DOF would inform it of prohibition of export from this particular company.
   - Any critical noncompliance would fail the establishment and it would be removed from approval status and the list of approved processors. DOF will inform other relevant authority of prohibition of export from this particular company.
   - Processors who have been removed from approved status may re-apply and will be subjected to full inspection.

Inspection and audit record is maintained at each regional center, the performance of establishment such as level of compliance will be communicated to certification unit, for determining the sample surveillance frequency.

Product Quality and Safety Surveillance

The surveillance program is aimed at monitoring product quality, safety and compliance to DOF criteria or criteria agreed with import authorities. FIQD will monitor the products from the approved processors on a regular basis. Record of rejection for any reason by DOF - Fish Inspection and Quality Control Division will be maintained. Follow-up audits or withdrawal of approved status will taken into account this record. Frequency of sampling is depend upon the performance history of the establishment and risk category as follows:

Product Surveillance Frequency	
Level I	Every 2 months
Level II	Every month
Level III	Every 2 weeks
Level IV	Every shipment

At least 30% of product types available on line of production, cold storage or warehouse will be sampled for laboratory testing. The sample size for these surveillance samples shall be determined by following the ISO 2859-1 Sampling Procedures for Inspection by Attributes, following a single sampling plan for normal inspection. Samples collected will be assessed for microbiological, chemical, physical, sensory and container integrity quality.

If the results of product monitoring indicate product non-compliance to DOF criteria, DOF may consider risk category of hazard and discontinue certification. Processors shall provide to DOF corrective action plan to control hazard or correct such noncompliance. Processors who have been suspended from provision of Health Certificate may re-apply, but will be subjected to a full scheme re-inspection by DOF.

Sampling and Analysis

▪ *Products Sampling and Storage*

Product are sampled by well trained field inspectors according to an established sampling plan based on ISO 2859-1 Sampling Procedures for Inspection by Attributes and sent to the laboratories for analysis. Inspectors are to ensure that each sample is correctly identified and that sampling records are properly maintained. Samples are kept at an appropriate temperature while waiting to be analyzed. These samples are analyzed within 3 days after sampling depending upon the types of products. Inspectors would ensure that the following information is relevant to the information stated in the request for sampling of the exporter: Name of manufacturer or packer; type of product; production code or date of production. Sampling records are kept and maintained.

▪ *Sample Preparation*

Samples are drawn aseptically for microbiological and then for physical, sensory and chemical analysis. The supervisor would ensure that each sample has the correct sample identity attached to it.

Laboratory Analysis

▪ *Physical And Sensory Assessment*

Trained qualified inspectors conduct sensory assessments. Lots are sampled at random and assessed for weight and size; packaging integrity, labeling and then subjected to sensory assessment. The lot would be rejected if the number of rejects exceed the tolerance level.

Microbiological Analysis

The product is subjected to bacteriological examination (depending upon product category and requirements of importing country) including:

- Total Viable Plate Count
- *Escherichia coli*
- *Staphylococcus aureus and SET*
- *Vibrio cholerae*
- *Vibrio parahaemolyticus*
- *Vibrio perfingens*
- *Salmonella*
- *Shigella*
- *Listeria monocytogenes*
- *Enterococci*
- Sterility test
- Microbioassay for antibiotics

Chemical Analysis

The product is subjected to chemical analyses (depending upon product type and requirements of importing country) including:

- Quality index e.g. TVB-N, trimethylamine nitrogen, histamine like substances, indole
- Food additives e.g. sulphite, phosphate, EDTA, Benzoate etc.
- Food contaminants, e.g. organic and inorganic substances, mercury; cadmium; lead; organochlorides pesticides and PCBs; and veterinary drugs residues
- Heavy metals e.g. Cadmium, Lead, Arsenic, etc.
- Toxin and marine toxin e.g. PSP, ASP, DSP
- Proximate composition e.g. protein, fat, salt, sodium, potassium, moisture, volatile matter, ash, etc.
- pH

Analyses Results

Analyses results are kept and maintained in the filing system under each packers' name. The laboratory will issue test report indicating results of analyses of a particular sample. If the results are to be used for lot by lot certification, lot pass or fail is indicated, based on the standard requirements of the country of destination.

Analyses results from competent government laboratories e.g. Department of Medical Science or the National Food Institute or private laboratories having in place effective good laboratory practices (GLP) and quality system equivalent to ISO 17025 are acceptable for lot by lot certification.

Certification

Certificate will only be issued to approved processors having proven record of establishment and product compliance. Based on the results of regular monitoring of establishment and Products, FIQD will issue a Health Certificate for approved processors to accompany shipment of export products. A Health Certificate indicates that product processed by approved establishment has consistent hygiene, quality system and product compliance record. Policy and procedures for issuing health certificate is also developed according to the requirements of country of destination. In case lot by lot certificate is required, product is sampled for laboratory analyses. DOF, on case by case basis will issue a letter of assurance to concerned parties for shipment of products.

A company requesting a certificate must provide, in advance, as much of the following information as possible to the appropriate inspection office:

- certificate type (s)
- lot location
- lot size
- product description
- consignee
- consignor
- manufacturer
- identification marks (production code)
- mode of transported (if know)

If the product is found to be in compliance with DOF criteria, a certificate is prepared and checked by the designated staff of the Certification Sub-division and verified by the chief of Certification Subdivision and submitted for signature. DOF designated twelve senior officers to sign the certificate. In order to maintain the authenticity, all Certificates have unique format, printing and running number. All certificates will be stamped with DOF Seal and signed by only the designated senior officers. Those designated officers must initial any changes on the certificates.

Provision for Recall of Products

DOF has the authority for taking actions against non-compliance export products as follows:

1. *Detain for re-inspection*

If an inspector has reason to believe that the condition of the fish processing establishment or fish/ fish products may not comply to conditions set by DOF or conditions agreed under specific agreement with importing countries since the inspection, another inspection shall be conducted. The Department will not knowingly permit the export of products that would violate the laws of the importing country.

2. *Rejection and refusal of certificate*

Prohibition of export where non-compliance found would violate law of the country of destination.

3. *Report to relevant agencies*

Ministry of Commerce and Ministry of Public Health are informed for legal action, while Department of Medical Science or other authorities will be kept informed the lots details. Rejected lots will be identified by date code or product codes (where relevant) and the total volume of lots will also be identified. Processors/ exporters will be informed of rejection and reason for non-compliance, within three working days and the processor must inform DOF of action to be taken against the products. DOF will supervise/ and verify on site that appropriate action is taken to prevent fraud. Record related to verification is maintained.

Co-Ordination between Different Authorities

Duplication of inspection among agencies providing inspection services is unavoidable, however, the processors can submit inspection report of the following agencies for consideration of waiving the monitoring inspection or follow up audit:

- Department of Medical Science
- Thai Industrial Standard Institute
- Food and Drug Administration
- The National Food Institute
- Foreign second/third party audit
- Private third party audit.

However, DOF reserves right to perform confirming inspection, when needed.

Analyses results from competent government laboratories e.g. Department of Medical Science, the National

Food Institute or private laboratories having in place effective GLP and quality system equivalent to ISO 17025 are acceptable for lot by lot certification. Government agencies are kept informed during the inter agencies meeting of rejected lots or shipment of products found in violation to national standards or importing countries standards. This information can be made available in writing upon arrangement between agencies.

In case there are different authorities controlling export for same country of destination, list of establishments authorized for export to such country of destination will be drawn in consultation with those agencies. Where there are problems related to suspension of approval status, removal from approved list, product violation or rejection, those agencies will be kept informed to prevent fraud.

INSPECTION STAFF: FACILITIES AND TRAINING

Basic Qualification of Staff

1. Professional staff must have at least a Bachelors Degree in Science or related field such as Fisheries, Food Science, Food Technology, Microbiology or Chemistry.
2. Technicians or Fishery Officers must at least have a Certificate or Diploma in Science, Agriculture or Fisheries.
3. Workers must have at least primary education.

Training of Staff

DOF has a training division responsible for overall training of staff. The technical committee of quality program administers technical training relating to fish inspection and quality control. Technical staff involved in field, laboratories and certification works must be trained and evaluated. Further training of staff is encouraged to gain formal recognition, qualification and competency required for the job. Training required for technical staff includes induction training, on-job training, and formal training. Details of each training course have been developed according to international requirements.

Training Records

Records detailing the formal qualifications, training course successfully attended and the inspection experience are maintained. Training record indicates staff ability as follows: knowledge of appropriate procedures and requirements, ability to carry out procedures with or without supervision and authorization to carry out procedures and use of associated equipment.

Code of Ethics for Its Personnel

All employees of The Government of Thailand are bound by the Public Service Staff Act and regulations and policies established under the authority of this act. Violations of these provisions will result in action against staff which could include permanent dismissal. Supervisory and management staff are responsible for training of staff in appropriate practices, providing advice and guidance, and ensuring that the requirements of the Act are met. In addition staff have access to a National office to determine if a conflict of interest exist.

LABORATORIES

Laboratories are constructed and designed to facilitate work and quality control. FIQD has laboratories to perform inspection and quality control activities including:

- Physical and sensory evaluation
- Container/packaging integrity
- Microbiology
- Chemistry
- Mouse bioassay laboratory
- Parasitology
- Water quality

Cold storage and deep freezers are provided to maintain conditions of samples. Controlled areas are provided for sample storage and preparation.

Regional centers are equipped with modern laboratories operating under quality system based on ISO 17025. Internationally recognized methods are used by laboratories; they are documented, updated and reviewed, if modified they are validated.

Laboratories participate in inter-laboratory testing program such as those programs of the Public Health Laboratory Services of the UK, NATA. In house performance testing is also done to ensure competency of staff. Staff involved in sensory assessment are assessed and accredited for their competence every year.

VERIFICATION OF INSPECTION AND CERTIFICATION SYSTEM

Internal Audit

FIQD designated audit team to carry out internal audit of various activities. Each audit team include technical manager, senior food technologist (lead auditor or lab supervisor) and a food technologist (inspector or lab technologist) who are independent from audit area. Internal audit plan is drawn up annually and revised every six months. Report is submitted to Quality management team for systems reviewed.

Third Party Audit

FIQD plans for third party audit every two years. It is aimed at using international auditor. Due to limited funding, FIQD is currently relying on audit of import authority. FIQD is subjected to audit by EU Commission and Canadian Food Inspection Agency of the Government of Canada.

Other import authorities such as South African Bureau of Standards, SENASA of Argentina, Ministry of Public Health of Japan visit and review FIQD inspection and Control System yearly to ensure FIQD ability to provide assurance of establishment hygiene and product safety and compliance.

Certification System

DOF is currently developing a quality system based on ISO 9002 for certification system and will have the system accredited by the National agency.

Certification Systems for Other Exporting Food Product Categories

a. Meat And Poultry Products

Health certification systems have been developed for several exporting food products of animal origin other than fisheries. Veterinary Public Health Division under the Department of Livestock (DOL) is a competent authority to draw a plan of action to certify exporting meat and poultry products from Thailand (Department of Livestock). The inspection systems have been designed for live animals at farm, animal health, abattoir, carcass, processed meat products for obtaining export certification. The DOL has enacted laws and regulations to inspect and control quality and safety of products e.g. Standards for Animal at Farms, HACCP for animal processing, Poultry Meat and Poultry Meat Products Inspection Regulation, Regulation of Department of Livestock Development on Animal Protection and Welfare at the Time of Slaughter or Killing, Poultry Protection and Welfare at the Time of Slaughter or Killing and Food Act from Thai FDA.

Public health certification is also in place for animals whose meat is intended for export. The inspection is carried out by veterinary inspectors and authorized veterinary officers to conform to DOL regulations and the regulation of major importing countries; Japan, European Union, Singapore, Korea and Malaysia. Certificates are issued to approved processors that have a proven record of product compliance. However, meat and meat products still have problems of endemic diseases; foot-and-mouth, anthrax, etc. which do not permit to export to many countries (Ekboir, 1999). The products imported from countries in which these diseases exist and processed methods used require to be accompanied by government certification.

b. Fruit and Vegetable Products

Fresh fruit and vegetables for export are expected to have certification indicating that plants came from organic farms or non-GMP (genetically modified plant) or grown under the good agricultural practices (GAP). Details of those required conditions have still not been agreed upon for international practices. Fruits and vegetables from developing countries are processed for export earnings and some processed products may accompany by end products analysis certification requiring from importing countries. As trade in food commodities expands internationally, the development of modern food control and safety programs has been considered by national governments to structure food legislation and regulations to comply with international standards, guidelines and recommendations. Currently, most fruit and vegetable processing industries have developed sanitation and hygienic practices, good manufacturing practices (GMP), HACCP and quality assurance systems to process their products for export markets. Manual for certifying systems of processed fruits and vegetables have been developed for concerned agencies in many developing countries.

CONCLUSIONS

There are number of principles in both design and use of food certification systems that developing countries can structure their capabilities to ensure an optimal outcome consistent with consumer protection and facilitation of trade. Certification of food may be, as appropriate, based on a range of inspection activities including continuous on-line inspection, auditing of quality assurance systems and examination of finished products. The validity of certification for exporting food products may also require from those importing countries. The opportunities for developing countries to develop exporting certification of foods may need the assessment of food safety infrastructure and problems at national level with the preparation of a country profile. Formulation of national food safety policy and national plan of action should facilitate to coordinate export groups to have effective food safety law and legislation for enforcement. The implementation food certification systems for exporting fishery products from Thailand has been formulated by integrating of the available resources and compositional requirements developed by international organizations and major importing countries. The successful model consists of four parts; legislative framework, government structures, adequate resources and tools and verification of inspection and certification system. Certification systems for other food product commodities, meat and poultry products and fruit and vegetable products are at different development stages and requirements. Meat and meat products are a challenge for governments in developing countries in developing methods to conform to the importing countries requirements.

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2. CURRENT FOOD CERTIFICATION SYSTEMS IN THE EU -- ISSUES FOR MARKET AND TRADE DEVELOPMENT

Dr. Morton Satin
International Consultant
Roclville
USA

INTRODUCTION

Caveat emptor is the ancient Latin expression for "let the buyer beware!" For generations, this notion has served as a disincentive to international trade in foods because of the fears of food poisoning, adulteration and general misrepresentation.

It is not difficult to understand why. Most of the hazards or misrepresentations that confront us in foods are completely hidden. How can a consumer tell the difference between a chicken that is contaminated with salmonella and one that is pathogen-free? The answer is - simply that - they cannot. Salmonella is not a spoilage organism and hence the chicken shows no outward appearance of its pathogenicity.

How can a consumer tell the difference between Chianti wine made in the true Chianti district of Italy (called Chianti Classico) and Chianti that hails from just outside that specific region? Even a wine connoisseur would have difficulty. How much more difficult would be for an ordinary consumer?

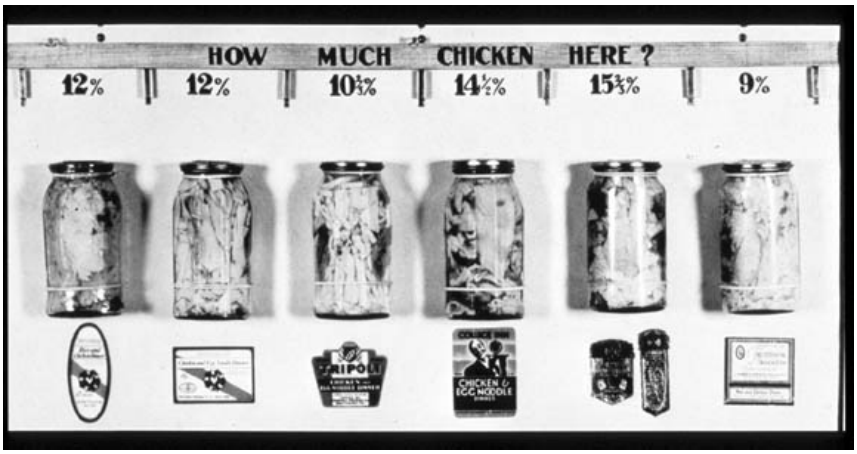
Finally, if you wanted to eat genuine organic honey or organic fruits and vegetables, how would you distinguish these products from their non-organic counterparts? Again, an impossible task for most of us to accomplish.

One would presume that, in its own long term interest, industry would feel obliged to consistently provide consumers with the highest quality products - unfortunately this is not always the case. All too often companies, large and small, have not been fully responsible in their manufacturing practices - with contaminated food products being the result. Other companies have not been able to resist the temptation of getting away with lower quality products or with claims and information that exaggerates the positive characteristics of their products. Look at these products produced in the USA during the 1930s.

Misleading

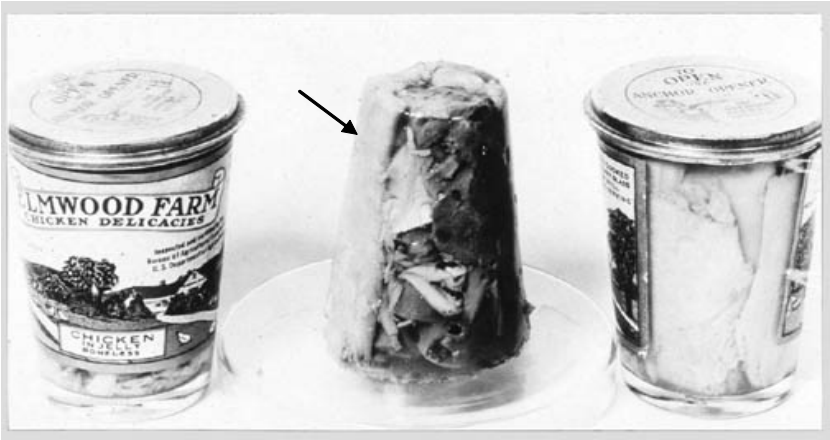
Diluted 'Salad Bouquet' was sold for use as vinegar, but it did not contain sufficient acidity to preserve foods. 'Peanut Spread' contained very few peanuts and strawberry flavored 'Bred Spread' had a lot of pectin but very few strawberries. Consumers had no way of knowing that the products were of such low quality from their outward appearance.

Look at some of the products from pre-standard days to see how difficult it was for consumers to make meaningful choices.



Widely divergent percentages of the valuable ingredient
Chicken - { 9%-15½% }

Here is another example of misleading consumers:



White meat in a thin laver hiding the dark meat behind

So, you can see that 'caveat emptor' has a genuine historical basis. Indeed the ever-increasing concerns among today's consumers regarding the safety and value of foods is one of the greatest challenges facing the global food industry today. Incidents involving food poisoning, adulteration or mislabeling in products that are traded internationally not only affect the reputation of the companies that have produced those products but also the countries in which those products were produced.

Food quality management and food certification systems are universally recognized as being the most appropriate way of preventing these unfortunate incidents from happening. As a consequence, food certification systems have become among the most powerful tools in the international marketing of foods. Of course, the food product will have to meet all of the consumers' other expectations such as appearance, taste, packaging, etc., but certification goes a long way in eliminating the negative notion of caveat emptor.

FOOD CERTIFICATION SYSTEMS

What are food certification systems? Are they simply quality control systems? In fact, they are not. You can have a quality control system based upon the vigilance and competence of staff and the responsibility of management. Indeed, that was how quality control was traditionally carried out and still is in many places. Modern certification systems differ from the traditional quality assurance approach by relying on a systematic and disciplined approach that is backed up by full documentation on product origin, properties

and history. The increased focus on health and safety of foods has led to the added demand for the function of traceability - an issue that simply cannot be dealt with in the absence of documentation.

Very often, third parties are called in to verify or certify the integrity of the quality management system as an added level of oversight. Again, this provides that extra measure of confidence to assist in the marketing of products.

Each segment of the food industry can specify some form of certification. In certain cases, the potential for trade is great enough for those specific certification systems to warrant international adoption and harmonization. In other cases, these can remain national or regional in scope and anyone wishing to access those markets would be wise to be acquainted with those specific certifications.

Certification methodologies fall into two general classes, as follows:

- System certification: This certifies the compliance of the company with specific norms such as ISO 9,000 (quality focus), 14,000 (environmental focus) or SA 8000 (social responsibility focus).
- Product certification: This certifies the compliance of products (or services) with technical requirements.

Certification is mandatory when expressly required by law (i.e. EC mark) while other instances can be classified as voluntary certification, that is, when compliance with technical norms is decided by the producer to improve product marketability, for instance.

Besides the well-known certifications ISO 9000 and ISO 14000, parallel certification programs, specific for the food industry, are regularly being established. These certification programs graft onto the system certification, focusing on more vertical aspects of the product that address specific market needs. While ISO 9000 Certification vouches for the compliance of the whole quality system and the HACCP Certification focuses on sanitary aspects, the fundamental objective of other certification programs is to declare and promote the uniqueness of a single product or of a group of products.

The promotional characteristics of the certified product must be described in a reference document and include the range of control activities performed by the Certification organization to assure a guaranteed level of excellence. This reference document becomes the official standard shared by the company and the Certification Authority.

In both voluntary and mandatory instances, the Certification process encompasses certain fundamental stages:

- Initial application for certification and a preliminary assessment of needs
- Preparation of a reference document (the company/organization establishes the features to be promoted)
- Preparation of a comprehensive control plan
- Legalization/validation of a production reference document (defining the purposes, responsibilities, specifications, policy, checks and controls for the production of any given product)
- Preliminary inspection and supervision program

In the case of chain management certification, the program takes into account the diverse parties that are involved at different levels of the process. Often the administration of this certification process requires a third party to check and verify each stage of the chain management in order to assess compliance with requirements as stated in the certification standard.

In order to accomplish this task, the third party can evaluate the reference document drawn up by the manufacturers, the control methodologies recommended and can also direct the monitoring of critical suppliers. The verification methodology adopted by the third party can encompass the documentary and operational controls of chain management as well as the analytical controls, if feasible.

In the food and agricultural sector it is important that these programs take into account the recent norm, UNI 10939:2000, concerning product traceability. Once controls are performed and the non-compliance issues are resolved, third party certification organizations and the supplier will both act as guarantors for the statements reported on the product labels included in the scope of the reference documentation.

More recently, the food industry is being asked to declare the place of origin of raw materials being processed in order to identify the presence of GMOs. Identification by means of appropriate analytical tests (such as to the Polymerase Chain Reaction) is also becoming more and more relevant to guarantee labeling in compliance with current European norms.

Consumer organizations, supermarkets and large-scale distributors are asking to be informed and reassured in order to guarantee non-GMO derived products. Declarations certifying “GMO free” products are now accompanied by statements of third party certification organizations. (Here is an instance where, regardless of scientific evidence to the contrary, the European market has indicated that it is currently not

interested in products that contain GMOs. In order to satisfy customers, GMO-free products are the order of the day.) The third party certification authority serves as a bridge between consumers and the producer presenting itself as an impartial authority that guarantees compliance with a GMO-free product.

EU CERTIFICATION SYSTEMS

The main certification standards for the different stages of the supply chain in the EU are:

GAP and GMP
- Professional practices in use in most countries.

HACCP
- These standards are widespread throughout Europe and are theoretically mandatory for all industries having sanitary control numbers.

ISO 9000
- Quality assurance and management certification system. While these standards are widely used in all industrial sectors (more than 170,000 industries certified in all Europe and more than 50% of the total in the world), thus far they are not as widespread in the food sector.

ISO 14000
- Environmental certification, still relatively rare in the food sector but will become more important with passage of time.

EFSIS (European Food Safety Inspection Service) and BRC (British Retailer Consortium)
- These are British standards agreed upon by many major retailers. They cover HACCP, total quality management systems, product and process control, personnel and factory environmental standards.

BACKGROUND OF CERTIFICATION SYSTEM

Good Agricultural Practices (GAP)

A major objective in modern agriculture is to ensure that governments, farmers, processors, and consumers understand their responsibilities in the attainment of sustainable production systems that are socially viable, economically profitable, and productive, while protecting human and animal health and the environment. Clear principles and standards of Good Agricultural Practices (GAP) provide the basis for concerted action on developing sustainable agricultural production systems.

At one extreme, high input/output agriculture, mostly in developed countries, is perceived as detrimental to the environment and responsible for an increase in health problems and emerging diseases. At the other end, the great effort to establish food security with inadequate inputs and technology in developing countries is exhausting their natural resource base. It is clear that there is a need for a rapid transition to sustainable production systems and management of the natural resources upon which humankind relies. These production systems will integrate biological and technological inputs, capture the costs of production, sustain productivity and ecological stability and restore consumer confidence in the products they eat.

To meet this need, Good Agricultural Practices or GAPs are established as a set of principles for producers to follow to meet their needs and those of society in general. GAPs serve as the basis for farmers to sustainably manage their production systems, more specifically:

1. Soil
   The management of structure, fertility, and biological activity of soil.
2. Water
   Careful management and efficient use of water for rainfed crops and pasture production, for irrigation where available and for livestock.
3. Crop and fodder production
   Individual annual and perennial crops, their cultivars and varieties, are chosen for their suitability to the site, available management and inputs and to local consumer and market options.
4. Crop protection
   Maintenance of crop health is essential for successful farming for both yield and quality of produce. This requires strategies for disease control through the use of disease- and pest-resistant crops, rotation of crops and the tactical use of agrochemicals to control weeds, pests and diseases.
5. Animal production
   Livestock require adequate space, feed and water to ensure animal welfare and productivity.

6. Animal health and welfare

   Health of livestock is maintained by proper management, housing, preventive treatments such as vaccination and by regular inspection, identification and treatment of ailments using veterinary advice as required. Good animal welfare is recognized as freedom from hunger and thirst; freedom from discomfort; freedom from pain, injury or disease; freedom to express normal behavior; and freedom from fear and distress.

7. Harvest and on-farm processing and storage

   Product quality depends upon implementation of acceptable protocols for harvesting, storage and where appropriate, processing of farm products. Harvesting must conform to regulations relating to pre-harvest intervals for agrochemicals and with-holding periods for veterinary medicines. Food produce should be stored under appropriate conditions of temperature and humidity in space reserved for that purpose.

8. Energy and waste management

   Farms require fuel for production, processing and transport. The objective is to perform operations on time, reduce human drudgery, improve efficiency and reduce energy usage.

9. Human welfare, health and safety

   Farming must be economically viable, however, health and safety are also important concerns for those involved in farming. Due care and diligence is required at all times.

10. Wildlife and landscape

    It is necessary to manage and enhance wildlife habitats while keeping agricultural production economically viable.

Good Manufacturing Practices (GMPs)

In 1964, US Supreme Court Justice Potter Stewart wrote, "I will not attempt to define pornography, but I know it when I see it." In the same way, it is difficult to find a satisfactory all-encompassing working definition of GMP, but we all know what it is when we see it. It is that part of an integrated food control operation aimed at ensuring that products are consistently manufactured to a specified quality that is appropriate for their intended use. It is made up of two complementary components that interact with each other; the manufacturing operation itself and the system/procedures that control it.

GMP covers all aspects of the manufacturing process: the process itself; the critical manufacturing steps; a suitable manufacturing premises; storage; transport; trained production personnel; and proper record keeping. Control procedures include adequate laboratory facilities; qualified quality control personnel; approved written sampling and analytical procedures; records to show all steps of defined procedures have been taken; full traceability of a product through batch and distribution records; and systems for recall and investigation of complaints.

The guiding principle behind GMP is that quality is built into a product and not just tested in a finished product. Therefore, the assurance is that the product not only meets the final specifications, but that it has been made by the same proper procedures under the same conditions each time it is made.

HACCP (Hazard Analysis Critical Control Point)

Hazard Analysis Critical Control Point (HACCP) System was introduced into the commercial food industry, in 1971 by Howard Bauman of the Pillsbury Company. It followed on from collaboration between the National Aeronautics and Space Administration (NASA) and the US Army Natick R&D Laboratories. In fact, the original motivation for this program was as much for zero defects production as it was for the elimination of hazards.

In 1973, while Director of Research and Quality Assurance for the Steinberg Corporation in Montreal, I first introduced the HACCP system into the Canadian food industry.

The essential idea behind HACCP is to prevent defects or contamination from occurring through a systematic procedure of unit process analysis and in-process control. This preventative system offers the most comprehensive degree of assurance that the products manufactured are safe and greatly reduces the need for further end-product testing.

The value of the HACCP system has become internationally recognized as an invaluable tool for the management of food safety in the production, transformation, storage and distribution of foods. It has been variously in place in the United States for a few decades and was recently adopted by the Codex Alimentarius Commission and the European Union (EU) as the principal food safety system (EU Directive 93/43/EEC; Codex Alimentarius - Alinorm 93/131, 1993).

The EU Directive 93/43/EEC mandated the implementation of HACCP in all local legislation by December 1995. All European companies involved in the food chain from the primary producer to the final consumer now are bound to have a HACCP plan or system in place. The Directive goes on to advise that all countries that wish to export food products to the EU must examine their production processes in the same way by developing a HACCP plan or system of operational control.

HACCP requires the identification of specific hazards throughout the entire food manufacturing process and focuses on the preventative measures required to control and assure the quality and safety of the food.

HACCP is based on 14 operational steps in the European approach.

1. Define the Terms of Reference and the overall scope of the plan
2. Assemble the HACCP team
3. Describe the product
4. Identify the intended use
5. Construct process flow charts
6. On-site verification of process flow chart
7. *List all hazards associated with each step and list the preventive measures*
8. *Apply HACCP decisions to each hazard*
9. *Establish target levels and tolerances for each CCP*
10. *Establish a monitoring system for each CCP*
11. *Establish corrective actions*
12. *Verification of the system*
13. *Establish record keeping and documentation*
14. Review the HACCP Plan

(The points highlighted in italic are the 7 principles of the HACCP process.)

It is important to recognize that quality systems and HACCP methodology in particular are as much about international trade as they are about food safety. The absence of such systems will increasingly constitute a barrier to export markets. This is a critical point to be made.

ISO 9001:2000

The familiar three standards ISO 9001, ISO 9002 and ISO 9003 have been integrated into the new ISO 9001:2000 standard. The new standard specifies requirements for a quality management system for any organizations that have to demonstrate the ability to consistently provide product that meets customer and regulatory requirements and is designed to enhance customer satisfaction. The standard is used for certification/registration and contractual purposes by organizations seeking recognition of their quality management systems.

ISO 14000

The whole ISO 14000 family provides management tools for organizations to control their environmental aspects and to improve their environmental performance. Together, these tools can provide significant tangible economic benefits, including:

- reduced raw material/resource use
- reduced energy consumption
- improved process efficiency
- reduced waste generation and disposal costs, and
- utilization of recoverable resources.

ISO 14001 is the world's most recognized environmental management system framework designed to address the impact of an organization's activities on the environment and to demonstrate sound environmental management. Many companies have implemented the standard and, by the end of 2001, nearly 37,000 organizations in 112 countries had their environmental management systems certified as conforming to its requirements. ISO 14001 is designed to be flexible enough to be applied to any sized organization and enables prime access to the growing "green" market.

The standard also addresses the selection of suitable indicators to measure performance against criteria set by management. This information can also be used as a basis for internal and external reporting on environmental performance.

ISO 14001 addresses not only the environmental aspects of an organization's processes, but also those of its products and services. Life Cycle Assessment (LCA) is a tool for identifying and evaluating the environmental aspects of products from the 'cradle to the grave' - from the extraction of resource inputs to the eventual disposal of the product or its waste. The ISO 14040 standards give guidelines on the principles and conduct of LCA studies that provide an organization with information on how to reduce the overall environmental impact of its products and services.

BRC (British Retail Consortium)

The British Retail Consortium (BRC) Standard for food manufacturers was developed in 1998 to provide a common standard for companies supplying retailer branded food products. Under the terms of the Food Safety Act 1990, retailers are obliged to take all reasonable precautions and exercise due diligence in the avoidance of failure, whether it be in the development, manufacture, distribution, advertising or sale of food products to the consumer. The standard was developed by UK supermarket retailers to assist them in their fulfillment of legal obligations and protection of the consumer. A variant of the BRC standard used widely in the meat industry has been produced by European Food Safety Inspection Service (EFSIS). This standard contains all the requirement of the BRC standard. The EFSIS standard lists some additional requirements and recommendations. The contents are also structured in different order to the BRC standard. Both the BRC and the EFSIS standards are widely used and equally accepted in the EU food industry. Since they are similar only the BRC will be described.

The BRC standard is recognized by the majority of UK supermarket retailers and is being increasingly used by foodservices companies to approve suppliers. In many instances it can be a pre-condition to supply to certain companies. Food manufacturers are also using this standard as a basis of supplier approval. There are BRC accredited companies in many countries in the EU as well as in Canada, Brazil and Thailand.

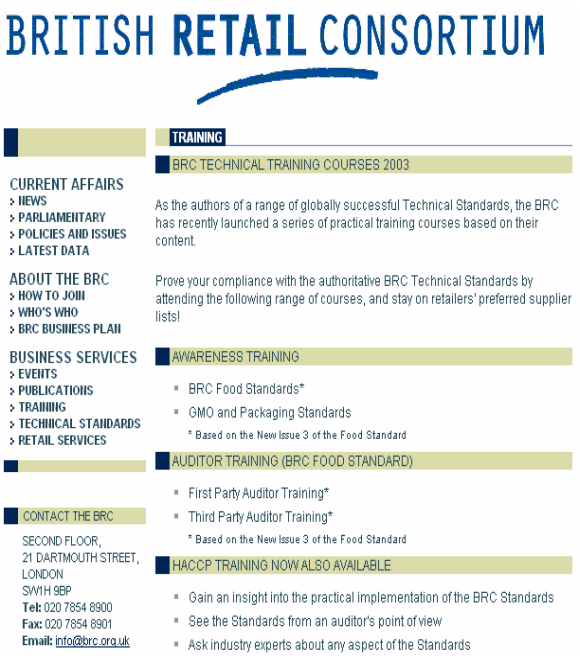
In the context of retailer branded products, that obligation includes the verification of performance at food production sites. Until recently each retailer undertook this activity independently verifying production site performance, against their internally developed standards. In some instances this verification is undertaken by the retailer's in-house technologists and in other cases by third party inspectors.

The British Retail Consortium has developed a Technical Standard for companies supplying retailer branded food products. This standard requires:

- A documented Quality Management System
- The adoption of HACCP
- Control of product, process and personnel standards
- Control of factory environment standards

The BRC certification is based on the criteria laid down in the "Technical Standard and Protocol for Companies Supplying Retailer Branded Food Products" prepared by the BRC in June 2000.

This document is available from the following website: http://www.tso.co.uk/bookshop/bookstore.asp?FO=38383&Action=Book&ProductID=0117025259



EUREP - (Euro-Retailer Produce Working Group)

The objective of the EUREP (Euro-Retailer Produce Working Group), which is made up of leading European food-retailers, is to raise standards for the production of fresh fruit and vegetables. In November 1997 they agreed on the first draft protocol for Good Agricultural Practice. This represented the first step towards integrated production. In September 1998 the EUREP initiated pilot trial projects to verify the implementation of EUREPGAP in the field. The EuroHandelsinstitut, a non-profit private research and education institute in Cologne, Germany, acted as international secretariat in the construction phase of EUREP until February 2001. Since March 2001, EHI founded the independent daughter company FOODPLUS GmbH that acts from now on as global body, serves as legal owner of the normative document and hosts the EUREP Secretariat.

The prepared EUREP document sets out a framework for Good Agricultural Practice (GAP) on farms for the global production of horticultural products (e.g., fruits, vegetables, potatoes, salads, cut flowers etc.). It goes on to define the minimum standard acceptable to the leading retail groups in Europe. (Standards for some individual retailers may exceed those described.)

EUREPGAP incorporates Integrated Pest Management (IPM) and Integrated Crop Management (ICM) practices within the framework of commercial agricultural production as sustainability and environmental protection is a serious component of agricultural production.

The EUREPGAP document contains the following sections:

1. Introduction
2. Record Keeping

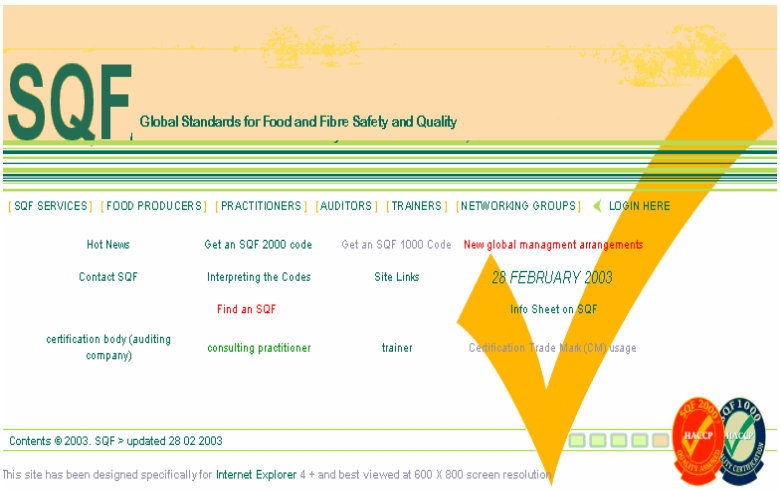
3. Varieties and Rootstocks
4. Site History and Site Management
5. Soil and Substrate Management
6. Fertilizer Usage
7. Irrigation
8. Crop Protection
9. Harvesting
10. Post-Harvest Treatments
11. Waste and Pollution Management, Recycling and Reuse
12. Worker Health, Safety and Welfare
13. Environmental Issues

Producers receive their EUREPGAP certificate through independent auditing from a certification body that is approved by EUREP. The following table indicates some of these organizations:

Organization	Country of Head Quarter	Accredited EN 45011 / ISO 65 scope EUREPGAP
AENOR	Spain	December 2001
Agrar-Control GmbH	Germany	December 2002
Certalent	Belgium	November 2002
Certenz	New Zealand	September 2002
CMI Certification	UK	October 2001
DNV (Det Norske Veritas)	Italy	April 2002
ECAL	Spain	January 2003
ECAS	The Netherlands	February 2002
EFSIS	UK	October 2001
Eurocert	Greece	June 2001
Foodcert	The Netherlands	October 2001
GCS (Pty) Ltd.	RSA	August 2002
Integra	Belgium	November 2001
Latu Sistemas S.A.	Uruguay	January 2002
PPECB	RSA	April 2002
ProCert	Switzerland and Spain	December 2001
SGS	The Netherlands	December 2002
SGS Group Belgium	Belgium	May 2002
SGS Spain	Spain	July 2002
SKAL International	The Netherlands	January 2003

SQF (Safe Quality Food)

The SQF system originates from Western Australia (WA). The WA Department of Agriculture recognized the need for Australian agriculture to adopt Quality Assurance (QA) systems as an important means of maintaining and increasing market access.



The SQF 2000 Quality Code was developed and launched in 1995 in response to the demand for a user-friendly quality assurance system tailored specifically to meet the needs of food businesses. All companies and parties within the food sector can use the standard. It is a full quality management system based on HACCP and ISO 9000 including both food safety and quality aspects.

The SQF 1000 Quality Code was developed in 1999 in response to the demand for a simple HACCP based and approved supplier food safety system for primary producers. It has been specially developed for the primary sector as a food safety and quality standard.

Agriculture Western Australia (AGWEST) has signed an agreement with the Swiss based SQF Institute for the worldwide right to commercialize the SQF quality system. On July 1 2001, AGWEST handed over the management and operation of the SQF1000 and SQF2000 programs to the SQF Institute, an organization committed to the promotion and development of SQF globally.

SQF Management Systems objectives are:

- To raise standards of food safety and quality across the food chain, from primary produce to consumer through increased awareness, understanding and adoption of SQF Management Systems;
- To continuously improve and deliver high standards of customer service and support to SQF clients;
- To continue to pursue increased recognition of SQF management systems by customers and clients in new and existing markets;
- To maintain and protect the high level of integrity of SQF Quality Codes.

The SQF Code contents are: Preface / Contents / Introduction

1 Scope
2 References
3 Definitions
4 System requirements
4.1 Commitment
4.2 Suppliers
4.3 Control of production
4.4 Verification
4.5 Document Control and Records
4.6 Product Identification, Trace and Recall
Appendix 1 Implementing SQF systems
Appendix 2 Principles & application of HACCP
Appendix 3 Certifying SQF systems
Appendix 4 Certification Trade Mark

Documentation is available from the following websites:

http://www.sqf.wa.gov.au
http://www.sqfi.com

European Hygienic Engineering and Design Group (EHEDG)

The EHEDG is a consortium of equipment manufacturers, food industries, research institutes and public health authorities, founded in 1989 with the aim of promoting hygiene during the processing and packing of food products.

European legislation requires that handling, preparation, processing and packaging of food is done hygienically in a hygienic premises. To assist in the design of safe and hygienic machinery, the EU has mandated the European federation of standardization institutes, the CEN, to produce standards. The EHEDG has been provided significant data and information during the preparation of these standards. In addition, the EHEDG has developed criteria for the design of hygienic equipment and methods to test whether equipment complies with these criteria. EHEDG has also developed guidelines for the use of equipment for sanitary processing of food products, such as for pasteurization, sterilization and packaging.

EHEDG actively promotes global harmonization of guidelines and standards.
EHEDG guidelines are produced in English and translations in other languages are available. Extended summaries of the guidelines are published in 'Trends in Food Science and Technology'.

The following guidelines/documents have already been produced:

1. Microbiologically safe continuous pasteurization of liquid foods, 1992.
2. A method for assessing the in-place cleanability of food processing equipment, 2000.
3. Microbiologically safe aseptic packing of food products, 1993.
4. A method for the assessment of in-line pasteurization of food processing equipment, 1993.
5. A method for the assessment of in-line pasteurization of food processing equipment, 1993.
6. The microbiologically safe continuous flow thermal sterilization of liquid food, 1993.
7. A method for the assessment of in-line pasteurization of food processing equipment, 1993.
8. Hygienic equipment design criteria, 1993.
9. Welding stainless steel to meet hygienic requirements, 1993.
10. Hygienic design of closed equipment for the processing of liquid food 1993.
11. Hygiene packing of food products, 1993.
12. The continuous or semi-continuous flow thermal treatment of particulate foods, 1994.
13. Hygienic design of equipment for open processing, 1996.
14. Hygienic design of valves for food processing, 1996.
15. A method for the assessment of in-place cleanability of moderately-sized food processing equipment, 1997.
16. Hygienic pipe couplings, 1997.
17. Hygienic design of pumps, homogenizers and dampening devices, 1998.
18. Passivation of stainless steel, 1998.
19. A method for assessing bacterial impermeability of hydrophobic membrane filters, 2000.
20. Hygienic design and safe use of double-seat mix proof valves, 2000.
21. Challenge tests for the evaluation of the hygienic characteristics of packing machines, 2000.
22. General hygienic design criteria for the safe processing of dry particulate materials, 2001
23. Production and use of food-grade lubricants, 2002
24. The prevention and control of Legionella spp (incl. Legionnaires Disease) in Food Factories, 2002
25. Design of Mechanical Seals for hygienic and aseptic applications, 2002

The following documents are in preparation:

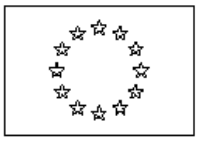
- Design of hygienic cooling and chilling equipment
- Materials of Construction of equipment in contact with food
- Design of hygienic slaughterhouses

Individual documents in English can be ordered from this website:
www.campden.co.uk/publ/pubfiles/ehedg.htm

EU DIRECTIVES

In food markets across the European Union, quality, security and certification are fundamental features of successful products. The majority of food products coming from non-European countries conform to the EU standards for quality and identity. This practice is encouraged and often required by the main European regulations such as the HACCP-based Directive 93/43/EEC or the latest proposal on food hygiene described in a European Commission White Paper on Food Safety dated 12 January 2000 and adopted by the

European Commission on 14 July of that same year. The package represents a major recasting of the food hygiene legislation currently in force.



COMMISSION OF THE EUROPEAN COMMUNITIES

Brussels, 12 January 2000
COM (1999) 719 final

WHITE PAPER ON FOOD SAFETY

Europa | de en fr

The European Commission

Health and Consumer Protection

Health and Consumer Protection Directorate-General

Library ◄ Press releases

Commission adopts White Paper on Food Safety and sets out a "Farm to Table" legislative action programme

Brussels, 12 January 2000

The European Commission adopted today a White Paper on Food Safety. The central goal of the European Commission is the achievement of the highest possible level of health protection for the consumers of Europe's food. The White Paper sets out a radical reform plan: a major programme of legislative reform is proposed to complete the EU´s "farm to table" approach as well as the establishment of a new European Food Authority. Achieving the highest standards of food safety in the EU is a key policy priority for the European Commission and the White Paper bears testimony to this priority. The guiding principle throughout the White Paper is that food safety policy must be based on a comprehensive, integrated approach. The Commission also decided today on allocation of food safety and industrial policy responsibilities.

The White Paper was presented today by David Byrne, Health and Consumer Protection Commissioner, and Erkki Liikanen, Enterprise and Information Society Commissioner. It represents the culmination of three months extensive work by the Commission since its appointment last September and builds on the consultation arising from the Commission's Green Paper on Food Law published in 1997.

The Parliament considered proposals on general food hygiene, the hygiene of foods of animal origin and on the animal health rules for foods of animal origin. Under the proposals, food operators throughout the food chain will bear primary responsibility for food safety. The new regulations will merge, harmonize and simplify all the detailed and complex hygiene requirements previously scattered over seventeen existing directives. This single, transparent hygiene policy will be applicable to all food and all food operators, from farm to table. The focus is on setting safety objectives while leaving industry the flexibility of deciding which safety measures to take, rather than prescribing them in great detail.

The strategic priorities detailed in the White Paper are:

- The creation of a European Food Safety Authority. (The Regulation which provides the legal basis for the establishment of the European Food Safety Authority, was formally adopted on 28th January 2002.)
- The consistent implementation of a farm to table approach in food legislation.
- The establishment of the principle that feed and food operators have primary responsibility for food safety; that Member States need to ensure surveillance and control of these operators; that the Commission shall test the performance of Member States' control capacities and capabilities through audits and inspections.

The proposal for the new and integrated approach towards official food and feed control in the European Union was adopted by the Commission on 5 February 2003 and is made public as document COM(2003)52. The proposal establishes a clear EU framework for a control system, in which the respective responsibilities of the Member States and the Commission are systematically set out. It takes into account the general principle that all parts of the food production chain must be subject to official controls. Furthermore, it provides for a common approach with regard to controls on imports of food and feed from third countries.

The current control system will continue to apply until the new system enters into force, expected in January 2005. At that time, the following Directives that are currently in place will be repealed and replaced by the provisions of the new Regulation: 70/373/EEC (sampling and analysis - official control of feeding stuffs), 95/53/EEC (official inspections - animal nutrition), 89/397/EEC and 93/99/EC (official control of foodstuffs).

PRESS RELEASES Rapid

Commission proposes new food and feed controls with teeth

DN: IP/03/182 Date: 05/02/2003

TXT: FR EN DE DA ES PT NL IT SW FI EL
PDF: FR EN DE DA ES PT NL IT SW FI EL
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IP/03/182

Brussels, 5 February 2003

Commission proposes new food and feed controls with teeth

The European Commission today adopted its proposal for a Regulation on official food and feed controls. The proposed Regulation will streamline and reinforce the existing control system with added bite, consisting of stricter enforcement mechanisms. The proposal aims to cure weaknesses in current legislation by improving the efficiency of control services performed by both Member States and the Commission. It defines tougher enforcement measures, including criminal sanctions. The proposal also creates a framework to support developing countries in meeting EU import requirements and provides for a financial framework to organise activities that enhance food and feed safety.

David Byrne, EU Commissioner for Health and Consumer Protection, stressed the importance of the proposal, saying: "The Regulation on official food and feed controls is one of the main objectives I promised to deliver on. It will streamline previously weak and scattered controls and strengthen consumer protection by giving both Member States and the Commission tougher enforcement tools. Ultimately, the Regulation will significantly improve our ability to manage the food and feed chain, making it possible to provide ever safer food for Europe's consumers."

CURRENT CONTROLS OF FOODS

In several EU Member States, market controls on foodstuffs are primarily conducted at an importer's premises or in wholesale markets. Targeted checks at entry points preferably involve an agreement to have been concluded between the control authorities and the customs services for the specific foods. The foods generally targeted consist of nuts (particularly groundnuts), but also dried figs (tested for aflatoxins), spices and, oddly enough, wild mushrooms from Eastern Europe (checked for radioactivity).

Checks for pesticide residues are also conducted on fruit and vegetables. In some cases, it is compulsory for importers wishing to import foodstuffs considered to pose higher risks (nuts, dried figs, and in particular, powdered coconut and powdered cocoa (tested for salmonella)) to obtain a permit from the control authorities. To obtain this they must, among other things, submit certificates of analysis for aflatoxins conducted in the exporting country or bacteriological analyses (for salmonella) conducted when the goods are imported.

Self-Monitoring by Importers and Verification by the Control Authorities

The principle whereby the importer is primarily responsible for checking foodstuffs has been adopted as a mainstay of control arrangements in some Member States. Self-monitoring is being implemented progressively by importers at different rates; they may be induced to do so by consumers' or professional associations' requirements. In many Member States of the EU, the gathering of information on self-monitoring by importers forms a part of commercial transactions by most large firms. Some importers and distributors of fruit and vegetables launched an initiative to organize and supervise the self-monitoring required from its members was judged to be a positive development. On the other hand, it would appear that the self-monitoring carried out by firms which import smaller volumes of goods is usually very limited.

The table below shows the methods used by each EU Member State when conducting controls of imported foodstuffs of non-animal origin:

Member State	Controls at entry points	Market controls	Checking of self-monitoring by importers
xx = primary method; x = secondary method; - = method not used			
Belgium	x	xx	x
Denmark	-	x	xx
Germany	x	xx	x
Greece	xx	x	x
Spain	xx	x	x
France	-	xx	xx

(To be continued)

Ireland	x	xx	x
Italy	xx	x	x
Luxembourg	-	xx	x
Netherlands	x	xx	x
Austria	xx	x	
Portugal	xx	x	x
Finland	xx	x	x
Sweden	x	xx	x
United Kingdom	xx	xx	x

STANDARDS AS A BARRIER TO TRADE

The globalization of food markets and the decline of agricultural tariffs have greatly expanded the opportunities for economic growth in developing countries, particularly those whose economies are heavily engaged in agriculture. As traditional trade barriers decline, however, technical and regulatory barriers are becoming increasingly apparent, particularly those associated with the sanitary and phytosanitary standards as expressed in the World Trade Organization SPS Agreement.

The World Trade Organization Agreement on Sanitary and Phytosanitary Standards (SPS) encourages member states to harmonize national standards with international standards and other recommendations made by organizations such as the FAO/WHO Codex Alimentarius Commission. The impact of the SPS agreement on developing countries is important for a number of reasons: (1) the SPS may limit market access in economies that chiefly depend upon agricultural exports, (2) developing countries have limited technology and financial resources to comply with standards, and (3) limited access to information, which prevents effective engagements in international debates on standards and certifications.

It is indeed unfortunate that the development assistance community has only recently awakened to the problems that food standards have brought to the developing countries. Codex standards which are considered to be international in nature have been promulgated for decades without the full involvement of developing countries. In some cases, the developing country representatives selected were not the most appropriate individuals to take part in the standards debates, nor were they properly briefed in the long-term significance of standards to their agricultural markets.

More recently, however, the World Bank and other technical assistance agencies have begun to redress this situation through the provisions of professional guidance on representation in the debates.

The growing concern of public health risks associated with the consumption of food products has prompted a comprehensive examination of sanitary and phytosanitary standards in industrialized countries.

However, the impact that the standards have on developing countries exports are seldom calculated. When they are, the results can be quite astonishing. A recent study by the World Bank indicated the new EU standard for aflatoxin would decrease African exports of cereals, dried fruits and nuts to Europe by 65 percent.

This new EU standard, which is more stringent than the Codex standard, would reduce health risks by approximately 1.4 deaths per billion per year. At the current EU population of approximately ½ a billion this comes to a reduced health risk of about 0.7 people a year to justify the reduction of 65% of the cereal, dried fruit and nut exports of Africa.

It would be interesting to compare the impact of this 65 percent reduction of trade in cereal, dried fruit and nut exports on the mortality of farmers of Africa, but perhaps comparing the relative human risk impact between Europe and Africa of the new aflatoxins standard may appear to be overly political. However, such an analysis is entirely justified in a situation where meeting overly restrictive standards are beyond the capacity of exporting countries.

It is therefore critically important for producers in exporting countries to understand the full significance of standards and certification systems. As indicated earlier, it has to be recognized that quality systems, HACCP methodology and the various certification systems are as much about international trade as they are about food safety. The absence of such systems will increasingly constitute a barrier to export markets.

On the other hand, certain standards and certifications are extremely difficult for exporters to achieve. It is therefore incumbent upon exporting countries to be intimately involved in the promulgation of these standards as possible. This is a critical strategic step to take to retain some influence over the future of agri-food exports.

Any county's participation in the Codex process is beneficial to its agribusiness. They have to take an active part in Codex deliberations and send their most qualified trade people to the meetings. This must be done in order to safeguard the safety and integrity of the national food supply as well as to guard the future economic and trading interests of the country. Codex plays an important part in overseeing the world food supply, so it is no longer a forum for scientists and technicians. Lawyers, economists and trade experts are the professionals who are required for Codex these days. Everyone stands to benefit from a vigorous national participation in Codex and a committed adherence to upgraded food standards.

Using standardization concepts that were born when trade was first commenced, we now have a system that sets a pattern for the establishment of food standards that are in everyone's long-term interests.

CONCLUSION

The last two decades have witnessed a profusion of new food standards and certification systems brought into being, particularly in the EU. While food safety and quality are the reasons behind these new developments, trade is the issue that is most directly affected. Once standards and certification systems are in place, there is little choice but to adhere to them if market access is the objective. Therefore, it is incumbent upon exporting countries to engage in the international or regional standards/certification debates, if they wish to exert any influence upon the final outcome.

3. CURRENT FOOD CERTIFICATION SYSTEMS IN THE ASIA AND PACIFIC REGION — ISSUES AND STRATEGIES

Mr. Cornelis Sonneveld
Managing Director
Alesun Food Technology
Asten
The Netherlands

BACKGROUND

The present day international trade in food is playing an increasingly important role in the provision of safe and nutritious diet for the world population. This international trade also has a two-fold benefit: it introduces a wider variety of foods into the diet by providing consumers with a better choice of products; and it provides food exporting countries with foreign exchange, which is indispensable for the economic development of many countries and thus for improvement in the standard of living of many people.

To ensure the safety of Agricultural produce and Food products, the primary sector and the food industry, encouraged, supported and stimulated by the trade, is implementing various systems and have these systems certified based on international or local standards/requirements.

Attention is given to the Food Safety and Quality Assurance Systems presently applied in the East, the Pacific and also world wide like ; HACCP, BRC, EUREPGAP, ISO 9001-2000, SQF 1000 and 2000. The Food Safety Systems in the Food Processing enterprises are not stand alone activities; the success of the manufacturing of safe Food Products is highly dependant on the safety and quality of raw material. In this document certification of the Food safety standards in the primary production are also discussed.

Why Certification and Some Definitions of Certification

Why Certification: Certification provides a bridge of confidence between consumers and producers, demonstrates commitment to quality, enhances credibility and add value to the product.

Definition 1: "With certification a company gives notice, with justified confidence, by means of a formal statement that a system or a product is in conformance with, respectively, a predefined standard or specification"

Definition 2: "A procedure by which accredited certification bodies, based on an audit provide written or equivalent assurance that food control systems conform to requirements"

HACCP (HAZARD ANALYSIS CRITICAL CONTROL POINT)

History of HACCP

The Hazard Analysis Critical Control Point (HACCP) System was introduced in the United States (USA) in 1971, by the Pillsbury Company in collaboration with the National Aeronautics and Space Administration (NASA) and the U.S. Army Natick Research & Development Laboratories. These agencies had the initial responsibility of designing and manufacturing food products and hardware which were to provide 100% assurance that either the food products would not be contaminated with pathogen, bacteria or viruses which could cause illness or that the equipment would function with zero defects.

After extensive evaluation, it was decided that the only way success could be achieved was by having control over the process and the people beginning as early as possible in the production system. This preventative system was perceived to offer the highest degree of assurance that the products manufactured were safe as it negated the need for any further end product testing and emphasis was placed on monitoring. The HACCP concept for food safety was developed based on this approach.

HACCP Internationalization, Concept, Purpose, Implementation and Benefits

The HACCP system has become internationally recognized system for the management of food safety for all companies involved in production, transformation, storage and distribution of food for human consumption.

The HACCP concept involves the identification of specific hazards throughout the entire process involved in the production of a food product and focuses on the preventative measures for their control to assure the quality and safety of the food. This includes analysis of raw material sources and usage, processing equipment, operating practices, packaging and storage, together with marketing and conditions for intended use. There is less reliance on the traditional system of end product testing and food safety is built into the product from conception through design and distribution. The purpose of HACCP can therefore be summarized thus: "to identify potential problems which could occur in an operation, consider each and establish controls to minimize or prevent its occurrence".

Implementation of HACCP System

The HACCP concept is based on 7 principles and 12 steps. The CODEX Alimentarius speaks about 12 steps:

1. Assemble the HACCP team
2. Describe the product
3. Identify the intended use
4. Construct flow charts
5. On-site verification of flow chart
6. List all hazards associated with each step and list preventive measures
7. Apply HACCP decision on each hazard
8. Establish target levels and tolerances for each CCP
9. Establish a monitoring system for each CCP
10. Establish corrective actions
11. Verification of the system
12. Establish record keeping and documentation

(Note**:** Point 7 to 13 are known as 7 principles of HACCP process.)

Benefits Of HACCP System

Some benefits of the HACCP-concept in general and for food inspection:

- The system is preventive, pro active, systematic, scientific and cost effective.
- It is a Management Tool.
- The system is internationally acknowledged (FAO/WHO).
- The system is applicable throughout the Food Chain.
- The system leads to increased awareness and subsequent higher involvement and commitment of the employees.
- The official control based on HACCP-programs is more efficient than a traditional inspection or end product-testing alone. Hence, health protection of consumers is enhanced.
- Harmonization of food inspection practices at international level.
- Facilitation of Regulatory/Customer inspection.
- It leads to greater confidence in product safety.
- The system has a preventive approach; reduction of rework and losses are achieved which results in reduction of cost.

Certification of HACCP

Different countries have different Criteria to audit and Assess implemented HACCP systems:

- India uses the Indian Standard: Food hygiene - Hazard Analysis and Critical Control Points (HACCP) System and guidelines for its application: IS 15000:1998.
- Singapore is applying the Singapore Standard 444.
- South Africa, for instance, uses SABS 0330: Code of Practice for the implementation of a HACCP system.
- The Netherlands is using "Requirements for a HACCP based Food safety System version September 2002.
- Turkey uses the Turkish Standard TS 13001 (March 2003).

The FAO & WHO have also published a guideline: Guidance on Regulatory Assessment of HACCP as a result of a joint FAO/WHO Consultation on the Role of government Agencies in Assessing HACCP in Geneva from 206 June 1998. Based on this document various countries have established their standards.

Certification is carried out by a company accredited by the Board of Accreditation. A successful audit will result in a Certificate. The certificate is not for lifetime. Repeat audits by the same certifying body will be carried out within a period of 3 years. After this period, the to be certified, company will have to start all over again with the procedure of certification. Certification is not a legal requirement; it can be company policy or requested by the wholesale company Differences in the requirements of the individual countries lead to differences in the level of HACCP systems. Various HACCP requirements or criteria being developed and applied in the individual countries differ largely in content and level. In different countries, the experience acquired on HACCP implementation also differs substantially because the auditors have a different level of experience and knowledge resulting in various levels of implementation and certified HACCP systems.

RECENT DEVELOPMENT OF ISO STANDARDS

Presently ISO is working under the Technical Programme TC 34 on various new documents: The international standard: ISO 22000 Food Safety Management Systems -Requirements is under development. This document emphasizes on certification requirements for HACCP and will further contribute to the standardization and harmonization of the HACCP systems worldwide. This document is expected to be available in 2004. Another document under preparation is the ISO/ WD 22519 "Traceability system in the Agriculture Food Chain - General Principles for Design and Development".

The ISO 9001:2000 standard can be applied to the Food Industry though it is not a common practice to use it as a single system for the Food industry. It is recommended to be used together with and after HACCP implementation to have a complete Quality Management system in place.

ISO has developed a new standard; ISO 15161: 2001; Guidelines on the application of ISO 9001:2000 for the food and drink industry. This guideline is based on the ISO 9001:2000 guideline and includes HACCP. However this standard is not designed for certification and not auditable but rather a tool for the Food Industry to implement ISO in combination with HACCP.

SQF

Background

The SQF system find its origin in Western Australia. (WA). Agriculture Western Australia recognized the need for Australia to adopt Quality Assurance Systems as an important means of maintaining and increasing market access.

SQF 2002 cm

The SQF 2000cm Quality Code was developed and launched in 1995 in response to the demand for a user Friendly quality assurance system tailored specifically to meet the needs of the food business. All companies and parties within the food sector can use the standard. It is a full quality management system based on HACCP and ISO 9000 with both food safety and quality aspects.

SQF 1000 cm

The SQF 1000 cm Quality code has been developed in 1999 in response to the demand for a simple HACCP based approved supplier food safety system for primary producers. It has been specially developed for the primary sector as a food safety and quality standard.

SQF Management Systems are:

- To raise standards of food safety and quality across the food chain, from primary produce to consumer though increased awareness understanding and adoption of SQF Management Systems;
- To continuously improve and deliver high standards of customer service and support to SQF clients;
- To continue to pursue increased recognition of SQF management systems by customers and clients in new and existing markets; and
- To maintain and protect high level of integrity of SQF Quality Codes.

The SQF Code Contains:

- Preface
- Contents

- Introduction
- Scope
- References
- Definitions
- System requirements
- Commitment
- Suppliers
- Control of production
- Verification
- Document control and records
- Product identification, trace and recall
- Appendix 1 Implementing SQF systems
- Appendix 2 Principles & application of HACCP
- Appendix 3 Certifying SQF systems
- Appendix 4 Certification Trade Mark

Developing SQF Systems

Those developing, documenting, validating and verifying SQF systems must be trained in HACCP and SQF systems, registered with SQF as "SQF Practitioners" and have relevant food industry experience .SQF Practitioner's must complete a HACCP training course recognized by SQF. A number of HACCP training courses are licensed and courses are widely available. They also undertake SQF Systems training courses.

Auditors of SQ systems must be employed by Certification Bodies licensed by the SQF Program and the Certification Bodies must be accredited under the International Accreditation Forum (IAF) guidelines. Currently SGS International Certification Services, International Standards Certifications, Sci-Qual International and Food Operations are the four internationally recognized and accredited third party certification bodies licensed to certify and audit SQF systems.

SQF Auditing has been aligned with IAF guides 62/65. It includes a desk or documentation audit, certification audit and subsequent maintenance audits through which conformance to HACCP is verified. A re-certification audit is required after three years to re-validate the quality system. Businesses that achieve SQF Certification can use a distinctive certification trademark ^{cm} on product to identify to consumers that the food or fibre carrying the mark has been supplied by a business that holds SQF Certification. The Certification mark can also be applied to stationary, vehicles, uniforms etc., to identify the businesses SQF achievement. The marks can be used only under certain conditions that are explained in a separate document.

At the end of September 2002, some 3400 businesses worldwide across many production/distribution and processing sectors have gained certification to the SQF Codes. The system has been implemented with Certifications in Australia, China, Japan, Korea, India; Mauritius, New Zealand, Saudi Arabia, Sri Lanka; Singapore; Peru, Vietnam: the United Arab Emirates, the Netherlands, the Philippines and the United States of America. Systems are under development in Canada, Chile, France, Indonesia, Malaysia, Spain, South Africa and the United Kingdom.

The certified businesses range along food and fibre supply chains from raw materials supplies and service contractors, through producers, food processors and manufacturers, transporters, hotels & resorts, to airline and institutional caterers. SQF brings value to a company as:

- The enabling tool for producers, manufacturers and distributors who need to demonstrate "due diligence "and traceability;
- A proven way for the supply chain (producers through to retailers) to increase market share and profits by aligning products and services to meet consumers requirements;
- A mean to building consumer confidence and trust;
- An internationally recognized standard, suitable for all food suppliers operating in domestic and global markets; and
- A management system that allows the implementation of operational efficiencies.

Customers can have greater confidence in the safety, quality and consistency of the food supplied out of an SQF system.

In horticulture, broad acre cropping systems and livestock production, merchants are buying produce from quality assured growers before it is harvested. Importers prefer quality assured product; Banks are

more inclined to lend money to business that have implemented management systems to address customer needs; Industry is able to provide fast track solutions to problems because quality assured growers maintain records that assist in problem solving activities. Through HACCP risk management approach, industry is able to direct Research and Development funds to area of greatest need; and Government can acknowledge that those businesses in a third part audited HACCP based system as being responsible. They are able to reduce their surveillance of these businesses and in turn are better placed to direct their limited resources to other problem areas.

The responsibility for food safety and quality will continue to be pushed through the food supply chain. All stake holders in this chain will be required to share the responsibility for the integrity of the food supply. Those that do not will be considered unreliable are likely to fall by the wayside.

People and business that produce, manufacture, store, transport and retail food that we eat accept and acknowledge their individual responsibilities. However, running a business can involve managing other issues such as worker safety, animal welfare, environmental and many others. It also involves making a profit. It is therefore imperative that systems are available that provide the integrity of supply that is essential for consumer confidence, whilst at the same time contributing to the viability of the food industry. The SQF Codes are designed to fulfil this requirement.

The SQF program is now rapidly embracing a global expansion. Segments of the food sector worldwide have recognized that the system, initially intended for West Australian food and fibre producers can provide the world with a method for assuring both food and safety and quality.

BRC (BRITISH RETAIL CONSORTIUM)

Background

The BRC is originated from the United Kingdom retailer branded products represent over 50% of all food sold in the U.K. Under the terms of the Food Safety Act 1990, retailers have an obligation to take all reasonable precautions and exercise all due diligence in the avoidance of failure, whether in the development, manufacture, distribution, advertising or sale of food products to the consumer. That obligation in the context of retailer branded products includes the verification of technical performance at food production sites. Until recently, each retailer has undertaken this activity separately, verifying food production site performance, against their individual, internally developed standards. In some instances verification is undertaken by the retailers in-house technologists and in other instances by third party inspection bodies.

Technical inspection of supplying company's production premises forms only a part of the retailers due diligence system, and the acceptance for a company to supply, rests with the individual retailer. Major retailers, like AHOLD in the Netherlands and METRO in Germany, are in favor to have BRC as an International Standard.

The Technical Standard

The British Retail Consortium has developed the Technical Standard for those companies supplying retailer branded food products. The Standard has been developed to assist retailers to fulfil their legal obligations and protection of consumer, by providing a common basis for the inspection of companies supplying retailer branded food products.

It has encompassed the fundamental principles of current retailers standards and intended to be incorporated into standards used by third party inspection bodies. It is not intended to replace the requirement of any legislation, where the legislation requires a higher standard for a specific Industry sector. The standard will be reviewed on a regular basis by the BRC membership and revised, where considered appropriate. The standard requires: The adoption of HACCP; A documented Quality Management System; Control of factory environment standards, Control of product, process and personnel standards.

Benefits of the BRC Technical Standard

There are a number of benefits arising from the introduction of the BRC Technical Standard: A single standard and associated protocol, allowing inspection to be carried out by Inspection Bodies, who are accredited against a European standard; single verification commissioned by the supplier, in line with an agreed inspection frequency, will allow suppliers to report upon status to those customers recognizing the standard; The standard is comprehensive in scope covering all areas of product safety and legality.

The standard addresses part of the due diligence requirements of both the supplier and the retailer. Within the associated inspection protocol, there is a requirement for ongoing surveillance and confirmation

of follow up of corrective actions on non conformance; As inspection bodies are accredited against a European standard, there will be future recognition of Inspection Bodies in countries where product is sourced.

Certification

The certification is based on the criteria laid down in the " Technical Standard and Protocol for companies Supplying Retailer Branded Food Products" prepared by the BRC of April 2002 , issue no..3. The standard provides for a certificate of inspection to be awarded at one of two levels: Foundation Level and Higher Level.

The Format of the Technical Standard

Each section of the Technical Standard begins with a paragraph, which is the statement of intent, hat all the suppliers must comply with in order to obtain a certificate of inspection. Below the statement of intent, there are three columns of specific criteria:

1) Foundation Level

All criteria specified in column 1 must be complied with to obtain a certificate of inspection at the Foundation Level. In addition to these criteria, it is desirable to aspire to those criteria specified in column 2 for the Higher Level certificate of inspection and column 3 Recommendations on Good Practice.

2) Higher Level

All requirements for the certificate of inspection at the Foundation Level must be met. In addition, all criteria in column 2 must be complied with to obtain a certificate of inspection at the Higher Level.

3) Recommendations on Good Practice

These criteria are recommended to all suppliers as being industry best practice, to which they should aspire. Where any of these recommendations are not met, it is still a requirement of the scheme that this is recorded within the inspection report. It is envisaged that companies will progress through the two level of the standard and ultimately comply with all the criteria of the standard. To this end, it is a requirement of the standard that the inspection report, at both Foundation and Higher Level, will record non-conformity against any criteria in columns 1, 2 or 3. This will identify specific shortfalls, where improvement can be achieved.

The accompanying Inspection Protocol provides specific requirements for those companies seeking inspection against the standard.

Certification Audit

The certification audit can be carried out by an Inspection Body, accredited by the Dutch National Board of Experts on HACCP. A successful audit will result in a Certificate of Inspection. The certificate is not for life-time. Repeat audits will be carried out and the frequency of repeat audits will depend on the level of inspection (Foundation or Higher).

Food Safety in the processing industry is not a stand alone activity and covers the whole chain. In this document attention is also paid to the international Food safety systems in the primary production.

Contact Details

The BRC technical standard for companies supplying retailer-branded food products (3rd edition)
Kevin Swoffer,
Head of technical Services
BRC
Second Floor
21 Dartmouth Street
London SW1H 9BP
Tel: + + 44 (0) 207 854 8934
Fax: ++ 44 (0) 207 854 8901
Email: kevin.swoffer@brc.org.ukwww.brc.org.uk

EFSIS

EFSIS is a Third party independent inspection service organization, providing retailers, manufacturers and caterers, throughout the world, of their services. They apply the EFSIS Standard (Checklist) for companies supplying food products, which not exactly is the same as the BRC standard but it does incorporate all the BRC requirements. (www.efsis.org)

Contact Details

The EFSIS standard for companies supplying food products - Issue no. 5:
Mrs. Carole Payen,
Operations manager
EFSIS LTD
P.O.Box 44
Winterhill House
Snowdon Drive
Milton Keynes , MK6 1AX
United Kingdom
Tel: ++ 44 (0) 1908 84 4253
Fax: ++ 44 (0) 1908 6098 25
Email: carole_payne@efsis.com
www.efsis.com

IFS (INTERNATIONAL FOOD STANDARD)

Background

The IFS has been created by the Federations of German Distributors (after which it was supplemented by French distributors) in order to make possible a systematic and uniform evaluation of Food product suppliers.

The IFS standard (A Checklist) like BRC and EFSIS concerns primarily the setting up of the HACCP as part of the Quality Management Requirements and in addition to Management Responsibilities, Resource Management, Production Processes, Measurements, Analysis and Improvements. IFS put strong emphasis to the quality of the auditor. He / she must have an in-depth knowledge of the sector. This is a guaranty of quality and is the only way for them to ensure value addition to the clients of the audits.

German retailers have developed the International Food Standard (IFS) in order to provide a basis for auditing private labels. It was set up by the federal Union of German Trade Associations and accepted by the German trade.

The aim is to create a consistent basis for evaluation of all private label producers with uniform formulations, uniform audit procedures and mutual acceptance of audits, which will create a high level of transparency throughout the delivery chain. The service is available for trade, producers and auditing organizations.

The IFS defines requirements in content, procedure and evaluation of audits and requirement profile for the auditing organizations. In detail the criteria is split into different levels: The “basic level” describes the minimum requirements, which the food industry must fulfill to obtain an IFS certificate.

The ‘”advanced level” defines the highest standard for the food industry. Furthermore each criterion contains recommendations for exemplary practices for enterprises, which seek to obtain an outstanding position in the advanced level.

Summary of the Contents of the IFS

In the chapter “quality management systems” requirements concerning the HACCP system, the HACCP team and HACCP study are defined. It also contains rules on a quality handbook and the obligation to report. The chapter “responsibilities of the management” deals with the responsibility of the management and with the inspection of the quality and production systems to optimize the outputs.

The chapter “resource management” gives attention to human resource hygiene and medical check up and social facilities.’

The chapter “production processes” deals with temperature, time and quantity control, foreign body detection, complaint handling, product recall and control of Non Conforming products.

The requirements for auditors are strictly regulated. All auditing bodies shall have an EN 45011 accreditation according to the International Food Standard (IFS). Only certified auditors can audit against the standard. The auditor must have professional knowledge of the IFS. An auditor can only audit according to his /her qualification. IFS differs with BRC as follows:

- The significant difference between the IFS and BRC are found in training , benchmark and documentation system.

- In BRC's there is only a distinction between approved or disapproved, whereas IFS provides a much more detailed auditing report.
- IFS is an EN 45001 accreditation.
- IFS auditors have to demonstrate their competence to a neutral committee, which guarantees a high level of quality.
- IFS puts strong emphasis on purchasing and review of contracts which is directly drawn from ISO 9001-2000.
- The Risk Assessment in BRC is foundation level whereas in the IFS standard this is on the level of recommendation.

Contact Details

The International Standard for Auditing Food Suppliers (International Food Standard)
Contact: Stefan Tromp.
Bundesvereinigung Deutscher Handelsverbaende EV
Am Weidendamm 1A
10117 Berlin, Germany
Tel : ++ 49 (0) 30 7262 5070
Fax: ++ 49 (0) 30 7262 5069
Email:stromp.hde@einzelhandel.de
www.bdh-handlesverbaende.de

GLOBAL FOOD BUSINESS NETWORK (CIES)

Background Information

CIES is the independent Global Food Business network. The Food Business Forum is a unique, truly international food business network, strategically placed at the interface between retailers and suppliers. Membership in CIES is on a company basis and includes more than two thirds of the world's largest food retailers and their suppliers. At the same time, local players from Austria to China and New Zealand to Brazil also play an active role in the organization.

Membership, which is on a company basis, is by invitation only, made up of 250 major food retailing companies drawn from some 48 countries and an equal number of their suppliers world-wide. The combined sales of CIES retailer and supplier member companies are over $2,800 billion. CIES retailer members generate over $2,000 billion, employ 4 million people and operate close to 600,000 stores representing a total sales area of 160 million square meters.

CIES activities are designed for chief executives, corporate managers and main functional directors. The different CIES programs are made up of international congresses, conferences and "modules" as well as of smaller meetings dealing with specific topics in great depth. They cover themes like strategic management, food safety or the image of the food retail sector, and functional areas like marketing, Information Technology or supply chain management.

The programs include projects, international conferences and seminars, benchmarking studies, publications and reports, as well as many other tailor-made member services. Special programs and initiatives such as the Global Food Safety Initiative created in May 2000 or the Supply Chain Benchmarking Project "Glosup" complete the large spectrum of activities undertaken by the organization.

The CIES network is based on privileged access to information and contacts. It enables the member to step back from daily business life and take in the latest trends and developments in the global food business. By sharing this knowledge, CIES members gain a new perspective on their activities, which brings a key advantage in their business. Membership benefits can be checked out to learn more about the value that CIES add to a company.

Contact Details

International Headquarters
7 Rue de Madrid 75008 Paris, France
Tel: ++ 33 1 44 698484
Fax: ++ 33 1 44 69 99 39
Email: foodsafety@ciesnet.com
www.ciesnet.com

GLOBAL FOOD SAFETY INITIATIVE (GFSI)

CIES has facilitated the initiative to enhance Food safety, ensure consumer protection, strengthen consumer confidence and to set requirements for food safety schemes and to improve cost efficiency throughout the food supply chain. Following their lead, the Global Food Safety Initiative (GFSI) was launched in May 2000. The Initiative is facilitated by CIES – The Food Business Forum. It is based on the principle that food safety is a non-competitive issue, as any potential problem arising may cause repercussions in the whole sector.

The Key Priorities of the Initiative are:

- To implement a scheme to benchmark food safety standards worldwide;
- To build and implement an international early warning system;
- To encourage co-operation between the worldwide food sector and national and pan-national governments and authorities; and
- To coordinate Good Retailing Practices through an international task force.

Benchmarking Food Safety Standards

In the light of the plethora of food safety standards, the Task Force decided not to write a new standard, Instead, they compiled a set of 'key elements' to serve as at the requirements against which existing food safety standards will be benchmarked. The 'key Elements' as defined by the Task Force are:

- Food Safety Management Systems;
- Good Practices for Agriculture, Manufacturing and Distribution; and
- HACCP (Hazard Analysis and Critical Control Points)

The conforming benchmarked food safety standards can be applied by food suppliers throughout the supply chain, upon agreement with retailers, when defining contracts for sourcing of products. The application of the benchmarked standards to particular products will be at the discretion of retailers and suppliers. This process will vary in different parts of the world, depending on:

- company policies;
- general regulatory requirements; and
- product liability and due diligence regulations.

The use of benchmarked standards on a global scale will also be of importance for developing countries and their consumers. Greater efficiency from field to fork will be pursued in these regions as well, due to increased awareness and harmonization of standards which have been reviewed by the Task Force.

Retailers and suppliers will also benefit through this harmonization, as inspections will be conducted in the local language enabling the auditor to challenge systems more effectively. Suppliers will be treated equally throughout the world, and will not be penalized for the location of their site. In addition, the GFSI benchmark system will mean more suppliers will have third party audits, reducing travel expenses for retailers and suppliers so they can redirect their resources to other food safety activities.

The Global Food Safety Initiative as a result of the work of the Task Force the first four food safety standards have now been benchmarked to be in compliance with the 2nd Edition of the Guidance Document containing requirements for Food safety schemes.

- the BRC standard
- the Dutch HACCP Code
- the EFSIS Standard
- the International Standard for Auditing Food Suppliers (International Food Standard, IFS)

For more information on the Dutch HACCP Code (Requirements for a HACCP based food safety system) 3rd version September 2002, contact:

Peter C.Goosen, Chairman
The National Board of Experts on HACCP
Secretariat
P.O.Box 93202
NL 2509 AE The Hague, The Netherlands
Tel: ++ 31 (0)70 32 22 987
Fax: ++ 31 (0)70 3818593
Email: info@foodsafetymanagement.info
www.foodsafetymanagement.info

Guidance Document

The 3rd Edition of the Guidance Document contains Requirements for Food Safety Schemes, A Benchmarking Procedure and Requirements and Guidance of Certification Bodies (system), as well as an outline of the Key Elements. The GFSI logo will not be used on products.

Former Editions of the Guidance Document ("First/Second Edition") were widely circulated for external consultation amongst all stakeholders between August 2001 and August 2002. The Third Edition, now containing a more extensive benchmarking framework, can be downloaded from www.globalfoodsafety.com, the GFSI website which is dedicated entirely to food safety. The Guidance Document will shortly be available in French, German and Spanish. Food safety standards that have been benchmarked could then be applied throughout the supply chain.

Key Elements of Food Safety Management Systems Based on the Third Edition

General Requirements

The Conforming standard (hereafter the standard) shall require that the elements of the supplier's Food Safety Management System be documented, implemented, maintained, maintained and continually improved. The food safety management system shall:

a) identify the processes needed for the food safety management system;
b) determine the sequence and interaction of these processes;
c) determine criteria and methods required to ensure the effective operation and control of these processes;
d) ensure the availability of information necessary to support the operation and monitoring of these processes;
e) measure, monitor and analyze these processes, and implement action necessary to achieve planned results and continual improvement.

Food Safety Policy

The standard shall require the supplier to have a clear, concise and documented food safety policy statement and objectives, that specifies the extent of the organization's commitment to meet the safety needs of its products.

Food Safety Manual

The standard shall require the supplier to have a Food Safety Manual or documented system, having a scope appropriate to the range of business activity to be covered, including documented procedures or specific reference to them, and describing the interaction of the related processes.

Management Responsibility

The standard shall require that the supplier's senior management demonstrate their commitment to the development and improvement of the food safety management system.

Management Review (including HACCP Verification)

The standard shall require that the supplier's senior management will review the verification of the food safety management system and HACCP Plan, at planned intervals, to ensure its continuing suitability, adequacy and effectiveness. Such a review shall evaluate the need for changes to the supplier's food safety management system, including the food safety policy and food safety objectives.

Resource Management

The standard shall require that the supplier's senior management determine and proceed, in a timely manner to ensure that all the resources needed to implement and improve the processes of the food safety management system, and to address customer satisfaction.

General Documentation Requirements

The standard shall require that the supplier prepare documented procedures to demonstrate compliance with the specified standard and will ensure that all records required to demonstrate the effective operation and control of its processes and its management of product safety, are securely stored, effectively controlled, and readily accessible when needed.

Specifications

The standard shall require that the supplier ensure that for all items and services purchased/provided and having effect on product safety, documented specifications are prepared, securely stored and readily accessible when needed.

Procedures

The standard shall require that the supplier will prepare and implement detailed procedures/instructions for all processes and operations having an effect on product safety.

Internal Audit

The standard shall require that the supplier have an internal audit system in place in relation to all systems and procedures, which are critical to product safety.

Corrective Action

The standard shall require that the supplier will ensure that procedures for the determination and implementation of corrective action in the event of any significant non-conformance relating to product safety are prepared and documented and that all such documentation is securely stored and readily accessible when needed.

Control of Non-Conformity

The standard shall require that the supplier ensure that any product which does not conform to requirements, is clearly identified and controlled to prevent unintended use or delivery. These activities shall be defined in a documented procedure that is securely stored and readily accessible when needed.

Product Release

The standard shall require that the supplier will prepare and implement appropriate product release procedures to ensure that product is not released until all specified requirements are met.

Purchasing

The standard shall require that the supplier controls purchasing processes to ensure that all externally sourced items conform to requirements.

Supplier Performance Monitoring

The standard shall require that the supplier operate procedures for approval and continuous monitoring of its suppliers. The results of evaluations and follow-up actions shall be recorded.

Traceability

The standard shall require that the supplier develop and maintain appropriate procedures and systems to ensure:

- identification in any case through a code marking on container and product, to identify the source of any out-sourced product, ingredient or service; and
- record of purchaser and delivery destination for all products supplied.

Complaint Handling

The standard shall require that the supplier prepare and implement an effective system for the management of complaints and the use thereof to control and correct evidence of shortcomings in food safety.

Product Recall

The standard shall require that the supplier prepare and implement an effective product recall procedure for all products it supplies, which is tested regularly.

Control of Measuring and Monitoring Devices

The standard shall require that the supplier identify the measurements critical to food safety and the measuring and monitoring devices required to assure product safety and methods to assure calibration and accuracy.

Product Analysis

The standard shall require that the supplier prepare and implement a system to ensure that product/ingredient analyses critical to the confirmation of product safety is undertaken and required and that such analyses conforms to publicly recognized standards.

Food Supply Line, a data base system developed by GFSI will contain details on the benchmarked standards and certified suppliers. This system will be available shortly on www.globalfoodsafety.com

Contact Details

For further information on the Global Food Safety Initiative and to submit your standards, contact:
Catherine Francois: GFSI
7, rue de Madrid 75008 Paris, France
Tel: (+33) 1 44 69 99 21
Fax: (+33) 1 44 69 99 39
E-mail: globalfoodsafety@ciesnet.com
Web: http://www.ciesnet.com

EUREP – EURO-RETAILER PRODUCE WORKING GROUP

Objectives and Background

The objective of the EUREP (Euro-Retailer Produce Working Group), which is made up of leading European food-retailers, is to raise standards for the production of fresh fruit and vegetables. In November 1997 they agreed on the first draft protocol for Good Agricultural Practice. This represented the first step towards integrated production. In September 1998 the EUREP initiated pilot trial projects to verify the implementation of EUREPGAP in the field. They were conducted together with advanced producers in Spain (MARTINAVARRO) and Italy (APO).

Scope

The prepared document sets out a framework for Good Agricultural Practice (GAP) on farms, which defines essential elements for the development of best-practice for the global production of horticultural products (e.g. fruits, vegetables, potatoes, salads, cut flowers and nursery stock). It defines the minimum standard acceptable to the leading retail groups in Europe. However, standards for some individual retailers and those adopted by some growers may exceed those described. The document does not set out to provide prescriptive guidance on every method of agricultural production.

EUREP members wish to recognize the significant progress already made by many growers, grower groups, grower organizations, local schemes and national schemes in developing and implementing best-practice agricultural systems with the aim of minimizing adverse impact on the environment. EUREP members also wish to encourage further work to improve growers capability in this area, and in this respect this GAP framework, which defines the key elements of current agricultural best-practice, should be used as a benchmark to assess current practice, and provide guidance for further development.

GAP is a means of incorporating Integrated Pest Management (IPM) and Integrated Crop Management (ICM) practices within the framework of commercial agricultural production. Adoption of IPM/ICM is regarded by EUREP members as essential for the long-term improvement and sustainability of agricultural production.

EUREP supports the principles of and encourages the use of HACCP (Hazard Analysis Critical Control Points). It is essential that all organizations involved in the food production chain accept their share of the tasks and responsibilities to ensure that GAP is fully implemented and supported.

If consumer confidence in fresh produce is to be maintained, such standards of Good Agricultural Practice must be adopted, and examples of poor practice must be eliminated from the industry. All growers must demonstrate their compliance with national or international law. All growers should be able to demonstrate their commitment to:

- maintaining consumer confidence in food quality and safety;
- minimizing detrimental impact on the environment, whilst conserving nature and wildlife;
- reducing the use of agrochemicals;
- improving the efficiency of natural resource use; and
- ensuring a responsible attitude towards worker health and safety.

The EUREP GAP has the following content with subsequent conditions: Introduction; Record Keeping; Varieties and Rootstocks; Site History and Site Management; Soil and Substrate Management; Fertilizer Usage; Irrigation; Crop Protection; Harvesting; Post-Harvest Treatments; Waste and Pollution Management, Recycling and Reuse; Worker Health, Safety and Welfare; and Environmental Issues.

Certification of EUREP GAP

Growers receive their EUREP GAP certificate through independent auditing from a certification body that is approved by EUREP. The certifications will be based on the criteria laid down in the EUREPGAP Document "Control Points and Compliance Criteria" from September 2000.

SAFE QUALITY FOOD 1000 (SQF 1000 cm)

The SQF 1000 cm Quality Code has been developed in 1999 in response to the demand for a simple HACCP based approved supplier food safety system for primary producers. It has been specially developed for the primary sector as a food safety and quality standard. (www.sqfi.org)

QUALITY OF AN AUDITOR

The role, the quality, the experience and the education of the auditor plays an important role in certification. The FAO/WHO publication "Assuring food safety and quality: Guidelines for strengthening National Food Control Systems" which is actually prepared to enhance the food safety control systems at governmental level, recognizes this aspect and emphasis that a Food Inspector must be trained in Food Science and Food Technology to understand the industrial processes. These requirements are also applicable for an auditor.

The Guidance document for certification bodies speaks about the auditors qualifications, training and experience .On the entry level they he/she should have the following qualifications:

- The auditor shall have a minimum secondary education (as defined in ISO 1901) or equivalent as mentioned in clause 7 of ISO 19011, in a food or bioscience related discipline.
- The auditor shall have successfully completed a WMS lead assessor course and have undergone a supervised period of training in practical assessment. He or she shall also have successfully completed training in HACCP based on the principles from codex Alimentarius (Alinorm 97/13) and be able to demonstrate competence in the understanding and application of HACCP principles.

Note: the training course should be recognized by the industry (and its stakeholders) as being appropriate and relevant. For example, approval or certification by an independent body with the relevant expertise can provide some assurance that a course meets specified criteria.

- The auditor shall have a minimum of five years experience relevant to the food industry. This should involve work in Quality Assurance or Food Safety functions within food production or manufacturing, retailing, inspection or enforcement.
- An auditor shall perform a minimum of five relevant audits per year to maintain his qualification.

Training and Experience for Specific Fields

Certification bodies shall be able to demonstrate that every auditor has appropriate training and experience for the particular fields for which they are considered competent. Competence shall be recorded (clause 5.6.c of ISO 19011) at least at the level of each field as indicated in chapter 8.5.

It is difficult to be prescriptive as to the specific training required in the absence of nationally recognized training modules. Necessary training and experience shall be judged on the risk and the particular technical demands of the field. As such development of an international Code of Practice for Auditors is recommended.

CERTIFICATION BODIES

Part III Requirements and Guidance for Certification Bodies of the third edition of the Guidance Document of the GFSI speaks about seeking accreditation to ISO/IEC guide 65 for the scope of the Global Food Safety Initiative conforming food safety scheme.

The general requirements for accreditation are laid down in the international standard ISI/IEC Guide 65 – IAF (International Accreditation Forum) Guidance on the Application of general Requirements for Bodies Operating Product Certification Systems. These requirements apply to all types of certification and therefore need to be interpreted in respect of Food safety requirements and the fields of food technology concerned.

The chapter "Guidance for certification bodies seeking accreditation to ISO/IEC Guide 65 for the scope of the GFSI conforming food safety scheme provides general guidance on the application of ISO/IEC guide 65 to food certification. It has been produced by GFSI. It does not cover all the requirements of ISO/IEC guide 65 and where necessary it provides amplification of ISO/IEC guide 65.

Scope

The guidance is intended to apply to the certification of the process, which supplies food products to assure their safety. The term process is used in the widest sense and should include all the processes and services, which together make up the end user food product. This requires the adoption of the elements of a documented food safety management system, control of GAP (Good Agricultural Practices) / GMP (Good manufacturing Practices) / GDP (Good Distribution Practices) standards and the HACCP principles or equivalent.

The GFSI conforming scheme used by a Certification Body shall have undertaken the GFSI Benchmark Procedure, which includes the key elements defined by GFSI, the auditor qualifications, training and experience, the assessment reporting format and duration of initial and surveillance visits.

DISCUSSIONS, ISSUES AND STRATEGIES

Various HACCP requirements or criteria being developed and applied in the individual countries differ largely in content and level. In different countries, the experience acquired on HACCP implementation differs substantially because the auditors ALSO have a different level of experience and knowledge resulting in various levels of implementation and certified HACCP systems.

ISO 22000 Food Safety Management Systems – Requirements will further enhance harmonization of Standards. The companies are recommended to conduct audited to meet the requirements of this ISO 22000 standard, which will be available in September 2004.

Auditors will have to be qualified and must have experience in the respective areas of Food-Technology. Some companies even ask the Curriculum Vitae of the auditor to ensure that the auditor is a knowledgeable person and he/she provides value addition to the audit. Auditors are expected to carry out audits in their field of expertise; auditing a Dairy factory where Cheese is made requires a different knowledge than from a factory where Minimally Processed Vegetables are produced. Auditors require equivalent education and experience to be able to assess implemented systems.

Necessary harmonization of Codes of Practices for Auditors will also contribute to the quality improvement of auditing and subsequent level of the certificates.

The certification bodies must meet "the General requirements for bodies operating assessment and certification/ registration of quality systems "ISO/IEC Guide 65:1996. In return, the certification bodies are audited on a regular basis by an Accreditation Body or Board of Accreditation, an overarching body which is concerned with the reliability and competence of the certifying body.

SQF 1000 and SQF 2000 are Food Quality and Safety systems very widely known in the Far East, Northern America, Middle East and South Africa. However, nowadays in Europe companies have been certified with reference to SQF standards .BRC, IFS and EFSIS are checklists and basically the same in approach. HACCP is included in all the three.

BRC and EFSIS have British origin, IFS originates from Germany. The Risk Assessment in BRC is foundation level whereas in the IFS standard this is on the level of recommendation. Products coming from the Far East to Europe are subject to inspection with reference to BRC, IFS and EFSIS standards and. familiarization with these standards is of great use.

To actually decide which standard should be applied for auditing and certification purposes depends largely on the area where the goods are shipped to: SQF 1000 and 2000 are more known in South East Asia.

BRC, EFSIS, IFS and EUREP-GAP are more known in Europe. The 3rd edition of the Guidance Document prepared by Global Food safety Initiative is recommended to be followed for those organizations and countries which want to prepare their own food safety system requirements.

4. ACHIEVING SAFETY AND RELIABILITY IN FOOD

Dr. Yoshihisa Onishi
Director
Information Service and Technical Cooperation Division
Japan Food Industry Center
Tokyo, Japan

BACKGROUND ON FOOD RELIABILITY IN JAPAN

Several major incidents involving food contamination heightened the call and awareness of food safety and reliability among Japanese consumers. It began in 1996 with the widespread occurrence of the Enterohemorrhagic E. coli O157 infection. This alarming situation prompted the Ministry of Health, Labor and Welfare to implement various supportive actions for companies to adopt the Japanese version of the HACCP, which is the "HACCP Certifications System as Comprehensive Sanitation-Controlled Manufacturing Process." Further, in 1998, government enforced the "HACCP Method Support Law: Temporary Measure for Enhancing the Control Method of Food Production Process" and a system for supporting the development of food manufacturing plants that are capable of putting HACCP into practice began operations.

Despite these efforts by the government, numerous cases of contamination of food by foreign matter were discovered in 2000 and the trust of consumers with respect to food products was dampened. Moreover, to make matters worst, a major dairy company, which implemented the HACCP system, caused mass food poisoning due to Staphylococcus aureus leading to debate as to whether or not HACCP is really a method that assures the ultimate food safety.

Another significant event was the BFE infection in cattle in 2001. Government began BSE tests on all slaughtered cattle starting October 18, 2001 towards ensuring safety with respect to beef products. It procured and destroyed all beef produced from domestic cattle that was slaughtered and during its procurement operations, it was discovered that fraudulent declarations were filed and as a result, a major food processing company was forced to discontinue business. This fraudulent declaration was not limited to one but many companies handling table meat products including the largest table meat manufacturer.

In 2002, it was also discovered that banned food additives in Japan were being used even without the knowledge of the food processor. Investigation showed that banned chemicals and excessive agricultural chemical residues were present in imported raw materials. Media reported many such cases almost on a daily basis.

These incidents are examples on how consumer trust and food safety reliability have been put in to question in recent years.

CONSUMER DEMAND FOR SAFETY AND RELIABILITY

Traditional Japanese diet includes raw fish, table meat and eggs with the sense to tacitly trust the safety associated with them. However, once trust in the safety of food products is doubted as in the previously mentioned instances, the consumer is left in an uncertain situation. Consumer's usual recourse is to rely on popular brands of major companies, but even that is in question as some established companies were found to be involved in scandals related to food safety.

Numerous consumer questionnaire surveys were conducted in Japan in recent years and results indicate the pressing demand for safety and reliability of food products among consumers. Consumers seek information on safety with respect to fresh food, particularly of table meat right after the discovery of BSE infection. Likewise, information is sought on safety with respect to residues of agricultural chemicals in vegetables and on the safety of eggs. In general, the overwhelming response is for data on production or, specifically, on the use of fertilizers, agricultural chemicals, feed and other production materials. Corporate background and production history is also the consumers' priority. While demands on the safety of processed food are few, information on its raw materials such as the date of procurement, the storage

temperature and other pertinent data are in high demand. As regards response to questions about how such information is obtained vary between men and women. Among men, the source of information is primarily the Internet, product label and in-store POP (point of purchase) and fliers in that order. On the other hand, among women the order is reversed and women who have numerous opportunities for purchasing products at stores desire to obtain information prior to purchasing a particular product. Moreover, with respect to the cost burden for traceability, the overwhelming majority of responses indicate that consumers are willing to bear costs only between 5% and 10%.

ENSURING SAFETY AND RELIABILITY BY HACCP AND TRACEABILITY

Regarding safety and reliability, it is evident that intrinsically, the reliability that existed was a result of the safety of food. Food products that were safe would have elicited a sense of reliability. However, in recent years, there is a trend in Japan for safety and the sense of reliability to have diverged thus leading to the inability to feel absolutely secure even if the product is safe. For this reason, the following section would deal with ensuring safety and a sense of reliability.

With respect to ensuring the safety of food products, the application of HACCP is considered to be the most effective method. Likewise, more food manufacturing companies, along with livestock, egg and vegetable production farms are adopting it as the "From Farm to Table" methodology. On the other hand, with regard to ensuring a sense of reliability coupled with the renewal of trust in certain food brands, introduction of "traceability" is being reviewed as a method of recovering intrinsic trust.

In other words, to ensure the safety and sense of reliability with respect to food products, it is believed that a scheme based on "Safety from HACCP" and "Sense of Reliability from Traceability" may be effective.

Ensuring Safety and Sense of Reliability
- Ensuring Safety ⇒ Introduction of HACCP
- Ensuring Sense of Reliability ⇒ Introduction of Traceability

STATUS OF IMPLEMENTATION OF HACCP IN JAPAN

Introduction of HACCP into Japan began, as explained earlier, in the mid 1990s and the certifications under the "HACCP Certification System as Comprehensive Sanitation-controlled Manufacturing Process" currently number about 1,100. Moreover, accredited plants under the "Temporary Measure for Enhancing the Control Method of Food Production Process" currently number 145. This is an extremely small number compared to approximately 64,000 businesses in the food industry in Japan. According to the results of recent questionnaire surveys, data indicates that more than 40% of businesses have adopted HACCP or methods of sanitary management similar to HACCP. Looking at the scale of companies that responded to such questionnaire surveys, medium to small companies account for 70% thus indicating that the ratio of dissemination of HACCP in the food manufacturing industry including medium to small companies is significant.

HACCP in Japan has as its basis the 12 Steps & 7 Principles of Codex. The 12 steps are comprised of the 1st Step that is "Assemble HACCP Team", the 2nd Step that is "Describe Food & Distribution", the 3rd Step that is "Identify Intended Use & Consumers", the 4th Step that is "Develop Flow Diagram" and the 5th Step that is "Verify Flow Diagram" as the standard steps. These are followed by the 6th Step that is "Principles I Hazard Analysis", the 7th Step that is "Principles II Identify CCPs", the 8th Step that is "Principles III Establish Critical Limits with each CCP", the 9th Step that is "Principles IV Establish CCP Monitoring Requirements", the 10th Step that is "Principles V Establish Corrective Action to be taken at Deviation", the 11th Step that is "Principles VI Establish Effective Record Keeping" and the "12th Step that is "Principles VII Establish Procedure for Verification HACCP Plan" as the steps for putting HACCP into practice. These steps are implemented as standard initiatives.

Currently, as a verification of the status of putting HACCP into practice, the certification of the Ministry of Health, Labor and Welfare under the HACCP Certification System as Comprehensive Sanitation-controlled Manufacturing Process is the sole formal HACCP certification. The certification targets 5 food products (milk and dairy products, processed table meat products, frozen fish products, retorted food in

packages and beverages) under government ordinance. There are a few cases in which companies are certified by ISO registered screening agencies. However, since HACCP certification is voluntary, there is really no need to be audited by a third party. Moreover, in putting HACCP into practice, maintaining all records concerning safety will clearly identify accountability in the event of an incident involving safety of a food product and this will prove beneficial to the company in the long run.

GENERAL SANITATION MANAGEMENT THAT FORMS THE FUNDAMENTALS OF HACCP

While dissemination and adoption of HACCP has progressed significantly in Japan, it is stressed that companies should still implement the "general sanitation management" (Good Manufacturing Practices, Prerequisite Procedures) of which the basic principles of HACCP were based. In fact, these practices and procedures can further enhance the quality implementation of HACCP in the workplace. The general sanitation principles include the following 10 items:

(1) Sanitation in the handling of food
(2) Sanitation management of the water used
(3) Sanitation management of drainage and waste
(4) Eradication of insects and vertebrates
(5) Sanitation education provided to workers
(6) Sanitation management of workers
(7) Sanitation management of facilities and equipment
(8) Implementation of maintenance and repair of facilities, equipment, machinery and devices
(9) Having a product recall program in place
(10) Implementation of maintenance of machinery and devices for testing and inspecting products.

These items are specified in the "Facility Standard" and "Facility Management and Operation Standard" under the Food Sanitation Law of Japan, and the product recall program of item (9) has been added. To be able to maintain the quality sanitation standards within the production area, the "5Ss" should likewise be implemented. These are "Sorting, Shelving, Sweeping, Sanitation and Self-Discipline".

INTRODUCTION AND IMPLEMENTATION OF TRACEABILITY

Under the assumption "Sense of Safety from Traceability", initiatives with respect to traceability in Japan are discussed in this section.

The following is considered as the definition of traceability:

"Traceability refers to the capability to track and undertake retroaction with respect to food products and information concerning food products in the various steps in the food chain including production, handling, processing, distribution and sales." [From "Guidelines for Introduction of Food Traceability System, Committee on the Guidelines for Food Traceability System", Ministry of Agriculture, Forestry and Fisheries (MAFF)]

Despite this definition, "traceability" is generally understood in Japan as in the broad sense broken down into two factors: "traceability" in the narrow sense which provides retroactive and proactive history and tracing of the entire food production process, and "accountability" which means providing direct consumers pertinent information on the product. This interpretation may be shown as such:

Traceability (Broad Sense)
- Traceability (Trace Back/Trace Forward) (Narrow Sense) [Retroactive History and Tracing]
- Accountability [Responsibility to Provide Explanation]

Traceability in the food industry has been introduced on a trial basis initially in the fresh food sector but almost all food products are closely observed from the production area to the point of sales. For instance, an experimental system for pork produced in Kyushu is in place for disclosing production and processing information to consumers using a touch panel and the Internet at the point of sales of supermarkets. Experiments are also under way using a similar system with respect to vegetable and farmed fishery products.

With regard to the prevention of BSE, government took the initiative of assigning an identification number for every head of cattle and the formation of a system for uniform management in Japan. Very soon, a law will be enacted mandating that businesses involved in the sale and use of beef should indicate its history by affixing the issued identification number or lot number in order to identify the head of cattle corresponding to the identification number.

Falling into step with the introduction of this traceability system for beef, the MAFF implemented a "Project for the System Development and Dissemination of Retroactive of Historical Data on Food Products" in fiscal 2001 and 2002 on an experimental basis. In fiscal 2001, development and verification experiments on a traceability system were implemented for agricultural and livestock products as well as processed liquid egg representing processed food products and in fiscal 2002, for fruit beverages, fish sausage, farmed oyster, fresh fruit and vegetable, rice and chicken. While there are indicators that have reached the practical utility stage as a result of these verification processes, many still remain in the experimental stage.

The Japan Food Industry Center (JAFIC) also conducted verification experiments on system development for processed liquid egg and fish sausage as a development initiative for the traceability of processed food products. It aims in identifying problem areas and investigating the feasibility of putting such a system to practical use. The basic aspect of the system called for individual responsibility in the maintenance of historical records in each of the stages of raw material production, processed food production, distribution and in-store handling, the use of a two dimensional code for identifying historical information from raw materials to the finished products and a system for mutually linking the historical information from each stage. This system also has the advantage of being capable of disclosing the minimum required historical information directly to consumers through the use of the two-dimensional code.

THEORY AND INTRODUCTION OF TRACEABILITY

The traceability system for Japanese food manufacturers is perceived as a complicated one, but in reality, it is not. The most significant aspect of this system is the provision for an identification number (ID No.) for each material and product, and this ID No. bears all information regarding material, production and distribution links. With this ID No., anyone can retrieve any information concerning the product. This is the theoretical system of traceability. This ID No. can be changed after linking with another ID No., when the material or products are processed or manufactured into different goods. All the information about the material or ingredients concerned, shall be kept at each stage where the ID No. is given.

This procedure of the utilization of an identification number proves effective on the part of the manufacturer as it provides the vital information on each ingredient that goes into the processing of food products. At the same time, Japanese manufacturers would also extend this information to consumers. It is for this purpose that the system of traceability is vital, as the consumers have the right to know and should be able to obtain such information.

In most of the cases of traceability system introduced to food industry has highly developed IT technology such as using RFID, 2 dimensional cord and so on. While the large scale companies are able to support these technologies, majority of the small and medium scale industries are unable to do so in their respective manufacturing facilities. JAFIC is currently trying to provide a cheaper yet easy system using PDF file. This system aims to enable to introduce the traceability system in the workplace even to those with the least knowledge in computer operation.

The MAFF has already provided the Guidelines for Introduction of Food Traceability System for enforcing the traceability system to the food industry in Japan as an initial step. And likewise the MAFF is establishing the system of Traceability JAS, which can be applied to any foreign manufacturing facility.

ENSURING SAFETY AND SENSE OF RELIABILITY IN THE FUTURE

To recap, to ensure safety and achieve reliability of food products in the future entails: "Enforcement of the 5Ss", "Enforcement of Good Manufacturing Practices, Prerequisite Procedures", "Putting HACCP into Practice" and "Formulation and Implementation of a Traceability System".

The Japanese government has made significant changes in its administrative structure which includes the creation of a "Food Safety Committee" to oversee "Risk Analysis" (includes Risk Assessment, Risk Management and Risk Communication)". This Committee would bridge government, consumers and

manufacturers regarding issues related to food safety and reliability. With respect to the traceability system, review is being conducted towards the standardization of systems, dissemination of linear bar codes, two-dimensional codes, RFID (IC tag or IC chip) by the MAFF and the Ministry of Economy, Trade and Industry.

CONCLUSION

Despite the diligent efforts of the Government to establish supportive laws to introduce HACCP system, the food industry in Japan still faces the consequences of the past incidents involving food contamination from foreign matter, banned food additives and agro-chemicals and corporate fraud stemmed from the BSE beef infection. To recover from this situation, the food industry and the Japanese government have introduced the traceability system. This will enable to provide traceability in the entire food supply chain and such system will document each step in which food is processed and transported to reach the consumers.

The system for food safety and sense of reliability is by HACCP, and the sense of reliability of the consumer by the traceability.

The traceability consists of two meanings: one is the narrow sense of traceability and the other is the broad sense or accountability. The MAFF has provided multiple supportive projects to promote the traceability.

Even though the system of traceability and HACCP are expected to ensure the food safety and sense of reliability, the most important point is to return basics of fundamental measures to ensure quality control. These are: 5 S, GMP, professional ethics, compliance, and then to introduce HACCP, traceability.

5. NEW FOOD SAFETY ADMINISTRATION IN JAPAN

Ms. Atsuko Okajima
Councilor and Deputy Director-General
Food Safety and Consumer Affairs Bureau
Minister's Secretariat
Ministry of Agriculture, Forestry and Fisheries
Tokyo, Japan

BACKGROUND

In September 2001 the first cow with BSE was discovered in Japan. After that incident, a number of illegal matters concerning food came to light, such as: cases in which the origin of food was falsified; and cases in which the amounts of residual agricultural chemicals in imported vegetables exceeded the levels allowed by the Food Sanitation Act; and cases in which agricultural chemicals that have not been authorized for use in Japan were being used. All these incidents led to increased anxiety among citizens with regard to food safety and food safety administration. Due to this background, the government has started to review legislation and administrative organizations related to food safety.

REVIEW OF LEGISLATION RELATED TO FOOD SAFETY

(1) Enactment of the Food Safety Basic Act (May 2003)
Basic Principles
1) Protecting the health of the people is of the utmost importance.
2) Take necessary measures in each stage of the food supply process.
3) Introduce risk analysis methodology.

(2) Revision of the Food Sanitation Act, the Agricultural Chemicals Control Act and other acts related to risk management (June 2003)

(3) Enactment of the Cattle Traceability Act (June 2003)

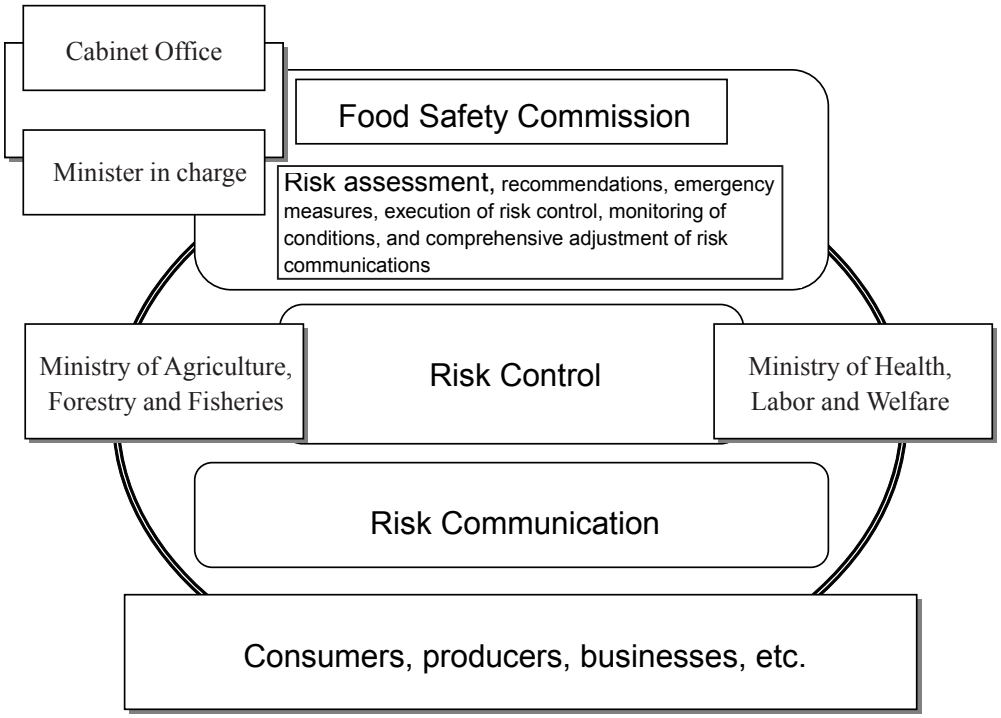
REVIEW OF ADMINISTRATIVE ORGANIZATION RELATED TO FOOD SAFETY

(1) Establishment of the Food Safety Commission (July 2003)
This commission was established within the Cabinet Office under the Food Safety Basic Act to objectively and scientifically assess risks, and to oversee risk management monitoring conditions and risk communications.

(2) Reinforcing the Risk Management Organization within the Ministry of Health, Labor and Welfare
1) The "Department of Food and Health" was renamed as the "Department of Food Safety."
2) A councilor in charge of risk communications was named, and the Imported Food Safety Measures Office was established.
3) The number of food hygiene officers was increased to reinforce the imported food inspection organization.

(3) Reinforcing the Risk Control Organization within the Ministry of Agriculture, Forestry and Fisheries
1) The sections related to risk management for food were separated from the industry promotion departments, and a new Bureau of Food Safety and Consumer Affairs was established to comprehensively handle consumer administration and food risk control.
2) The Food Offices established in each prefecture were abolished and reorganized into "Local Agricultural Policy Offices" that are in charge of food risk control in addition to administration related to rice and wheat.

(4) Currently the Food Safety Commission, Ministry of Health, Labor and Welfare, and the Ministry of Agriculture, Forestry and Fisheries are promoting food safety administration based on risk analysis methodology.



Risk assessment: Scientific assessments regarding the affects on human health that eating food has.
Risk communication: Related parties among consumers, producers, businesses, administration, etc. exchange information and opinions, and try to reflect those on measures.
Risk control: Giving consideration to the eating habits of the people and based on risk assessments, administration shall cooperate with related parties to determine and implement measures to reduce the risks, so that adverse affects on health will not occur.

Ministry of Health, Labor and Welfare - Food Sanitation Act -

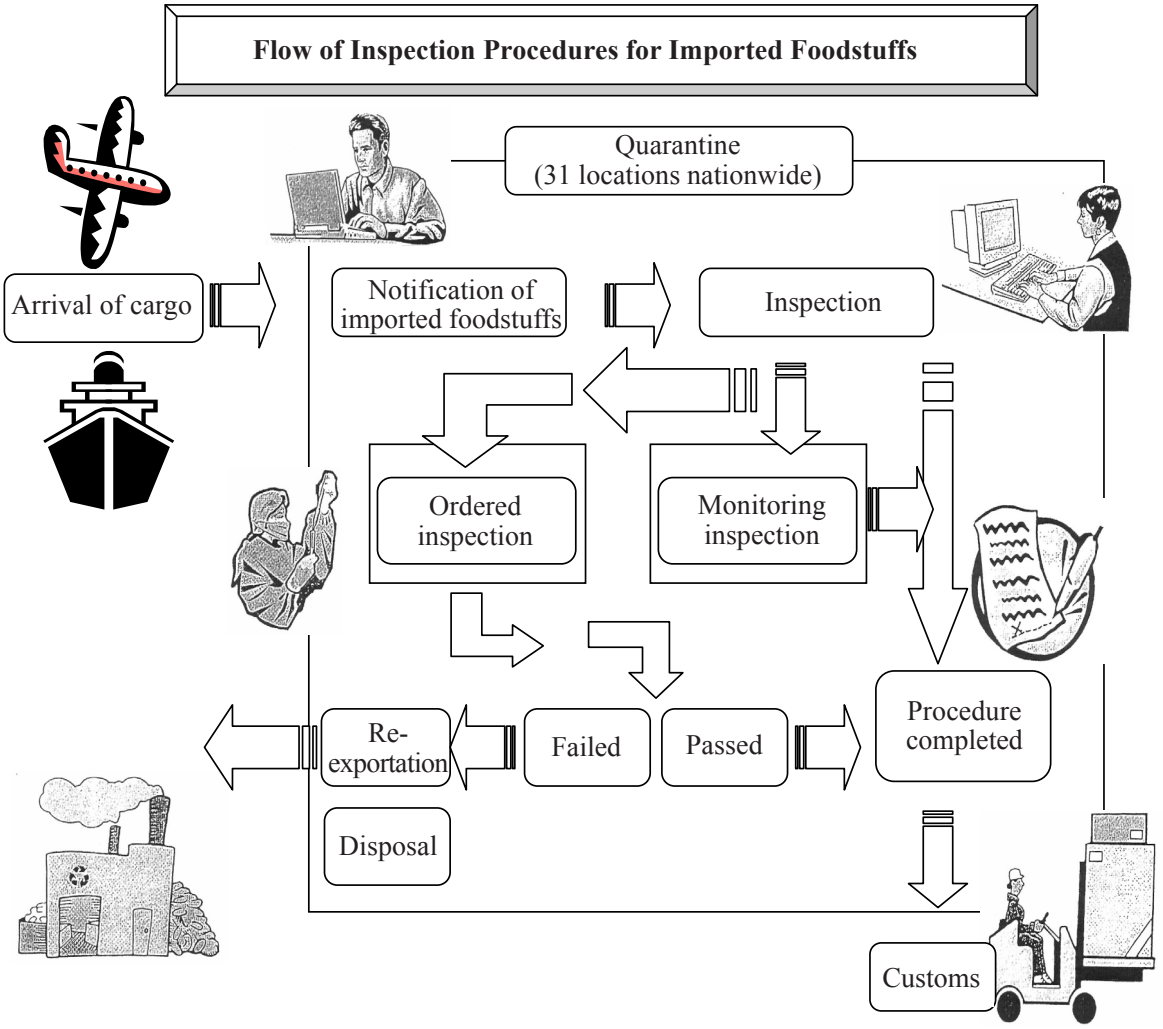
(1) Overview of the System

1) The regulatory standards that must be met in production, processing, preparation, sales and import of foodstuffs are set, and all foodstuffs must meet those standards. In addition, the standards that must be met when necessary in manufacturing, processing, preparation and storage methods are also established, and any foodstuffs that do not meet those manufacturing methods, etc., must not be distributed.
2) The national government and local governments shall inspect and confirm whether businesses supplying foodstuffs are complying with the standards, and regulate and instruct them.
3) In order to inspect imports for illegal foodstuffs, the national government establishes quarantine offices in the 31 ports and airports throughout Japan to monitor and oversee imported foodstuffs. In consideration of past violations and import quantities, "monitoring inspections" will be carried out. Regarding foodstuffs with a high likelihood of violation, "ordered inspections" by organizations designated by the national government must be passed before those foodstuffs can be imported and distributed. If violations are repeated, "comprehensive import bans" will be implemented.
4) With regard to businesses that violate the Food Sanitation Act, the national government and local governments can order take administrative action to make them recover all illegal foodstuffs, destroy those foodstuffs and prohibit their business activities. Stiffer penalties can be applied to repeat offenders.

(2) Main Review Points

1) More aggressive measures to protect the health of the people
   - The Minister of Health, Labor and Welfare can order investigations in the case of large-scale or wide-spread food poisoning incidents, etc.
   - Reinforcing regulations on residual agricultural chemicals, etc. (Introduction of a positive list system)

2) Promoting self-management by businesses
   - Introduction of measures to overcome the constraints with regard to HACCP authorization
   - Mandatory efforts to create and maintain records regarding suppliers
3) Reinforcing connections with regulations concerning farm products at the production stage
4) Promoting risk communications



Ministry of Agriculture, Forestry and Fisheries

(1) Policy Guidelines for the Security and Safety of Food (established June 2003)
   1) Creation of policies that reflect the opinions of consumers, producers and other related parties
      - Providing and disclosing information
      - Exchange of opinions and information between related parties
      - Reflecting opinions in policies
   2) Comprehensive policy-making and implementation that considers all aspects of foodstuffs, from production to consumption
      - The risks for each stage and the methods to reduce those risks must be considered, and then risk control countermeasures must be created and implemented.
      - Regulations regarding the use of production materials, etc.
      - Reinforcing investigation and monitoring
   3) Promoting secure and safe foodstuff supply by producers and businesses
      i) Producers
         - Preservation of the environment, such as the soil and fishing ground
         - Improving cultivation, raising and culturing methods

- Appropriate use of pesticides, fertilizers, feed, veterinary medicine, etc.
- Self-inspection

ii) Businesses
- Following the regulations and standards set forth by the Food Sanitation Act
- Introduction of advanced sanitation control technology, such as HACCP
- Promotion of appropriate corporate activities (compliance)

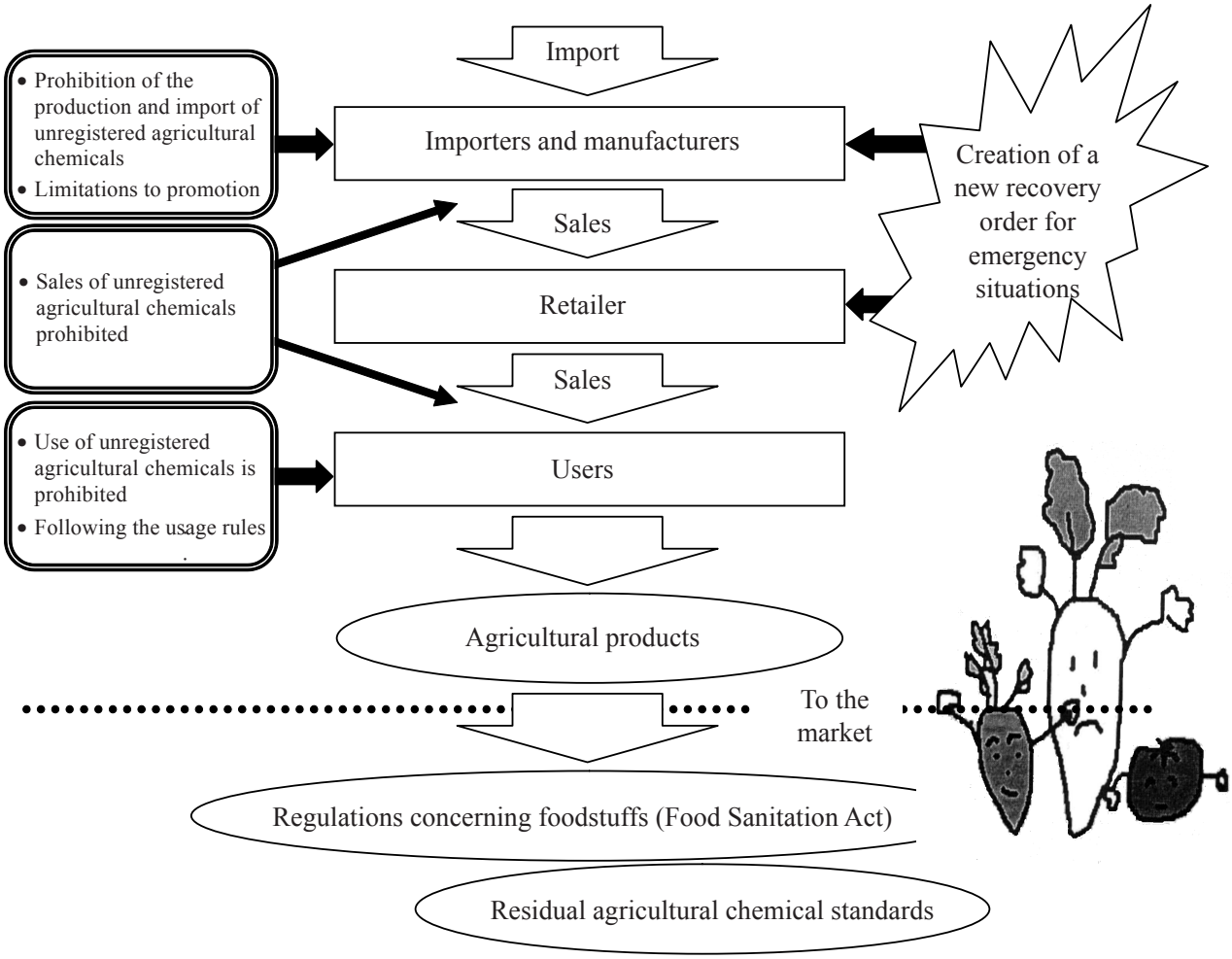
4) Precise risk management
- Information should be gathered domestically and from overseas sources and analyzed in order to avoid risks.
- A risk management manual must be created.
- Immediate actions based on the manual.

(2) Revision of legislation related to securing the safety of production materials, such as pesticides, fertilizers, feed, and veterinary medicine, and their appropriate use (June 2003)

(3) Creation of a traceability system
1) Mandatory communication and display of individual identification numbers for cattle
2) Promoting the construction of traceability systems by businesses for other foodstuffs
3) Creation of a system based on the JAS Act in which a third party certifies the appropriate recording and management of production information and that information is accurately communicated to consumers

OVERVIEW OF AGRICULTURAL CHEMICAL REGULATIONS

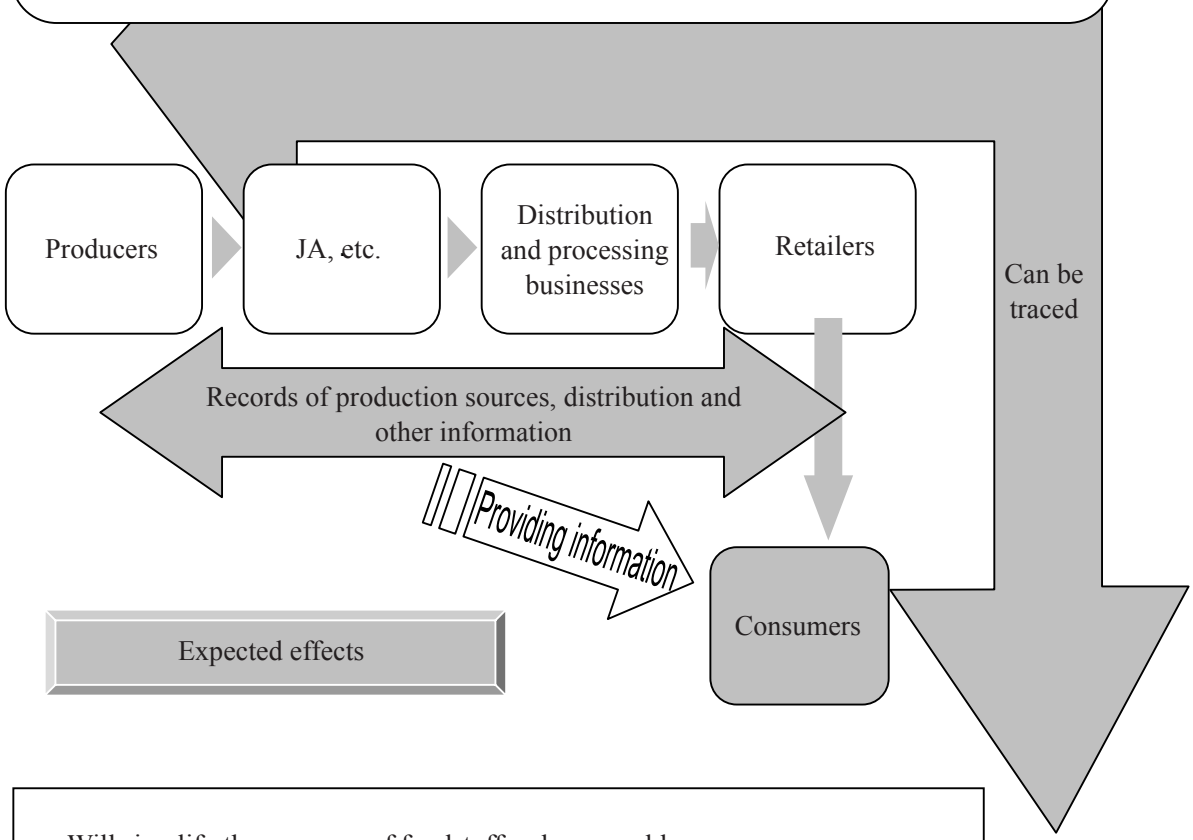
A registration system is used for agricultural chemicals in which they are checked for safety based on toxicity test data.



TRACEABILITY SYSTEM

What is traceability?

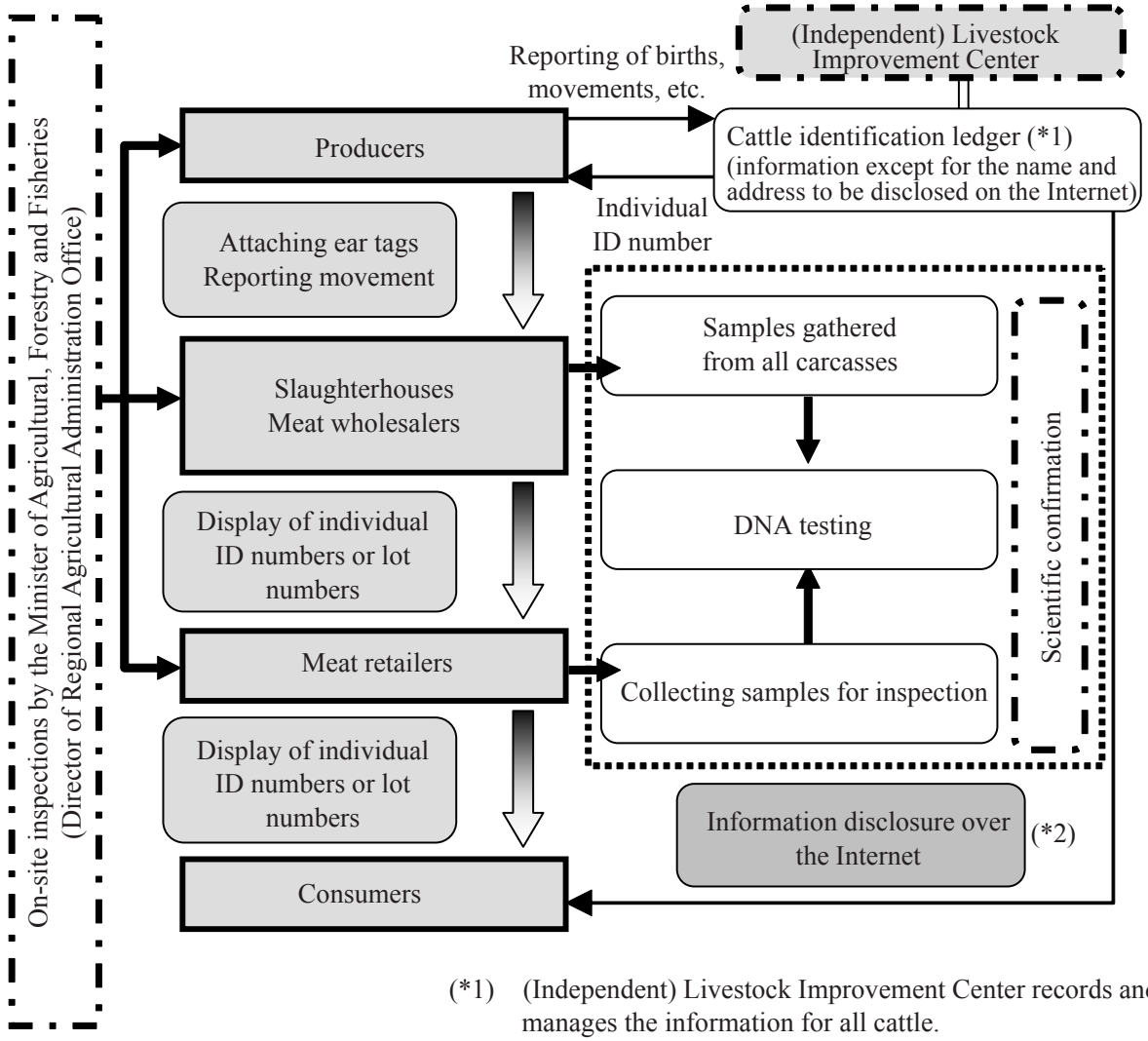
A system in which at each stage of foodstuff production, processing and distribution, the sources of raw materials, the manufacturers of foodstuffs and buyers are recorded and the records stored, so that the route that the foodstuffs followed can be traced.



Expected effects

- Will simplify the recovery of foodstuffs when a problem occurs.
- Will create a system in which consumers, producers and businesses will be better able to recognize one another.
- Will lead to securing the trust of consumers and assuring their safety.

CATTLE TRACEABILITY SYSTEM
(Production History Information)



(*1) (Independent) Livestock Improvement Center records and manages the information for all cattle.

(*2) 1. Samples for DNA testing are retrieved from all carcasses that have been slaughtered.
2. When on-site inspections are conducted, samples for testing are retrieved.
3. Samples are confirmed to be the same through DNA testing.

Disclosure of Cattle Production Information

Specific Mechanism in the JAS Standards

(1) Subject production information

1) With regard to domestic beef, the "Special Act Concerning the Management and Communication of Information about Individual Cattle" (hereafter referred to as the "Cattle Traceability Act") has been applied, and a system to provide the breed, slaughter date and other production information is already in place. Therefore, the JAS standards shall specify that feed information and veterinary medicine information be added to this production information and disclosed.

2) The Cattle Traceability Act is not applicable to imported beef, but the JAS standards shall specify that the production information based on that law, feed information and veterinary medicine information be disclosed.

(2) Recording, storage, disclosure of production information by certified production process managers

Producers that have been certified as "certified production process managers" according to the JAS

Act by third party certification registration organizations shall accurately record, store and disclose the beef production information for each individual cow, and attach the JAS mark for sales.

(3) Dividing and making of lots of beef with disclosed production information by certified dealers

Distributors that have been certified as “certified dealers” according to the JAS Act by certification registration organizations shall divide the beef with disclosed production information, and put them into lots as part of the dividing process. Beef that has been divided and put into lots shall have its production information disclosed for each lot, and JAS marks shall be attached for sales.

(4) Providing information to consumers

Consumers can obtain information about beef with disclosed production information JAS marks through the individual ID numbers and/or lot numbers. The production information can be obtained in stores, through the Internet, by fax, etc.

6. ASSURING FOOD SAFETY AND QUALITY FOR CONSUMER

Mr. Kazuo Onitake
Safety Policy Service
Japanese Consumers' Co-operative Union
Tokyo, Japan

STRENGTHENING NATIONAL FOOD CONTROL SYSTEMS

Effective national food control systems are essential to protect health and safety of consumers. Consumers are showing keen interest in the way food is produced, processed and marketed, and are increasingly calling for their Governments to accord greater priority for food safety and consumer protection. The Food and Agriculture Organization (FAO) and the World Health Organization (WHO) have a strong interest in promoting national food control systems that are based upon scientific principals and guidelines, and which address all sector of the food chain. This is particularly important for developing countries as they seek to achieve improved food safety, quality and nutrition, but will require a high level of political and policy commitment.

CODEX ALIMENTARIUS COMMISSION

The Codex Alimentarius Commission (CAC) is an intergovernmental body that coordinates food standards at the international level. Its main objective is to protect the health of consumers and ensure fair practices in food trade. The CAC has proved to be most successful in achieving international harmonization in food quality and safety requirements. It has formulated international standards for a wide range of food products and specific requirements covering pesticides, food additives, veterinary drug residues hygiene, food contaminants, labeling etc. Codex recommendations are used by governments to determine and refine policies and programs under their national food control system. More recently, Codex has embarked on a series of activities based in risk assessment to address microbiological hazards in foods, an area previously unattended. Codex work has created worldwide awareness of food safety, quality and consumer protection issues, and has achieved international consensus on how to deal with them scientifically, through a risk-based approach. As a result, there has been a continuous appraisal of the principles of food safety and quality at the international level. There is increasing pressure for the adoption of these principles at the national level.

RISK ANALYSIS

Risk analysis is recognized as having three components: risk assessment, risk management, and risk communication. Risk assessment involves a scientific process to identify and predict to human health that may be associated with a particular food. Hazards that can generate the risks are described as biological, chemical or physical agents in food with the potential to cause an adverse health effect. Risk management can be in many forms and is described as a process of weighting policy alternatives, in consultation with all interested parties, considering risk assessment and other factors relevant for the health protection of consumers and for the promotion of fair trade practices, and if needed, selecting appropriate prevention and control option. Risk communication- the interactive exchange of information and opinions and throughout the risk analysis process concerning hazards and risks, risk related factor and risk perceptions, among risk assessors, risk managers, consumers, industry, the academic community and other interested parties, including the explanation of risk assessment findings and the basis of risk management decision.

BIG CHANGES IN THE LEGAL SYSTEM FOR FOOD SAFETY

JCCU has been conducting a nationwide movement since 1998 working for the establishment of a social system to secure food safety including fundamental reform of the Food Sanitation Law. At the regularly scheduled Diet session in spring of 2003, bills to revise the Food Sanitation Law and the New Basic

Law on Food Safety in connection with the reexamination of the administrative system for food safety were discussed. The Diet eventually passed these two bills. The main points of this statement are as follows.. Because the laws include many points that JCCU has been insisting upon, the passing of the laws marks a change in the legal system governing food safety in Japan, Co-ops intends to continue to express opinions and put forth proposals to the government in order to ensure that the new legal system function effectively. They recognize the importance of these new laws and will continue to make every effort to secure the confidence of consumers with each and every food item Co-op deals with.

7. SYSTEMIZATION OF FOOD PRODUCTION AT THE ZEN-NOH GROUP

Mr. Shiro Sakamoto
Chief Examiner
Food Safety Control Department
JA Zen-Noh (National Federation of Agricultural Cooperative Association)
Tokyo, Japan

INTRODUCTION

Zen-Noh (National Federation of Agricultural Co-operative Associations) is working towards integration with the JA Economic Federations and has a national headquarters and 35 prefectural headquarters as of April 1, 2003. Each of these headquarters has established affiliated companies and in totality these companies are collectively referred to as the Zen-Noh Group.

The Zen-Noh Group decided in October 2003 to initiate work towards obtaining accreditation under the ISO Management System. The scope targeted through this initiative is the environment management system at the National Headquarters level and Prefectural Headquarters level and the quality management system at the food product manufacturing and processing work sites.

ON SALES OPERATION

The business of JA Zen-Noh involves "sales operations" and "procurement operations" and the business of manufacturing and processing food products is a part of the sales operations.

The sales operations involve the distribution and sales of rice, grain, vegetable, fruit, table meat, egg, milk and other similar products produced by farms. The products thus handled may be roughly categorized into those that are destined for "home consumption" and those that are intended for "institutional use". Customers that come under "institutional users" are in the (1) restaurant industry, (2) delicatessen industry, (3) processed food manufacturing industry and (4) food packaging and processing industry and the sales operations of Zen-Noh adapt to the diverse needs of these customers.

Additionally, Zen-Noh is involved in manufacturing and processing of food products and commissions such manufacturing and processing. In order to respond to the diverse needs of users, Zen-Noh also handles imported products and its sales operations involve handling of an extremely wide range of products intended for diverse customers.

In the manufacturing of processed food products, there are cases in which Zen-Noh is in competition with "processed food manufacturers" who are important customers of Zen-Noh.

MEASURES WITH RESPECT TO CUSTOMERS

The procurement of raw materials by processed food manufacturers is not limited to domestic procurement and also involves imports from overseas.

The domestic raw materials sold by the Zen-Noh Group to processed food manufacturers have gained the image of being "safe though perhaps expensive" under the slogan "Fresh, Delicious, Safe and Secure" and consumers are also aware of this.

However, after the emergence of the issue of BSE nationally in 2001, number of scandals and illegal actions by food manufacturers including the Zen-Noh Group became a social issue and distrust of manufacturers as well as the labeling on food products has grown among consumers.

From the perspective of regaining the trust of consumers, food manufacturers have begun to endeavor to provide more concrete information on products than in the past.

STATUS OF INITIATIVES TOWARDS SYSTEMIZATION

The food product processing and manufacturing department of the Zen-Noh Group has facilities for manufacturing food products and facilities for processing and packaging such food products. The attached table shows the status of initiatives as of March 31,2003 (in the 33 Prefectural Headquarters) of more than 100 food manufacturing facilities after the lapse of half a year since the decision regarding initiatives having to do with ISO9000 was taken.

Accreditation under HACCP, SQF2000 and ISO9000 is provided through the conformity assessment of third party agencies on systemization initiatives (production of manuals and implementation of recording) taken at the work site. Undergoing conformity assessment by third party agencies elicits the trust of potential customers. Proprietary systems are upgraded through first party conformity assessment.

Initiatives towards systemization target enhancing the quality level rather than acquisition of accreditation and as such, the formation of proprietary systems is meaningful. However, if acquisition of accreditation were to become the primary target, the focus will be only on the ratio of such acquisition and proprietary systems will not be evaluated in a positive manner.

The table excludes facilities that are involved in "raw material processing". The "raw material processing" facilities of the Zen-Noh Group are categorized into "cold stations" (for milk), "juice stations" (for fruit juice) and "slaughter houses" (for table meat) but since there is no heating process in these facilities, the facilities are differentiated from food processing. The JA Group also has facilities managed by the JA Prefectural Economic Federations in municipalities.

PROGRESS OF THE QUALITY SYSTEM INITIATIVE AT NATIONAL HEADQUARTERS

Prior to the establishment of the Food Safety Control Department, initiatives were taken by the Sales Promotion Department.

The principal business of the Sales Promotion Department is comprehensive sales promotion work in conjunction with the 5 sales departments (rice, agricultural produce, horticultural sales, livestock sales and dairy farming). With respect to product policies, a technical development and product development department called the Product Development Research Department of the Agricultural Research and Development Center was established towards resolving issues and reviewing technical aspects.

The Product Development Research Department adopted the concept of HACCP in providing guidance on sanitary management to the work place from around 1994. This initiative led the introduction of the HACCP certification system as a comprehensive sanitation controlled manufacturing process in 1995 by the Ministry of Agriculture, Forestry and Fisheries as a result of the amendment of the Food Sanitation Law.

In addition to the initiatives of the Product Development Research Department, the egg named "Shin Tamago" that was launched in 1993 not only enhanced the nutritional value of the egg through selection of chicken feed but also utilized the HACCP system to ensure that the eggs are salmonella free. This measure was undertaken by the Institute of Animal Health (currently a clinic center in the research institute) of the Livestock Production Department.

The Sales Promotion Department developed "Quality Assurance/Enhancement of the Guidance Function on Sanitation" as a policy from fiscal 1998 and initiated measures for the National Headquarters Group as a whole.

Prior to this enhancing the level of quality management and quality assurance was undertaken separately by each department and company. The Product Development Research Department was only involved in minimal follow-up. However through the convening of the "Research Convention on the Quality Assurance System", the follow-up that is provided was enhanced and at the same time initiatives were taken towards integrated and effective systemization (ISO9000 and HACCP).

The first convention was held on March 15, 1999, the second on July 16, 1999, the third on February 4, 2000, the fourth on March 23, 2001 (plant training session) and the fifth on November 13, 2002.

OVERVIEW OF ISO9000

ISO established its ISO9000 in 1987 and revised this in 1994 and in 2000. In Japan ISO9000 has been translated into the JIS standard and the name of the standard for the 1994 version was Quality System and the name of standard in the 2000 version was Quality Management System.

The objective of adopting and formulating a Quality Management System is, in addition to assuring the quality of products, to ensure customer satisfaction.

There are "Eight Quality Management Principles" that form the basis of the ISO9000 standard. These are: (1) Customer Focus, (2) Leadership, (3) Involvement of People, (4) Process Approach, (5) System Approach to Management, (6) Continual Improvement, (7) Factual Approach to Decision Making and (8) Mutually Beneficial Supplier Relationships.

In order to ensure systemization, a quality manual is produced. The quality manual is a "document that provides comprehensive information on the Quality Management System both internally and externally" and items that are to be documented (including the quality planning document and the work procedural document, records) must be clearly identified in the quality manual.

Activities under the quality manual shall be subjected to conformity assessment after implementation for half a year. The conformity assessment shall be undertaken by a private sector registered conformity assessment agency and accreditation shall be provided by the Japan Accreditation Board for Conformity Assessment.

After conformity assessment for registration has been implemented, maintenance conformity assessment is undertaken every year and renewal of conformity assessment is undertaken every three years. Through a system of mutual accreditation, accreditation obtained in Japan is valid overseas.

The Japan Agricultural Standards Association (JASA) has established the "ISO Screening Registration Center" and through accumulation of experience in the work involved, has formulated procedures for accreditation as a conformity assessment registered agency. Once such accreditation is obtained, JASA is expected be the first registered conformity assessment agency dedicated to food products.

MEASURES RELATED TO INDIVIDUAL OPERATIONS

(1) Operations related to Milk

Including those that are scheduled to file application for approval, all milk and dairy beverage plants have adopted HACCP but only one plant has included the fermented milk (yogurt) line. Guidance shall be provided sequentially to plants at which HACCP has become entrenched to switch to ISO9000.

National Agricultural Cooperative Direct Marketing Co., Ltd. that was reorganized as Nippon Milk Community Co., Ltd. in January this year through a merger is not included in the table. The products manufactured and sold are milk, milk beverages, fruit juice and fermented milk products and JA milk and JA juice are products that are representative of the Zen-Noh Group as concrete manifestations of the expression "Nature is Tasty". Fermented milk refers to Yoplait yogurt and is marketed in association with the French firm Sodima.

(2) Operations related to Beverages

Beverages may be categorized according to the type of container into canned, PET bottles, paper containers and others and each of these has a dedicated filling line. Moreover, when categorized by the type of product, beverages may be fruit/fruit juice beverages, low fruit juice content beverages, carbonated beverages, coffee beverages, tea beverages and others. The variety of beverages available is therefore extremely diverse.

The Ministry of Health, Labor and Welfare began accepting applications in 2001 after much delay compared to other industry types and accreditation of HACCP is yet to begin. Many plants have limited the filling line to file application, undergo conformity assessment and obtain accreditation.

(3) Operations related to Processed Table Meat

Table meat processing (ham, sausage, etc.) involves solid food products that require human manipulation and for this reason, sanitation management is particularly important (This is an aspect that is different from liquid food products such as milk or beverage.). HACCP accreditation of the Ministry of Health, Labor and Welfare requires "capital investment on facilities" and as such there is a feeling among plants with old facilities that accreditation is difficult. For this reason, current initiatives are towards acquiring ISO9000 or SQF2000 for which conformity assessment is undertaken by private sector agencies.

(4) Operations related to Processed Chicken Meat

Processed chicken meat is outside the scope of the comprehensive sanitation controlled manufacturing process under the Food Sanitation Law. Accordingly the use of HACCP methodology is a proprietary system. Enforcement Order of the Food Sanitation Law targets (1) Milk, goat milk, skimmed milk and

processed milk, (2) cream, ice cream, evaporated milk, evaporated skimmed milk, fermented milk, lactic bacteria beverages, (3) nonalcoholic beverages, (4) table meat products, (5) fish paste products and (6) packaged pressure and heat sterilized food product (retort food product)

Among the Processed egg products such as liquid egg in the business units of the Zen-Noh National Headquarters and Prefectural Headquarters, only the chicken egg business unit is registered as certified under ISO9001.

Regarding the plant for producing sterilized liquid egg that was the first initiative of its kind, the Product Development Research Department provided sanitation guidance under the HACCP method when the sterilization process was first introduced.

The fact that fundamental technology was in place was the driving force towards this advanced initiative and the experience gained through this has been brought to play in disseminating the technology to other related departments.

(5) Operations related to the Rice Polishing Plants

A company affiliated with National Headquarters obtained accreditation registration for ISO9001. From 2000, enhancement of quality has been undertaken through QC circle activities and ISO9001 was acquired in order to respond to the demands of customers.

The Zen-Noh National Headquarters has put its experience in to play towards commencing systemization under a system proprietary to Zen-Noh (JAQMS).

(6) Operations related to Frozen Cooked Rice Plants

Frozen cooked rice is outside the scope targeted by the comprehensive sanitation controlled manufacturing process under the Food Sanitation Law.

Moreover, pursuant to the "Temporary Measure for Enhancing the Control Method of Food Production Process (abbreviated: HACCP Method Support Law), specified accreditation agencies are the Corporation of Rice-Cooking of Japan and the Japan Frozen Food Association. The plant that produces frozen cooked rice is the Kanto Plant of Zen-Noh Foods Co., Ltd.

The frozen cooked rice plant of Zen-Noh Foods Co., Ltd. is currently located in Tochigi Prefecture but was originally located in Hyogo Prefecture. It was when adopting the HACCP method to enhance sanitation management was being considered in order to obtain greater customer satisfaction that the Great Hanshin Awaji Earthquake occurred.

The warping of the ground as a result of the earthquake was significant and rebuilding the plant was considered difficult. As a result a search for a good alternate site for the plant was made and the plant was ultimately relocated to Tochigi Prefecture. While the plant has not obtained HACCP accreditation, it has actualized the HACCP methodology. At the Kanto Plant, initiatives for obtaining accreditation under ISO9001 are commenced.

ISSUES TO BE NOTED DURING HACCP IMPLEMENTATION

In measures having to do with HACCP, there is the method of forming a HACCP team made up of only members who are internal to the company and the method of utilizing an external consultant firm that provides support to the HACCP team. In the case of the former method, there is a tendency towards falling behind schedules and to obtain accreditation as quickly as possible, the latter method is preferable.

IMPORTANT ASPECTS OF QUALITY MANAGEMENT

There are three aspects that may be explained within several minutes. The first of these is the 5Ss. The elements "Sorting, Shelving, Sweeping, Sanitation and Self-discipline" are readily understandable. Sorting refers to "disposal of unnecessary materials", shelving to "returning devices to the specified location, sweeping to "keeping the premises free of dirt", sanitation to "eradicating soiling of manufacturing equipment" and self-discipline refer to "complying with specified procedures" Education and training need to be provided with respect to these elements. The second aspect is the concept that simplicity is best. In HACCP, this refers to focusing CCP to one point.

However, there is a tendency for work that is performed by public authorities in Japan to be considered of higher quality as the complexity of the work increases and there is a proclivity for the certification

system as a comprehensive sanitation controlled manufacturing process, that constitutes HACCP in Japan to be implemented in contravention of the concept of simplicity.

The third aspect is activation. In HACCP, this is equivalent to bringing epidemiological data, technical papers, results of the implementation of tests, scientific publications, expert knowledge and all such factors to play in the production and validation of a HACCP plan in order to ensure confidence in the correctness of the plan.

Status of Measures towards Systemization of Quality by Food Product Manufacturing Facilities

April 16, 2003

Item manufactured	No. of facilities	Quality system		
		HACCP	SQF2000	ISO9000
Milk, milk beverages, fermented milk	7	Approval obtained 5, application for approval filed 1, filing of application for approval scheduled 1		
	5	Approval obtained 1		
Fruit beverage, etc.	11	Approval obtained 2, application for approval filed 3, preparations for application for approval being made 5		
Processed table meat, processed chicken meat	7	Approval obtained 2	Preparations for application for approval being made 1, measures for application for approval initiated 1	Measures for application for approval initiated 2
	3	Proprietary system 2	Preparations for application for approval being made 1	
Liquid egg, soft boiled egg, etc., egg tofu etc.	6			Registration completed 2, conformity assessment being undertaken 1
	5			Registration completed 1, conformity assessment being undertaken 1
	1			Conformity assessment being undertaken 1
Japanese tea, etc.	3			Measures for application for approval initiated 2
Polished rice, pre-cleaned rice	35			Registration completed 2, conformity assessment being undertaken 2, preparations for application for approval being made 1, proprietary system 2, Zen-Noh proprietary system 16
Cooked rice, cooked sushi rice	2			Zen-Noh proprietary system 1
Frozen cooked rice	1	(HACCP system plant)		Measures for application for approval initiated 1
Others *	12			
Sub-total		Approval obtained 10, conformity assessment being undertaken 3, application for approval filed 1, filing of application for approval scheduled 1, preparations for application for approval being made 5	Preparations for application for approval being made 2, measures for application for approval initiated 1	Registration completed 5, conformity assessment being undertaken 5, preparations for application for approval being made 1, measures for application for approval initiated 5, proprietary system 19
Total	104	20		35

*: The principal items are ice cream, wine, omelet, canned Pholiota nameko, seasoning such as soy sauce, tofu, jelly.

1. BANGLADESH

Abdur Rouf
Director, Movement, Storage and Silos
Directorate General of Food
Dhaka

INTRODUCTION

In view of the liberalization of global trade and increasing demand by consumers in developed countries, the food industry has been confronted with the challenge of competitiveness in quality-oriented international market where commodities, production areas, and brands compete with each other. Competitiveness in food production in the near future will be more dependent on the reliability of the safety and quality of the food and acceptability of production procedures rather than on quantity and price. So, the national food certification systems need to be further enhanced and must complement internationally recognized certification systems.

Bangladesh being a member of Codex Alimentarius Commission together with the agreements/ conventions like SPS/TBT/IPCC, is committed to adopt the standards and certification system of Codex, establish HACCP principles in all its food processing industries and implement SPS measures.

CURRENT STATUS OF THE FOOD CERTIFICATION SYSTEM (FCS)

National food safety programs include building up of infrastructure, constructing standards, accomplishing guidelines/procedures of the CODEX, complementing ISO, HACCP etc., promoting awareness, and producing and transferring information. Monitoring and protection of plants and plant products from bio-terrorism, epidemiological surveillance of food-borne diseases and monitoring of chemical contaminants have been undertaken as a basis for determining food-safety policies and interventions. But central to all initiatives is the certification of conformity of the requisite parameters/standards.

FOOD SAFETY INFRASTRUCTURE, STANDARDIZATION AND CERTIFICATION

Bangladesh Standards and Testing Institution (BSTI)

The BSTI is an autonomous organization under the Ministry of Industries. It was established by the amalgamation of Central Testing Laboratories (CTL) and Bangladesh Standards Institution (BDSI) in 1985. Later on, “The Agriculture, Marketing and Grading Department”, under Ministry of Commerce was also merged with BSTI in 1995. BSTI is the only institute in Bangladesh authorized to determine the quality and standards of Bangladeshi products. It has a 39 member Council Committee under the Chairmanship of Minister for Industries. This apex body is responsible for policy making and overseeing the implementation of the policies of BSTI. Secretary, Ministry of Industries, is the Ex-officio Vice President. Director General of BSTI is the Ex-officio Member- Secretary of the Committee.

Functions of BSTI

BSTI, among others, performs the task of formulation of National Standards of industrial, food and chemical products. Quality control of these products are ensured as per standards. In performing all these functions, Director General is assisted by the Directors, technical & non-technical staff.

BSTI, at present, has 6 wings; namely: (a) Standard wing, (b) Certification marks wing, c) Physical testing wing, c) Chemical testing wing, (d) Metrology wing, and (e) Administrative wing. All the wings are headed by a Director. The functions of standard, certification, physical and chemical testing wing are briefly narrated below:

BSTI, A Member of Codex Alimentarious Commission

BSTI is a member of Codex Alimentarious Commission. It receives Codex Standards, documents, technical literature, etc. regularly and these are consulted by the experts engaged in preparing and implementing

food standards. BSTI already adopted 22 (twenty two) Codex Standards including 1 (one) guideline as National Standards.

The above Codex standards adopted as national standards have not yet been taken under Compulsory Certification Marks Scheme. Out of the above 22 standards some products standards will be brought under Compulsory Certification Marks Scheme in future. BSTI has already adopted ISO 9000, ISO 14000 and HACCP as Bangladesh Standards. Some companies in Bangladesh are now ISO certified, but many are coming forward to get ISO certificate to overcome the SPS barrier for entering into the international markets.

The Ministry of Fisheries and Livestock

Department of Fisheries (DOF) under the Ministry of Fisheries and Livestock is the agency responsible for controlling safety standards of Fish & Fishery Products intended for export. Realizing the importance of quality and safety of fish and fishery products, the Department of fisheries through Fish Inspection & Quality Control Division has set a policy related to the following issues:

1. To provide reasonable assurance that fish/shrimp used as raw materials is free from chemical contaminants, environmental contaminants and toxin through frequent monitoring.
2. To apply necessary measures for quality assurance by implementing quality management program based on HACCP principles.
3. To emphasize plant and process inspection as tools to control and assure quality and safety of end products.
4. To provide certificate for exportable consignment after physical, organoleptic and microbiological tests of the products, following ICMSF standard and Codex guideline.
5. To achieve and maintain a high degree of standard and quality in all steps of the work in the plants, laboratories and field.

The Department of Livestock (DLS) under the Ministry of Livestock and Fisheries arranges inspection of imported animal, poultry bird, and look for sign and symptoms of pests and diseases. The only law regulating live animal import is Animal Importation Act 1898. In case of importing live animals DLS gives import permit if competent veterinarian or veterinary service certifies the importing animal as disease free.

The present seafood quality and safety program is based on good manufacturing practices (GMP), Sanitation Standard Operating Procedures (SSOP) and HACCP principles. This program emphasizes continuous problem solving and prevention of contamination of raw materials.

Plant Protection Wing of Ministry of Agriculture

The Plant Protection Wing of Department of Agricultural Extension (DAE) under the Ministry of Agriculture (MOA) is a multi-agency responsibility organization. DAE is headed by Director General and has six wings each of which is headed by a 'Director'.

The Director, Plant Protection Wing of DAE is responsible for execution and implementation of the national or international Plant Quarantine Legislation and Agreement. There are five sections in the Plant Protection wing viz., Plant Quarantine Section, Pesticide Administration and Quality control, Operation (Aerial and ground), Surveillance and Forecasting and Integrated Pest Management.

At present, sixteen Plant Quarantine Stations (PQS) are functioning in different entry points of the country. All the PQS are working for certification and inspection for import and export items.

Ministry of Food

Ministry of Food (MOF) is responsible for overall food management of the country and has been working hard to develop a dependable food security system. Directorate General of Food (DGF) is the only implementing agency working under it. DGF manages the public food security stock by building it through internal procurement drive and commercial/aided import and then distributing them to different channels of the Public food distribution system (PFDS).

In all stages of its operation (i.e. procurement/import, storage, movement/handling), DGF tries to maintain fairly a reasonable food safety standard. WQSC (Weight, Quality, and Stock Certificate) is issued by the LSD/CSD (locally called godowns) officials at the time of internal procurement. But imported food grains are discharged from vessels only with clearance of Quarantine Officer of PPW. Also technical inspectors of DGF carry out physical and chemical examinations. A damaged cargo is disposed of as per quarantine rules. Cargo damaged in course of the journey, whether it is fit for human consumption or not, is certified by the Health Officer working at the Port Authorities (PAs).

DGF has one central food-testing lab at Dhaka together with four regional labs manned by chemist, assistant chemist and lab technicians. Moreover it has Technical Inspectors down to the Upazila level, one Technical Controller (UFC) in each district and one Director (IDTS) posted at the HQ to look into the quality, safety and certification issues of the public food stocks.

Besides, MOF is assigned to carry out inspection, analysis and quality conformity assessment of foodgrain and foodstuffs other than the public ones as per the Rules of Business of the Government and Bangladesh National Plan of Action for Nutrition (NPAN). However, the responsibilities given in the Rules of Business and NPAN could not be carried out due to lack of modern food testing laboratories and well-trained manpower.

Ministry of Local Governments, and Rural Development

City Corporations, Municipal Corporations and Pourashavas are entailed with the task of certifying cows and goats to be slaughtered for marketing and human consumption. Those organizations do have veterinary doctors/ technologists to perform the activities. Also those authorities are empowered to check the quality of foods and foodstuffs sold in the local markets.

Ministry of Health and Family Welfare

Public Health Institute of MOHFW is working for the quality of food available in Bangladesh. Public Health Laboratory is fully responsible to check the quality of food in order to protect the consumer from unsafe, adulterated, or contaminated food as per Pure Food Ordinance, 1959 and Pure Food Rules**,** 1967. Pure Food ordinance, 1959 and Pure Food Rules, 1967 contains 107 items of notified food.

Sanitary Inspectors at different tiers of the administrative unit of MoHFW draw the food samples and send them to the Public Health Laboratory (PHL) of IPHN for testing as per available rules/laws. If the samples indicate adulteration, public analyst of PHL reports it to the Civil Surgeon of the district for legal action against the owner of the food samples as per section 44 of Pure Food Ordinance, 1959.

Bangladesh Atomic Energy Commission (BAEC)

Imports of food and food product from some countries of the world are subjected to testing of radiation level. The Bangladesh Atomic Energy Commission does this. Samples are drawn at the port of entry, sent to the lab of BAEC and the goods are cleared from the port under customs authority upon satisfactory certification from BAEC.

Conformity Assessment Infrastructure

Apart from BSTI, Department of Fisheries, and Plant Protection Wing there are few other organizations engaged in testing of food and food products. They are:

- Bangladesh Livestock Research Institute, Savar, Dhaka;
- Bangladesh Fisheries Research Institute, Mymensing;
- Bangladesh Council of Scientific & Ind. Research (BCSIR);
- Central Drug Testing Laboratory, Mohakhali;
- ICDDRB, Dhaka;
- S.G.S., Dhaka (only MNC having testing facilities of its own);
- Department of Chemistry, University of Dhaka;
- Public Health Laboratory (PHL of the Institute of Public Health (IPH);
- Armed Forces Food and Drug Laboratory;
- Chemical Examiners Laboratory;
- Radiation Biology Laboratory, BAEC; and
- Food Laboratory of the Ministry of Food.

National Enquiry Point (NEP) - BSTI

BSTI is the National Enquiry point of standard in Bangladesh. Ministry of Commerce coordinates activities under the WTO TBT Agreement and it designated BSTI as the WTO TBT Enquiry Point in Bangladesh, in consultation with the Ministry of Industries. Notifications are sent to WTO through the Ministry of Commerce for comments from WTO member countries. This is yet to be made full-fledged and fully operational.

System of Certification of DOF & PPW

Fish Inspection & Quality Control (FIQC): FIQC carry out routine inspection of hygiene and sanitation of plant premises, verify HACCP related documents & records, processing activities based on required

standards set by the department of fisheries. These standards are based on the CODEX guidelines, code of practice, standards and directives of EU, USFDA, HACCP regulations and requirements of other importing countries.

Method Practiced in Bangladesh to Issue Phytosanitary Certificate for Export

When required by the law of the importing country and in accordance with IPPC Convention, a Phytosanitary Certificate of Exportation must accompany plants and plant products. Certification is made as follows:

a) Every person who intends to export plant and plant products shall submit an application in prescribed form to the Director or Plant Quarantine Officer (PQO) concerned for inspection of plants or plant products before shipment. The application shall be made at least a day before exportation for perishable items and 15 days before the date of the exportation for non-perishable items so as to allow proper inspection and treatment (if required) and certification.
b) If the plant or plant product, is found, upon inspection to be free from injurious insect and plant diseases, a phytosanitary certificate shall be issued by the Director or PQO.
c) No phytosanitary certificate shall be granted for any plant or plant product which has been taken from or mixed with other plants or plant products which are infested or infected.
d) No phytosanitary certificate shall be granted for any plant or plant product, intended for shipment to a country in which its entrance is absolutely prohibited.
e) For the purpose of inspection, fumigation or destruction of plant or plant product, the required conveyance and other related expenses should be provided or borne by the exporter.
f) All risk or damages of any kind associated with, or resulting from fumigation or other treatment shall devolve in the exporter.

Phytosanitary Certificate for Imported Plant and Plant Products

All plants and plant products shall be accompanied by a phytosanitary certificate from the country of origin. Persons who import any plant or plant products shall submit the phytosanitary certificate to the PQO for his perusal and record. But this will not preclude the inspection by the PQO, if such inspection deemed necessary.

Contribution of FCS

BSTIs endeavor in formulation of standards of food and agricultural products and services and drives for bringing 46 food items under compulsory certification marks have created great confidence in the minds of both consumers and producers. Similarly Plant Protection Wing has been doing a good job assisting the export and import trade of food and food products. National FCS has been playing a very important role in ensuring food hygiene/standards and helping domestic as well as foreign trade of food and food products. However comprehensive survey/study needed to assess the contribution already made by FCS and the potential lies thereof in the country's trade regime.

ISSUES AND PROBLEMS IN THE IMPLEMENTATION OF FCS

Problems of Standards in Bangladesh at the Domestic Front

- BSTI is the focal point relating to standards in Bangladesh. But it has remained more or less in a traditional shape. It is yet to prepare, adopt, apply and maintain standard of our products efficiently. So, the private sector producers might face serious difficulties in the international as well as domestic markets unless the capacity of BSTI is built up to face the challenges of globalization.
- There is also need for maintaining the standard of imported goods. In reality, substandard, expired, counterfeit, inferior and cheap imported goods are being sold in our domestic market to the detriment of the local producers and consumers. Consumer Protection Act in Bangladesh to protect the consumers is in the process of enactment.
- For the purpose of production and marketing of local products, approval from the BSTI is necessary. But the substandard, expired and cheap products including daily necessities and baby foods are coming into our domestic market formally as well as informally through the porous border. As a result, many local industries are facing unfair competition from such goods and are likely to be sick or extinct.
- There are complaints that the procedure of examination for giving certificates by BSTI is not always sound and well- organized and that BSTI is not well equipped.

- Ineffective and inefficient handling of standard and quality of many products is hindering the image-building process of Bangladeshi goods and services in the domestic and foreign markets.
- At present, there are not enough infrastructures within Bangladesh to assist producers and exporters in getting ISO Certification of 9000 & 14000 series, which is necessary to meet the consumers' preferences and requirements of international market. At present getting such certification from foreign sources is very cumbersome and expensive.

Problems and Difficulties Encountered in the Export Market

Due to inadequate infrastructure facilities, sub-standard health and sanitary condition of the plants, inadequate control over the establishments by the competent authority and inadequate facilities in quality control laboratories, EU imposed a ban on export of fishery products from Bangladesh to EU countries in July 1997.

SPS and TBT Agreements : Challenge for Bangladesh

The key challenge in this area is to upgrade sanitary and phytosanitary standards in order to be able to export agricultural products to countries where standards are already high. Some importing countries were reluctant to accept safety standards and certifications issued by the relevant Bangladesh authorities. In some cases, importing countries also interpreted "equivalency" as "identical inspection and certification system", which is neither called for by the Agreements nor feasible. A disturbing trend, which seemed to be on the rise, is trade "harassment" on SPS/TBT grounds, as importers interpreted some of the "grey" area provisions of the SPS/TBT Agreements to their advantage. It is also said that it is not always feasible to resolve such differences formally through the WTO disputes settlement process, especially for countries lacking financial resources. Similarly, it is noted that the transition period granted to LDCs to implement the SPS/TBT Agreements is too short.

Harmonizing Food Inspection and Certification Systems

It appears from practical point of view that the issue of harmonization and equivalence have scope for trade dispute between the developed and the underdeveloped countries.

Other Issues and Problems at the Domestic Front

- Lack of co-ordination among the GOB agencies dealing with the food safety, standards and certification
- Lack of resources, technology and skilled manpower
- Inadequacy of laws, rules and procedures
- Absence of proper enforcement
- Knowledge of standards, laws/regulations is too low among the producers and consumers and lack of motivation and awareness building activities from the government point of view.
- Issues of likelihood of arsenic in food chain due to contaminated irrigated water
- Cost of maintaining safety, standards etc. of food have some bearing on the purchasing power of the poorer section of population which nearly constitutes 44% of the total.

GOVERNMENTAL EFFORTS TO IMPROVE THE NATIONAL FCS

Public-Private Sector Interaction

NEP has been established, but yet to be made fully functional. At present notifications from overseas are handled by the Ministry of Commerce through Federation of Bangladesh Chamber of Commerce & Industries and other leading chambers. To create awareness among the business community about WTO / TBT, seminars, workshops and round table discussions are organized from time to time both by public and private sector trade promotion organizations. At present Bangladesh Permanent Mission in Geneva and the Ministry of Commerce ensure that views of the National Standard body and the business community are channeled to the WTO / TBT Committee.

Linkage Building

BSTI envisages for greater interaction & linkage with the industries & chamber / associations to strengthen standardization and quality management systems so as to build a strong industrial base and make Bangladeshi products internationally competitive. Following matters relating to the strengthening quality management system in the Bangladesh industry are emphasized:

i) Industries & chambers / associations can help the NSB directly in drafting of National standards because they are the main user of standards.

ii) Industries should improve their quality systems and implement ISO 9000 (QMS) standards and 14000 (EMS) standards.
iii) Help from trade bodies DCCI, FBCCI, MCCI, etc.
iv) Clear-cut guidelines regarding quality standards, quality assurance and quality management systems certification and their role in promotion of export.
v) In recognition of the importance of standardization for both the public and private sector, BSTI has started restructuring itself to increase private sector participation in its activities.

Steps Taken for Implementation of HACCP and Sanitary and Phytosanitary Measures

Government extended assistance for renovation of the processing plants and testing laboratories, which were the primary requirement for the implementation of HACCP and to fulfill the requirement of EU. Eventually it created a momentum for quick implementation of HACCP in fisheries sector. Department of Fisheries (DOF), Bangladesh has also accepted this new concept of HACCP. DOF trained concerned personnel on HACCP system. Quality control officers of the fish processing establishments had also been trained on HACCP to implement the system in their respective plants. Moreover, Government has undertaken a program to assure the quality and safety of the fishery products . FIQC wing is mandated for introduction and implementation of HACCP in the fish processing industry. In this regard the following assistance is provided by FIQC:

1. Training for the development of technically skilled manpower in HACCP and Phytosanitary system.
2. Provide technical support and review HACCP manual for the plants.
3. Verification and Auditing of HACCP plans are carried out as and when required.
4. Provide technical assistance for implementing HACCP systems in the plants.
5. Certify HACCP for fish processing establishments.

The government has planned a Taka 150 million project for modernizing the laboratory facilities, specially for antibiotic tests, a requirement for sensitive EU and USA markets. Ministry of Food is looking for implementing a Technical Assistance Project to equip and update its food testing equipments/procedures and train its manpower.

Formulation/Updating of Laws and Policies

Bangladesh constitution states that the State shall regard raising the level of nutrition and improvement of public health as one of its primary duties. The Government of Bangladesh is firmly committed to achieve food security for all as declared by World Food Summit- 1996.

The “East Pakistan Pure Food Ordinance 1959” is the adaptation of the Bengal Food Act 1939. This Law has been revised and Updated through an Inter-Ministerial Committee to Bangladesh Food Safety Ordinance 1994. It proposed to make full use of the standards and practices published by the Codex Altimentarius Commission, which are also applicable to Bangladesh. It covers the dosages and residues of fertilizers, fungicides, pesticides and other chemicals in crops and animal feed; food additives (colors, preservatives, flavoring agents, fortifying agents, etc). Hopefully the ordinance will soon be approved by the Government and then possibly help to formulate and implement the “Bangladesh Pure Food Rules”.

The existing Plant Quarantine legislation known as “Destructive Insects and Pest Rules, 1966 (Plant Quarantine)” amended in July, 1989, was framed as per provisions delineated under sub-section (1) of section 3, Section 4A and 4D of the “Destructive Insect and Pest Act, 1914 (11 of 1914)”.

The food standards from the country are available from the Bangladesh Standards and Testing Institution (BSTI) Ordinance (1985). There also exists the Essential Commodity Act 1990 in which provisions are made for food standards and food adulteration.

The Bangladesh Standard and Testing Institution (BSTI) adopted the “Bangladesh Standard Specification for Grades on Milled Rice” in 18 December 1986.

Bangladesh food and nutrition policy was approved in 1997, which emphasizes the need for sound food control system to ensure nutritious, safe and wholesome food for consumers and in promoting national economics for the well-being of the population.

Comprehensive food security policy has been drafted which narrates policies and strategies to promote Food Utilization and Nutrition.

Formulation of NPAN: It identified areas for special attention, developed a strategic framework to protect consumers through improved food quality and safety, outlined some plan of actions and suggested some interventions.

The Exim policy: Elaborates the export control measures, Labeling and Marking Requirements, and emphasizes for maintaining quality and standards and proper certification.

Livestock Sector: Laws, Rules and regulation virtually do not exist in the Veterinary trade related field in Bangladesh. Animal Quarantine Act and Animal Disease Control Act are awaiting approval of the Ministry of Law, Judiciary and Parliamentary Affairs. The prevailing Slaughter Act needs drastic changes, as supply of safe food cannot be ensured by the act.

Membership in Trade Arrangements

Bangladesh is a founder member of the World Trade Organization, where it has been active in promoting the interests of the least developed countries. Bangladesh is a member of the South Asia Preferential Trade Agreement (SAPTA) under the umbrella of the South Asia Association for Regional Cooperation (SAARC). Bangladesh is also a signatory to the Bangkok Agreement, which aims at trade liberalization among LDC's in Asia. Bangladesh is also a member of BIMSTEC, an organization which seeks to promote economic cooperation (without preferential trade arrangements) between Bangladesh, India, Myanmar (Burma), Sri Lanka, and Thailand.

Bangladesh became a signatory to FAO International Plant Protection Convention (IPPC) in 1974. It also became a member of the Asia and Pacific Plant Protection Commission in 1978 with express commitment to formulate Rules and Regulations to prevent the introduction into and spread within the country of destructive pests and diseases through appropriate plant quarantine measures. Bangladesh is committed to strengthen Plant Quarantine Services and further regional cooperation among other member countries in the field of Plant Quarantine.

Strengthening the Information, Surveillance and Alert Service at DLS

Department of Livestock Services is operating a European Commission assisted project for Strengthening Livestock Information Services. In this regard new format of disease reporting has been prepared and software has already been designed to analyze the reported data at central level. The department .is planning to publish National Biodata Bulletin, Livestock Population Bulletin, Diseases Bulletin, Divisional/ District Disease Report Bulletin, Quarterly to be sent to OIE.

Other Initiatives

BSTI adopted standards (BDS 1704: 2002) specification for Dressed Chicken, which has been approved by the Agricultural and Food Products Divisional committee. This standard is being formulated to provide guidelines to ensure safe quality for domestic consumers and for international trade as well

Livestock sector particularly poultry sector has been emerging as potential for export diversification. Recently Government has launched National Goat Development Program primarily with the objective of poverty reduction and export of goat meat. Sanitary and Phytosanitary measures are very crucial for switching over to international market from local market. Setting of Sanitary and Phytosanitary Standards and developing legal framework are crucial for the export of meat.

DLS recommended the following steps to be taken by Government for application of Sanitary and Phytosanitary measures:

- A national level committee should be constituted to formulate a program for application of SPS measures.
- The proposed Animal Quarantine Act and Animal Disease Control Act should be placed before parliament as early as possible for enactment.
- Animal Slaughter Act to be revised for ensuring safe animal food to consumers. Modern slaughterhouses and poultry meat processing units should be established.
- A minimal standard for antibiotic, herbicide, anthelmentic, hormone, heavy metal residue and residues for other agent and standard for microbial analysis and contamination should be set up on the basis of risk analysis.
- Notification of disease, declaration of disease free or low pest zone on the basis of disease surveillance should be practiced.
- Laboratory Services should be modernized. Support from international agencies is needed.

REVIEW OF SUCCESS AND FAILURE -- CASE STUDIES

Despite being an agricultural country Bangladesh have to import a bulk quantity of seeds and other plant and plant products. Annually on an average 1.5 million Metric Tons of plants and plant products are

imported for which Plant Quarantine Inspection are needed. Sometimes to ensure Phytosanitary measures Plant Quarantine Treatment IS adopted. Similarly, different commodities of plant and plant products are also exported to other countries of the world. Annually, on an average 3.5 million M/T of agricultural commodities, mainly raw jute and jute products, handicrafts, vegetables, fruits are inspected for the purpose of export for which Phytosanitary Certificates are issued.

In July 1997 EU imposed a ban on imports of shrimp products from Bangladesh into the EU market showing the reason that this commodity did not meet the provision of EU's HACCP. Objections were raised on the issue of unskilled and unhygienic habits of workers, unhygienic transportation and preservation, untimely procurement of shrimp and corruption practices.

Impact of the Ban

- Simulation exercises based on with or without ban scenarios: US$65.1 million as the cost of the EU for Bangladesh.
- Investment to ensure HACCP compliance: US$18 million (facilities and equipment, training staff and workers for achieving acceptable SPS and technical standards; annual cost of US$ 2.4 million for maintaining HACCP program.
- Factories were subsequently developed as per EU requirements. EC technical team visited Bangladesh fish processing plants and from January/1998 ban was lifted for 6 (six) processing plants. At present number of EU approved fish processing plants are 48 and a few are in pipeline of approval.

Crisis Looms as Shrimp Exports Dwindle

Failure to comply with HACCP will inevitably lead to a ban on shrimp exports to EU countries and the USA dealing a crippling blow to the frozen food sector as 84 percent of the country's shrimp is exported to these countries. Already the shrimp export has begun to fall. The exports in the first six months of the year 2002 was 107.06 million US dollar which was 129.54 million US dollar in the corresponding period in 2001.

Recently some harmful bacteria were detected by the EU authorities in the shrimps imported from Bangladesh, which made the EU countries suspicious of the quality of shrimp. It was apprehended that both the exporters and the certificate issuing authority were responsible for the quality failure.

BSTIs Certificate of Non-Compliance Challenged at the Court

BSTI of late found two brands of condensed milk not complying with the standards and subsequently a ban was imposed on the production and marketing of those products. The producers went to the court and eventually suspension order was temporarily withdrawn pending detailed hearing of the case.

CONCLUSIONS AND RECOMMENDATIONS

- Bangladesh should concentrate on building an institutional framework to analyze, prescribe and monitor policy actions to face the challenges and to capitalize the opportunities stemming from the global trade regime under the WTO.
- In the current age of globalization of production and liberalization of trade under WTO and development of informatics and e-commerce, the horizon of trade and business is expanding fast, and goods and services from one end of the world are moving faster to the other end and being interchanged rapidly. These changed circumstances have necessitated the introduction of basic standards of all the products and services for survival in stiff open market competition. BSTI and other related organizations of Bangladesh has great role to play under the circumstances. The international community has to extend all out cooperation to the LDCs like Bangladesh to improve their infrastructure and capacity regarding standard setting, and its enforcement and conformity assessment.
- The development, adoption and implementation of the Sanitary and Phytosanitary measures are something, which involve costs, impose burden and, to some extent impose restrictions. But at the same time, absence of Sanitary and Phytosanitary measures or lack of their proper execution/ implementation are not something we can ignore in the international trade.
- The present plant inspection and quarantine rules of Bangladesh are out of date and should totally be renewed in order to fulfill the needs of the country and to comply with the FAO convention and the application of Sanitary and Phytosanitary measures (WTO SPS agreement). At present no cooperation exists between the plant quarantine inspection and quarantine service in Bangladesh and the corresponding ones in the neighboring countries.

- An electronic certification (E-cert) system may be developed that will enable all exporters to apply for food export certificates and submit certification information over the Internet. World community shall provide enough time for establishing HACCP, ISO etc. and adoption of codex certification system.
- Technical Assistance Needs: Ministry of Commerce, BSTI, Ministry of Environment, Plant Protection Wing of the Ministry of Agriculture, MOF, MOHFW and Department of Fisheries are related to Standards and TBT / WTO. The capacity of all these organizations to handle WTO related activities is to be built with well coordinated efforts. Appropriate strategy has to be adopted concerning quality management to safeguard country's interests in domestic and export markets. The following steps may be taken in this regard:
    1. Establishment of an accreditation & regulatory body
    2. Establishment of Quality Certification Bodies in the country for local products so as to reduce the cost of auditing by foreign certification bodies
    3. NEP has to be made fully functional.
    4. Development of quality consultants in the country so that producers can receive services from them
    5. Training for the national regulatory agencies concerning the preparation of technical regulations based on the TBT principles. Officials of the Trade Bodies, small enterprises also require training to have practical knowledge, which will help the business community in understanding and interpreting TBT.
    6. Technical Assistance Program for the implementation of the certification and reinforcement in the area of accreditation
    7. Technical Assistance in the field of evaluating the impact of the standards
    8. More seminars/workshops for creating awareness among the private and public sector organization and related persons in this respect
    9. Strengthening the capacity of conformity assessment infrastructure of organizations of the country particularly in the areas of laboratory equipment and materials and human resources development
    10. Risk Analysis System in DLS

Risk Analysis units and studies and SPS measures are practically non-existent in livestock sector of Bangladesh. A standard and modern analysis unit should be established with a laboratory having sophisticated microbial analysis capacity and with modern facilities to identify hazards like minimal presence of antibiotic, herbicide, anthelmentic residues or any deleterious agents. Bangladesh Livestock Research Institute can provide support in carrying out risk analysis studies for SPS measures. But it will be helpful for us if necessary technical support come from abroad.

The guidelines for food certification must be harmonized with those of the CODEX developed by the Codex Alimentarius Commission to take full benefit of agricultural trade liberalization. In this regard, developing country like Bangladesh could learn a lot from the food certification systems in more developed member countries, such as Japan, the ROC, ROK, and Thailand, with advanced food industries.

It is imperative to strengthen the fish inspection and quality control laboratories of the country through a modernization program, which would be implemented within a short period. To save the shrimp industry the country needs an integrated quality control drive that would aim to overhaul the industry.

The shrimp quality could be ensured through a Seal of Quality (SoQ) program, which would create an independent industry-led and funded Seal of Quality organization. It is necessary to organize all the major participants in the shrimp industry including shrimp brood-stock collectors, hatchery operators, farmers, suppliers, shrimp transport operators, feed millers, ice-factory owners, and processors in order to assure the delivery of quality, hygienic and safe- to-eat shrimp to buyers and consumers worldwide.

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Abbreviations

AOA- Agreement on Agriculture
ATDP -Agro-Based Industries and Technology Development Project
BAEC- Bangladesh Atomic Energy Commission
BBS- Bangladesh Bureau of Stastistics
BCSIR- Bangladesh Council for Scientific and Industrial Research
BDS- Bangladesh Standards
BINP - Bangladesh Integrated Nutrition Project
BSTI - Bangladesh Standards and Testing Institution
CAC- Codex Alimentarius Commission
CM - Certification Marks
CNS- Child Nutrition Survey
CSD- Central Storage Depots
DAE- Department of Agricultural Extension
DCCI - Dhaka Chamber of Commerce and Industries
DGF- Director General Food
DGF- Directorate General of Food
DOF- Department of Fisheries
EU- European Union
EP- Essential Priority
EPZ- Export Processing Zone
FAO- Food and Agricultural Organization
FBCCI - Federation of Bangladesh Chamber of Commerce and Industries
FCS- Food Certification System
FFE- Food for Education
FFW- Food for Works
FIQC- Fish Inspection and Quality Control
FM- Flour Mills
FPC- Fair Price Card
FPMU- Food Planning and Monitoring Unit
GMP- Good Manufacturing Practices
GOB - Government of Bangladesh
GR- Gratuitous Relief
HACCP- Hazard Analysis and Critical Control Point
HIES- Household Income and Expenditure Survey
HKI - Helen Keller International
ICDDRB- International Center for Diarrhoeal Disease Research, Bangladesh
ICMSF- International Commission on Microbiological Specifications for Foods
IDTS -Inspection, Development & Technical Services
IFDC- International finance and Development Corporation
IFPRI - International Food Policy Research Institute
IPPC- International Plant Protection Convention
ISO- International Standard Organization
JECFA- Joint expert Committee on Food Additives
LE- Large Employers
LSD- Local Supply Depots
MCCI - Metropolitan Chamber of Commerce and Industries
MOA- Ministry of Agriculture
MOF- Ministry of Food
MOFL- Ministry of Fisheries and Livestock
MOLGRD- Ministry of Local Government, and Rural Development
MOHFW- Ministry of Health and Family Welfare
MRL- Maximum Residue Limit

NEP- National Enquiry Point
NNP - National Nutrition Project
NSP - National Surveillance Project
NPAN - National Plan of Action on Nutrition
OMS-Open Market Sale
OP- Other Priority
PA- Port Authority
PFDS - Public Food Distribution System
PQS-Plant Quarantine Stations
RCF- Regional Controller of Food
RD- Rural Development
RMP- Rural Maintenance Programme
ROC- Republic of China
ROK- Republic of Korea
SGS- Sociate de Surveillance
SOQ- Seal of Quality
SPS- Sanitary and Phytosanitary
SR- Statutory Rationing
SRO- Statutory Regulatory Order
SSOP- Sanitation Standard Operating Procedures
TBT- Technical Barrier to Trade
TR- Test Relief
URAA- Uruguay Round Agreement on Agriculture
USAID- United States Agency for International Development
USFDA- United States Food and Drug Administration
VGD- Vulnerable Group Development
VGF- Vulnerable Group Feeding
WHO- World Health Organization
WTO- World Trade Organization

2. REPUBLIC OF CHINA

Guey-Pyng Lin
Associate Researcher
Food Industry Research and Development Institute
Hsin-chu City

INTRODUCTION

Food certification system (FCS) was first adopted in Taiwan in 1952. During the past half-decade, many FCSs have been implemented successfully to help food industry in Taiwan and to protect consumers by providing high quality and safety products. Food Good Manufacturing Practices (FGMP), Chinese Agricultural Standards (CAS), the International Organization for Standardization (ISO) and Good Hygienic Practices (GHP) are the four well-known quality assurance methods or systems adopted in Taiwan. Each certification system is supported by our government authority and promoted by relevant associations or agencies. The adoption of marketing strategy can be useful for enhancing FCS based on the results of research and market survey.

CURRENT STATUS OF THE FCS IN TAIWAN

Food Good Manufacturing Practices (FGMP)

GMP was originated from the United States for pharmaceutical and food industry. Well known to the general public and the food industry, the GMP is adopted now by many developed countries. FGMP system was introduced in Taiwan in 1989 and widely promoted. Ministry of Economic Affairs (MOEA) used to support and promote the FGMP system in food industries independently. Since last year, MOEA and the food industries started cooperative support of the system.

The purpose of FGMP is to strengthen the self-control systems of food industries, to upgrade the quality and safety of domestically manufactured foods, increase their competitiveness and thus promote the development of food industries. Combining with the prescripts of Hazard Analysis Critical Control Point (HACCP) and Sanitation Standard Operation Procedure (SSOP), the FGMP system in Taiwan is more strict and rigid than current GMP system in the U.S. Because of the diversity of food products and the differences in economical scale of the food industries, the application of GMP certification is optional. The scope of the FGMP system applies to foods which are divided into 26 types. As of December 2002, 313 factories or production lines for 3297 items of products were certified and granted with GMP logo.

China Food GMP Development Association (GMP Association) is mainly responsible for the promotion of this certification activity. For example, a "Breakfast Garden Party for 10,000 People" was held last year to increase its publicity. This kind of activity not only encourages citizens to join the party to become one of the Guinness World Records Keepers, but also introduces GMP factories and their products to the public. The GMP Association also helps GMP factories to create business opportunities abroad. In 2001, the GMP Association and 8 factories joined the International Food Festival in Tokyo. It was estimated that there would be 3.97 million dollars of orders for a single year after joining the Festival[2]. The GMP Association regularly holds such activities every year. Based on a surveillance research it was found that the GMP mark is the most popular logo among university students[3]. The GMP Association also conducted a consumer survey in 2002. More than 90% of consumers are confident about buying the products with GMP mark. Nearly 84% of consumers will choose the products with GMP mark when they buy foods. The sample size was more than 2000 consumers[1]. GMP certification system may be one of the most successful marketing examples of the certification promotion system.

International Organization for Standardization (ISO)

After the MOEA announced the "Implementation Regulations of the Quality Control Program for Domestic Commodities" in 1969, the Bureau of Standards, Metrology and Inspection (BSMI) recruited several U.S. experts to help draft the evaluation report for the manufacturers' quality control systems to

promote the "Total Quality Control Program." Over 6,000 factories had been approved under the program, which laid a good foundation for promoting the ISO quality management system in Taiwan. The ISO published the ISO 9000 Series of Quality Management Standards on March 15, 1987. These standards have been adopted and followed by many industrialized countries. In order to promote the internationalization of Taiwan's quality assurance scheme and to achieve the goal of mutual recognition with other countries, the BSMI has adopted the ISO 9000 series and the MOEA had set forth the "Regulations for the Implementation of the ISO 9000 Quality Management Scheme." This Scheme has been in effect since January 1, 1991. The Objectives of Promoting ISO 9000 Quality Management System are:

- To meet international development trends in quality management and quality assurance systems, and to promote the internationalization of Taiwan's management assurance scheme with a view to increasing the competitive edge of Taiwan's products in the international market;
- To enhance Taiwan's level of quality assurance, to ensure product quality, and to protect the rights and interests of the purchasers and consumers; and
- To facilitate the BSMI in negotiating mutual recognition agreements on product certification with foreign countries.

Domestic and overseas manufacturing and service industries may apply for quality assurance registration in Taiwan. Over 2,391 factories and companies have applied for ISO 9000 registration, and about 1,671 of them have registered under the scheme (data as of December 2000). The number of registered factories and companies is increasing rapidly. Until February 19, 2003, there were 57 food or beverage factories registered and approved for the quality system[5]. Since the ISO quality assurance system is well known to the public, there may be no need to go for any publicity for the system. Besides, it is not allowed to make any clams other than "ISO certified" for promotion purpose on the food products based on ISO mark regulation Good Hygienic Practices (GHP) and Hazard Analysis Critical Control Point (HACCP).

The GHP, promoted by our Department of Health (DOH) of Executive Yuan, is compulsory to food industry based on the Food Sanitation Law. The regulation for GHP has been pronounced in the year 2000. Only lunch or food box manufacturers, restaurants, dinning rooms in big hotels, central kitchens and cafeterias are now under the GHP and HACCP guidance since 2002. It is required for the cooks who work in the GHP certified restaurants to have a certification. Local department of health of the city deals with the promotion and evaluation of GHP. Through projects or activities, the GHP system is introduced not only to large food industries and manufacturers but also to small food stores or even retailers. For example, Taipei city health department in Wanhai district has performed a project for helping food retailers in Taipei Hwasi Sightseeing Street last year[7]. By providing skill and information through training courses to the cooks and carrying out intensive on-site evaluation of the stores, which have not passed the checking, it has successfully introduced the quality assurance method to the storeowners and provided better protection to the customers.

Like GHP, HACCP was adopted by DOH to prevent food sanitation problems especially on food quality and the processes. HACCP is planned on good foundation of GHP. The system will become compulsory this year for some types of seafood factories based on the Food Sanitation Law. It is important for domestic food management measures to incorporate international standards if the domestic food industry wants to adapt to international competition and mutual recognition. Since the HACCP system has been accepted throughout the world, it must be enforced in the laws and regulations governing the health and safety of foods.

Chinese Agricultural Standards (CAS)

The "Chinese Agricultural Standards (CAS) Mark System for High Quality Frozen Food Products", supported by Council of Agriculture (COA) and the DOH, was set up in 1989. This system has since then helped encouraging Taiwan's manufacturers to upgrade the quality of their products in a large scale. The application of CAS quality system is voluntary. Certifications are only granted to those manufacturers whose factories and products have been carefully inspected. After the application from the manufacturer and on-site evaluation by expert inspectors, regular product checking is performed by granted organizations to ensure that the production and the products are always safe and wholesome. After the certification, regular follow-up inspections are also conducted. There are 12 categories of food items that can be certified; they are meat products, frozen foods, vegetable and fruit juices, rice, pickled vegetables and fruits, instant foods, chilled prepared foods, fermented foods, desserts, fresh egg products, and fresh cut vegetables. The application for

CAS mark is increasing since then. At the end of the year 2002, 203 factories with 3619 items of CAS food products were granted with CAS logo and well accepted by the consumers with more than 35 millions NTD of gross income, and have dominated the domestic market share up to 90% or more[9].

Chinese CAS Good Food Development Association conducts the promotion activity for CAS mark. Seeing the great potential of frozen foods, frozen food manufacturers in Taiwan come to realize the importance of providing local consumers with proper knowledge on how to choose and prepare frozen foods. Thus, they suggest the COA to assist in setting up an organization particularly for long-term promotion of frozen foods and the CAS mark. Chinese Frozen Food Institution (CFFI) was formally established on July 1, 1991 after the manufacturers' endeavor and the support by the government. The Institution has later changed its name to "Chinese CAS Good Food Development Association" (the Association) in 2002. Promotion and marketing activities are continued persistently by the Association every year to increase the competitiveness of CAS products both domestically and abroad. The main activities of the Association are quoted from the web site of the Association as follows:

1. Promoting the "CAS Mark System for High-Quality Food Products"
   A. Holding various advertising campaigns such as media advertising, food exhibition, press conferences and product testing to strengthen consumer's knowledge on CAS mark and to stimulate their buying behavior.
   B. Working with the Food Industry Research and Development Institute to offer such services as production technology and product inspection assistance to CAS manufacturers in order to upgrade the overall quality of frozen / chilled foods in Taiwan.
   C. Working with the sanitation authorities to hold training courses for food safety volunteers and invite them to visit CAS factories, as a promotion by combining the sanitation education and the CAS mark system.
   D. Working with the non-profit social purpose organizations to promote the CAS high quality foods with the wishes to expand the customers market, and reduce social cost.
2. Reinforcing the Promotion of "The Standard Low-Temperature Food Storing and Transporting Mark System"
   A. Inviting experts and scholars to form a technical committee for "The Guidelines of Operation Practices for Low-Temperature Food Storage-Transporting & Display Equipments" and supplying related technical consultation and assistance for making the cold chain of the frozen /chilled food system perfectly.
   B. Systematically and continuously introducing the characteristics and the recent local and international development of low-temperature food storage.
3 Holding relevant technical seminars for low-temperature foods
   A. Holding seminars on the quality and technical innovation of CAS frozen/chilled foods.
   B. Holding Hazard Analysis Critical Control Point (HACCP) seminars for the frozen/chilled foods.
4. Actively expand frozen/chilled foods overseas market
   Broadly collecting and publishing the business and industrial information regarding low-temperature foods of Mainland China and South East Asia to our local manufacturers.
5. Actively exploit the institutional markets of schools, hospitals, restaurants and army force
   A. Organizing a research and development unit, the staff of which includes the R& D staff from CAS factories, the promotional staff of the Association and nutritionists, in order to design the dishes and menus for the need of each institutional market.
   B. Assisting member factories to invent new products for providing institutional market trial and being displayed and tested in the CAS High Quality Food Promotion Campaigns.

In recent years, the Association is more active on adopting the marketing strategies for promoting CAS mark, such as working on market research about customers' needs. The Association has established a group named "CAS Family for Consumers with High Quality of Life" to increase the publicity and to create the image of CAS mark as a high quality product. The Association also helps CAS factories to create special sales channels only for CAS products to boost the sales volume. This strategy is to increase the market share from the competition of other products.

Based on the results of market research, interviews and questionnaires[3], CAS mark is appearing on pork and pork processing products with the highest frequency. Although there are only 23% of college students who have noticed the mark on the products, the students have clear concept about CAS mark

because they have seen the mark for a long time. The results also indicated that supermarkets are the best sellers for certificated products. Mass-communication media are the best tools for pursuing and marketing the certificated products. This may provide a good reason for the Association to adopt the marketing strategy vigorously.

In order to promote the local agriculture business and to make sure that the quality and safety issues are both well implemented by manufacturers, it is important to enhance the CAS food certification system to food manufacturers not only for product promotion but also for protection of the consumers. The CAS mark system is a special certification system because CAS logo could only be granted to those products that use domestic raw materials. If the major ingredients of the products are not from domestic raw materials, the production factories cannot apply for CAS certification. This regulation may seem to be a harsh restriction for the factory to apply for CAS mark. It may also have some impact on the application for some food categories since lot of raw materials used for food processing in Taiwan are imported from foreign countries. On the other hand, the regulation does provide a unique characteristic for the certification system since the CAS mark system can be differentiated from other quality systems. The CAS mark system provides a different market segment for the products. New technology for food production will always be provided to CAS manufacturers by research institutions supported by COA. Products made by special local raw materials will also be invited to join the CAS family. Watermelon juice product would be a good example. From personal point of view, only if the CAS mark system helps the product both on elevating the food quality and bringing in more business opportunities, the mark system can last long in this competitive society.

CONCLUSIONS AND SUGGESTIONS

As mentioned before, there are many quality systems exist nowadays in Taiwan. More and more food manufacturers join the FCS. This may be one of the indirect evidence that FCS is a useful tool in food production and creating business opportunities. The system should provide more functions other than quality control. Although there are few research and consumer studies, most of the promotional associations conduct their own market surveys to evaluate the outcome of the activities. Some promotional associations even have consumer complaint toll free number. It is assumed that the sales volume could be increased due to high recognition and confidence of the quality system. It is also believed that enhancing FCS can provide food manufacturers in Taiwan with better marketing and also provide good quality foods to consumers.

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3. FIJI

Dr. Riteshni Tarak
Acting Senior Veterinary Officer
Animal Health & Production Division
Ministry of Agriculture
Vatuwaqa

INTRODUCTION

Food safety has achieved a heightened level of recognition in Pacific Island countries such as Fiji in recent times. In particular, regional concern is growing in relation to food related diseases (such as obesity and associated conditions such as diabetes, heart disease and hypertension) and food contaminants such as microbiological and chemical hazards such as *Salmonella*, *E. coli*, other toxins, pollutants, pesticide residues and veterinary drug residues.

Food safety standards ensure protection of human health and are also a key factor in facilitating trade. There is a need to ensure appropriate measures are in place to control the quality of a country's domestically produced food as well as imports. Export standards will be driven both by the market (i.e., exporting countries requirements) and national standards for export (if any). Governments and private sector participants both have a key role to play in the development and implementation of a nation's food safety standards.

Fiji is currently undertaking a number of reviews and formulating a range of strategies that will develop and enhance food safety measures in the country. A number of laws are under review to ensure an appropriate and modern legislative framework consistent with Fiji's international obligations is in place. There have also been some internal departmental restructures to support Fiji's current focus in this area.

CURRENT STATUS OF FOOD CERTIFICATION SYSTEMS

Following independence, the Fijian government adopted a policy of import substitution and development projects aimed at import-substituting industries. The policy while increasing production was costly and the gains were unsustainable.

The government made substantial direct investments in agricultural development throughout the 1980s mainly in relation to rice, beef, dairy, poultry and feed grains. The objective of the policy was to grow food locally to replace imported food. While the main objective of the program was import substitution there was also an attempt to develop new export markets such as cocoa.

The rice, dairy, poultry, beef and pork commodity markets were protected by a complex array of quotas, tariffs and subsidies till 1989. Ultimately the pursuit of import-substitution goals became expensive and resulted in increased prices of basic food items for the urban consumer.

In the late 1980s the government recognized that its role should focus on facilitation rather than directly managing the agricultural sector. A process of deregulation began and a process of de-licensing and the removal of tariff protection etc. commenced. In this context, however, the government must ensure that there are appropriate safeguards in place within the private sector to ensure the safety and wholesomeness of food for Fiji.

The Department of Health and MASLR (Ministry of Agriculture, Sugar and Land Resettlement, and Agricultural Landlord and Tenants Act) have key roles in ensuring the safety and wholesomeness of food for Fiji. The Department of Health is responsible for the Pure Food Act that aims to secure and fix standards for the wholesomeness and purity of food. MASLR has responsibilities across the dairy, meat, poultry and crops. There is a range of legislation in place that supports the delivery of safe food for consumers (such as the *Diary Act* cap 118 and the *Meat Industry Act* cap 237). The Quarantine section of MASLR also plays a key role in protecting Fiji's relative disease and pest free status. A number of Acts regulate the importation of animals, plants and goods to ensure the prevention of the introduction or establishment of certain diseases and pests (see *Quarantine Act* cap 112, *Plant Quarantine Act* cap 156 & *Animal Importation Act* cap 159).

There are also regulatory controls in relation to the export of certain foods such as those contained in the *Fruit Export and Marketing Act* cap 154 and *Banana Export and Marketing Act* cap 155.

The *Pure Food Act* cap 116 is currently being reviewed. Amendments will promote public health and safety with regard to food, regulate the preparation, sale and use of food, assist consumers make informed choices on food and promote fair trading practices in relation to food and related matters. The amendments will more closely align the legislation with the Codex standards and specifically deal with the importation of food. Provisions will also ensure that there is appropriate power to ensure that emergency situations can be adequately addressed.

The Quarantine legislation is also being reviewed and will be updated. Amendments will focus on ensuring the legislation is better aligned with international obligations such as those contained in the Sanitary and Phytosanitary (SPS) Agreement.

ISSUES AND PROBLEMS IN IMPLEMENTING FCS

Fiji's legislative framework has not been updated for many years. There is a lack of resources in Fiji to ensure continuous revision and updating of legislation. This has resulted in legislation not reflecting modern practices and direction.

At present work is being carried out to update both the Pure Food Act and the Quarantine legislation. This work when completed will assist in the development of FCS in Fiji. More modern legislation will support the development of FCS by aligning Fiji's laws to better reflect international standards such as Codex and SPS measures. The WHO has assisted Fiji in reviewing its legislative framework in relation to food safety.

Fiji's commodity markets do not currently fully operate under Total Quality Management (TQM) or HACCP principles. Limited resources to provide a supporting infrastructure to these developments is a substantial impediment to quick progress in these areas.

Food safety issues also require the co-ordination of numerous departments and regulatory bodies (e.g., Department of Health and MASLR). For example, in relation to meat, MASLR is responsible for quality issues from the farm to the abattoir and the Department of Health is responsible from the abattoir to the point of purchase for consumption. Developing a coordinated national strategy is therefore critical to the advancement of food safety issues.

The dual role of ministries was highlighted in a recent visit in 2002, by a delegation from the EU Food and Veterinary Office in relation to the export of fish products. The delegation highlighted a number of areas that required improvement and made a number of recommendations. The delegation noted the lack of laboratory facilities and expertise to assess fish products exported to the EU and deficient sanitary guidelines for processing operations to meet EU requirements. The dual role of the Ministry of Fisheries and Health was also seen as problematic. The Ministry of Fisheries now has sole control to issue and sign export health certificates.[1]

GOVERNMENT POLICY MEASURES TO IMPROVE FCS

There is a range of strategies in place or planned which will contribute to the goal of improving FCS in Fiji.[2] In a recent press release (November 2002), the Minister for Agriculture highlighted the ministry's commitment to the production of safe and chemical-free agricultural produce while commenting on a program adopted by the ministry to test pesticide levels in vegetables.

Crop Research

MASLR will be implementing strategies directed to the improvement of crop production efficiency and crop quality. The research objectives of the program include agronomic optimization, sustainability, nutritional value and cost reduction in agricultural land practices to increase accessibility for all farmers.

Crop Extension

MASLR's policies will emphasize the production of the highest possible quality of food crop commodities. Total quality management systems are to be implemented in horticultural production. There will be an emphasis on post-harvest handling and packaging to meet requirements of export markets, local markets and the hotel and tourism sector.

Animal Health and Production

One of the aims MASLR's policy in relation to the meat industry is to facilitate increased trade in the tourism, manufacturing and local markets. Strategies are being developed to improve meat production efficiency and the quality of meat products. Programs will be implemented to improve the genetic pool, slaughter practices and processing. Raising domestic standards will provide a platform for a meat export industry.

The dairy industry will also be reviewed with the aim to improve productivity and increase profitability. Export markets will also drive quality enhancements. For example, MASLR will continue to monitor the production and quality of honey and its conformity to quality standards required by overseas importers/ consumers. A continued focus on quarantine matters will reduce threats from disease and reduce the risks to public health.

Fisheries Policy

The fishing industry provides a lucrative market for Fiji. MASLR is seeking to develop and enhance resource management, quality improvement and other marine resources training initiatives to increase the income generated from marine resources. There will be a continued focus on quality control training programs in post harvest handling, processing and quality control to ensure that such markets are not jeopardized.

The WHO has also provided Fiji with a range of resources over the last few years directed at food safety initiatives. For example, the WHO has been involved in the following initiatives:

- support for a targeted contaminant monitoring workshop and monitoring studies of soy and oyster sauce products
- training of inspectors in environmental health and food safety
- fellowships to enable undergraduate training in environmental health or food science and technology for inspectors
- provision of inspection equipment
- train the trainer programs for community health workers in food safety (based on OPEC Fund for International Development/WHO package called Basic Food Safety for Health Workers)

CONCLUSIONS

While Fiji's markets continue to mature both domestically and internationally, it is essential that issues of safety and quality systems are appropriately managed.

Appropriate food safety measures and quality systems will benefit both domestic and international markets by ensuring that food is safe and of designated quality. Fiji's current reputation as a relatively disease and pest free environment together with robust food safety and quality standards could develop a number of niche markets for Fiji. Opportunities have been identified, however the ability to deliver a continuous supply of quality merchandise has inhibited the development of many of these markets.

Completion of the current legislative review processes currently underway will provide a solid framework for improving safety standards in Fiji However there are impediments to implementing programs and reforms. These include financial and resource constraints. The Minister for Agriculture, recently urged donor agencies to provide less developed countries in the Pacific with technical and financial support to address food safety and quality issues.

The successful development of enhanced food safety standards in Fiji will require a strong collaboration between both the Government and private sector. Fiji has taken the first steps to enhance food safety standards for the nation. The process will be iterative.

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4. INDIA

Dr. Prem Kumar Jaiswal
Director of Laboratories
Central Agmark Laboratory
Directorate of Marketing and Inspection
Ministry of Agriculture
Government of India
Nagpur

INTRODUCTION

The worldwide commercialization of agricultural and food products under WTO agreement has opened up new vistas in the domain of marketing of the food. Uniformity in grading, testing, standardization, and certification is considered main quality tool in international marketing under new horizon of opportunities. Agricultural system has to gear itself to face the competitiveness of world market. Quality and safety of Indian foods have to be enhanced and to achieve this, there is a need to adopt internationally recognized quality management and certification system and develop a credible system of accredited laboratories. Promotion of such facilities to farmers with supporting system of grading, standardization, certification, education and training as a part of Good practices will prove boon to producing an internationally accepted certified food crop and food.

India is the second largest producer of food and it has the potential to become the world's largest food producer in due course with sustained efforts. Hence food crops and food processing functions are of enormous significance for the country's development, because of the vital linkages and synergies that it promotes between industry and agriculture. Looking into the growth potential of the food industry, it is expected that in the next one decade food production will be just doubled and the growth of food processing industry will bring immense benefits to the economy, raising agricultural productivity, diversifying cultivation on the basis of market demand and moving from sustenance based cultivation to cultivation based on the market dynamics that creates employment and raises standards of number of people specially farmers. Food industry comprises of different major areas of fruits and vegetables, fisheries and marine products, meat and meat products, dairy products, food grains, consumer industry, plantation, proprietary and non-specified food, etc.

CHALLENGES, CONSTRAINTS, CONCERNS AND POLICIES

India is a major producer of food (ranks first in cereals, livestock population, milk and second in fruits and vegetables), and there is immense untapped potential for growth. Due to lack of following the system of ISO 9000 with HACCP, the wastage levels are very high. Further, value addition to the raw produce in the country is only 7% compared to 23% in China and 45% in Philippines. The small-scale and unorganized sectors today account for 75% of the total industry having only local presence without much access to knowledge about quality certification, quality marketing and implementation of total quality management system, HACCP. Multiplicity of laws and regulations is one of the biggest constraints in the growth of food industries. Lack of harmonization of standards, marketing infrastructure, testing facilities, training, awareness and education to all involved personnel in the food chain are the major concerns in maintenance of quality and safety of a food. Poor hygiene, lack of knowledge and facilities for good practices are other areas need improvement. Important policies for enhancing the quality, safety and marketing of food are as follows:

1. Harmonization of standards and simplification of food laws
2. To make available right kind and quality of raw materials (food crops) through out the year by increasing productivity, creating scientific storage facilities and transportation
3. Strengthening marketing intelligence network
4. Strengthening extension, education, training and awareness at farm level
5. To encourage setting up of agro-processing facilities close to production units to reduce cost and wastage

6. Liberalization of rules and orders to encourage investment in food industries
7. To promote internationally acceptable standards of grading, testing, standardization, packing, labeling, storage, warehousing, sanitary and phyto-sanitary measures and quality certification
8. Introduction of acceptable quality certification scheme at warehouses
9. Training, awareness and education at different levels of food chain beginning from production
10. Food processing industries have been identified as a thrust area for development and a priority-lending sector. Most of the foods processing industries have been exempted from the provision of industrial licensing under Industries (development and regulation) Act, 1951 with the exception of beer and alcoholic drinks and the items reserved for small-scale sector like bread, bakery etc. As far as foreign investment is concerned, automatic approval of 100% equity is available for majority of the processed foods.
11. Quality consciousness amongst farmers and agro processors will be created with promotion of grading and standardization for export enhancement and to promote application of science and technology in agriculture to make the sector globally competitive.
12. High priority to development of animal husbandry, poultry, dairying and aquaculture for diversifying agriculture, increasing animal protein availability in food basket and for generating exportable surplus.
13. Encouraging introduction of ISO 9000/HACCP in food certification system
14. Strengthening the facilities for testing and accreditation of food testing laboratories
15. To lay down policies for development and certification of organic food, organic farming and processing

LEGISLATIONS INVOLVED IN FOOD SYSTEM

There are number of laws involved in the food chain in the country and provisions are being implemented through a number of legislative measures. Important ones are:

1. Prevention of Food Adulteration Act 1954 and Rules;
2. Essential Commodities Act 1955 and various orders issued under the Act;
3. Meat Food Products Order 1973;
4. Food Products Order 1955, 1965, 1997;
5. Solvent Extracted Oils, Deoiled Meal and Edible oil Control Order 1967;
6. Milk and Milk Product Order 1992;
7. Vegetable Oil Products Control Order 1947 and Vegetable Oil Products (Standards of Control) Order 1975;
8. Sugar Control Order 1966;
9. Infant Milk Substitutes, Feeding bottles and Infant foods (Regulation of Product, Supplies and Distributions) Act 1992;
10. Standards of Weight and Measures Act 1976;
11. Consumer Protection Act, 1986;
12. Pulses, Edible Oilseeds and Edible Oils (Storage Control) Order 1977;
13. Agricultural Produce (Grading and Marking) Act 1937, 1986;
14. Bureau of Indian Standard Act, 1986;
15. Export Quality Control and Inspection Act 1963; and
16. Food licenses by Local Bodies/State Govt./U.T.

CURRENT STATUS OF VARIOUS FOOD LAWS IN THE COUNTRY FOR QUALITY CONTROL AND CERTIFICATION

PFA Act 1954 and Rules are the mandatory provision to be followed for quality and safety of food in the country. Food under PFA Act means any article used as food or drink for further consumption other than drug and water and includes (a) any article which ordinarily enters into, or is used in the composition or preparation of, human food, (b) any flavoring matter or condiments, and (c) any other article declared as food with regards to its use, nature substances or quality. PFA 1954 is implemented by Ministry of Health, Govt. of India. Central and State Govt./ Union territories, Local bodies are involved in implementation of the law and checking the minimum standard of a food. Although standards for safety parameters such as pesticide residues, aflatoxins, metallic contamination, food additives etc. are also laid down in the PFA Rules, due to the lack of testing facilities and trained manpower in the food laboratories these tests are not, by and large,

being performed. PFA Act has also taken very limited care for introduction of microbiological parameters under SPS measures for various foods specially fresh and cooked food. This Act also lacks in defining proper sampling techniques at different levels for each food commodity and identifying test procedures, etc. Uniformity in implementation and certifying the purity and safety of food is an identified area of concern in the system. The Act has been amended in 1964, 1976, and 1986 with the objective of plugging loopholes, making the punishment more stringent and empowering the consumer and voluntary organization to play more effective role in implementation. However, the amendment has not given any significant sign of improvement and now the Act is again on the verge of amendment.

The food safety parameters limits laid down under the Act are based on data generated by developed countries and not on the basis of study made in the country for prescribing safe limits in different foods. There has been tendency to lay down higher protective limits under the guise of risk analysis using unrealistic assumptions, e.g. keeping a very high per capita consumption of any commodity without really looking into actual average consumption figure. Inadequate data on food safety parameters in the country for different food crops and processed food is the major constraint for laying down actual food safety standards. The present Act also lacks in introduction of food standards produced through biotechnology. Food standards have not been prescribed for many manufactured foods; street foods and even the guidelines have not been laid down for testing. These have resulted in adoption of different tests by different food testing laboratories and ultimately creating doubts in assessment of quality and safety of food. Standard operating procedure has also not been prescribed for laboratory testing. Methods for detection at ppm/ppb level of toxic constituents/ contaminants or tests for their absence have not been specified- a cause of concern for an analyst to interpret the results for its international acceptance. PFA Act totally lacks in the concept of introduction of total food quality management system coupled with HACCP/GMP/GAP/good hygienic practices and of training, awareness and education to food handlers, food manufacturers. The objective of the Act is prevention of adulteration through enforcement and punishment and not through a system of promotion of quality improvement and facilitation to food quality assurance system. Quality certification of street foods is another area of concern. Street foods are defined as "ready to eat foods and beverages prepared and/or sold by vendors especially in streets and similar public places". Studies have shown that there is no uniformity within the country with respect to quality and regulatory requirements of food. There is lack of control of authority, lack of knowledge on safety aspects, thus causing potential and dangerous health risk to consumers from both microbiological and chemical contaminations. Use of substandard raw materials, non-permitted colors, additives, and rancid oil coupled with poor hygiene of personnel and place and contaminated utensils are the main source of unsafe food. Environmental contaminations like pesticide residues, aflatoxins, toxic trace metals, and pathogens are not tested in street foods while checking quality and safety aspects. No system of traceability is followed.

Essential commodities Act 1955 is to ensure that common man gets a supply of the essential commodities without hindrance of the trade and includes foodstuff also. Certification of certain food is implemented through different orders under the Act.

Meat Food Products Order 1973 and Meat and Poultry Products

This order is applicable to all types of meat food products as defined therein. The Directorate of Marketing and Inspection, Ministry of Agriculture is implementing this order. Standards for quality and safety parameters have been laid down under the order. But the order lacks implementation of SPS measures and testing of all the safety parameters. Presently, there are 170 MFPO licensees (approx.) of meat food product manufacturers in the country producing about 3220 M.T. during 2000-2001 valued at Rs.4174 lakhs (approx.). There was an export of 163 M.T. of corned beef and 5.0 M.T. of frozen chicken patties in 2000-01. Procedure for testing the quality and safety of meat food products for import in the country has been laid down under MFP Order 1973. A number of accredited private testing laboratories have been authorized for certifying the quality and safety aspects of meat food intended for import.

The standards for export of meat and meat products have been notified under Export (quality control and inspection) Act 1963 and agencies have been designated for quality control and inspection. There is lack of proper testing facilities in laboratories for pesticide residues, veterinary drugs, microbiological tests etc. Quality requirements of importing countries have to be understood and potential for value-added products should be generated.

Marine Products

Fisheries Industries play an important role in socio-economic development of the country besides emerging as an important sector for exports .Indian seafood has to upgrade facilities for meeting international standards and focus be made on value added processed fish such as sausages, pickles etc. Marine Products Export Development Authority has taken the initiative to comply with the quality and safety requirements of importing countries for certification program.

Fruit Products Order 1955

Fruit products order aims at regulating sanitary and hygienic conditions in manufacture of fruits and vegetables and inter-alia regulates product standards. Certification of fruit and vegetable products is undertaken on mandatory basis for quality and safety standards prescribed for various products. The order lacks total quality management system, HACCP, SPS measures. There is no system of testing of every batch of the product. There are approx. 5600 license holders (manufacturers) under the order.

THIRD PARTY FOOD CERTIFICATION SYSTEM BY GOVERNMENT AGENCIES

Two Government agencies are engaged in food certification system. First is the Directorate of Marketing & Inspection, Government of India. The food certification system is commonly known as "Agmark". Approximately standards of 130 commodities (food crops and food) have been notified under the Act. Grading and certification is voluntary in nature except in case of sale of blended oil; and ghee of low R.M.value and different B.R reading than specified, for that area. It has been notified under the PFA Act that these foods should not be manufactured and sold without certification under Agmark. The system of certification under Agmark is based on testing of every lot/batch through the approved laboratories. Approximately 1020 testing laboratories are engaged in testing of food commodities. There are 5600 food licensees (approx.). Approx. 772275 M.T. of assorted foods valued at Rs.38153 million have been certified in the year 2000-2001. Further, under certification system, a check is kept on market samples of Agmark produce. The process of checking the quality of food is undertaken through a chain of 22 Regional Agmark Laboratories through out the country with Central Agmark Laboratory, Nagpur as apex laboratory. These laboratories are engaged in the process of standard formulation/revision of standards, and research and standardization work in the field of food crops and food. These laboratories have also started the process of harmonization of standards with that of Codex Alimentarius Commission. Laboratories at important centers are being developed and modernized for undertaking analysis of all the safety parameters as per requirement of SPS measures and are on the process of accreditation by a certified body. Besides certification, physical grading is done for a number of primary foods and grading at producer's level is also performed. But such certification not backed by the laboratory test lacks quality and acceptability of the produce. The Ministry of Commerce has notified a number of food items for export certification under Agmark.

Bureau of Indian standards is another govt. organization involved in third party certification for food and is popularly known as "I.S.I.". The main functions of the Bureau are standard formulation, product certification, ecomark, quality management system, environment management system, HACCP, laboratory testing, calibration etc. Certification of food additives, food color, packaging material, packed drinking water and mineral water by BIS has been made compulsory under the PFA Act for manufacturers.

Besides, a number of Boards, Agencies owned by Govt. are functional in export promotional activities of the food crops and food. Spices Board, India is the apex body of the Govt. of India for export promotion of spices and spices product from India. A total number of 52 spices have been brought under the purview of Board for promoting exports in natural and value added form. Amongst other activities, Spices Board has its focus on quality upgradation and value addition, which are achieved through accreditation system like granting Indian spices logo, Spice house certification and Brand name registration, and assisting exporters to acquire ISO 9000/HACCP certification. Spices Board adopts the quality standards of "Agmark" coupled with ASTA specification and foreign buyer's requirements The Board also conducts training and awareness programs at farmer's level as a part of quality management initiative The Board proposes to promote organic farming of some major spices and imparting training to all concerned with export.

The Directorate of Cashew nut and Cocoa Development, Govt. of India is the agency working after production and development of cashew nuts in the country. India has about 60% market share in world cashew trade. Export developmental activities of cashew nut are being done through export promotion council. The council has a modern laboratory in Quilon in South India. This has helped to ensure the excellent quality of cashew nut exported from India. Various training programs to educate exporters, processors, factory

managers, workers etc. on various aspects of quality processing and quality standards are organized as a part of quality management. Few processing units have ISO 9000 certification. To help improve quality standards and packaging systems, the council extends grant-in-aid to exporters for adopting ISO/HACCP quality system.

Tea Board implements various developmental schemes including marketing and export promotion. India shared 29.1% of the global tea production during 1997 to 99. The percentage share has come down substantially compared to previous years (1980-90). In the wake of opening of markets under WTO, Indian tea may suffer a loss of price in international market. Hence it may be necessary to produce value added product and enhance the quality and safety of tea. Production of organic tea and its certification is another alternative.

Agricultural and Processed Food Products Export Development Authority (APEDA) is mandated with the responsibility for export promotion and development of Fruits and Vegetables and their products, Meat and Meat products, Poultry and Poultry products, Dairy products, Confectionery, Biscuits and Bakery products, Honey, Jaggery and Sugar products, Cocoa products, Alcoholic and Non-alcoholic beverages, Cereal products, Groundnuts, Peanuts and Walnuts, Pickles, Papads and Chutneys, Horticulture products, Herbal plants and Rice (Non-Basmati). In addition to this, APEDA has been entrusted with the responsibility to look after export of some of the non-scheduled items such as Basmati Rice, Wheat, Sugar and other Cereals from time to time. Further, keeping in view the quality standard requirements of importing country, APEDA has taken the job of framing of quality standards of various foods. APEDA has also launched scheme of National standardization activities with a Logo of quality produce of India for agricultural produce. There are about 107 certified organic producers in the country for the scheduled product under APEDA.

Besides the scheme of food certification implemented by various govt. agencies, under liberalization policy for export of food crops and food, self-certification scheme has been introduced in which the exporter/manufacturer through his own laboratory or through private accredited laboratory test their produce before export in the context of importing country requirements. Many of the food manufacturers' units have ISO 9000 certificate with HACCP and are responsible for quality of their produce in international market depending upon the mutual agreement between buyer and purchaser, and laws of the importing countries.

COUNTRY'S STANDARDS IN FOOD CROPS AND FOOD

Indian standards in food crops and food have been framed by various organization of the government. These organizations are responsible for product standards as well as their inspection under quality certification. Important organizations are given below.

Sl.No.	Name of Organization	Products Covered
1	Ministry of Health for framing standards under PFA	All food items
2	DMI under APGM Act 1937	Food crops, processed foods like vegetable oil, ghee, butter, honey, spices, cereals , cereal products, etc.
3	ISI under BIS	Food and Agricultural produce, milk powder, food color, food additives, mineral water, etc.
4	Ministry of Food Processing under Fruit Products Order 1955	Processed fruits and vegetable products
5	Ministry of Agriculture, DMI under MFPO 1973	Meat and meat products
6	Ministry of Agriculture under Milk and Milk Product Order	Milk and milk products
7	APEDA	Meat, poultry, dairy, fruits and vegetables, Honey etc. for export
8	Spices Board	Spices, ground spices and value added products for export
9	Tea Board	Tea and value product for export
10	Coffee Board	Coffee for export
11	The Cashew Export Promotion Council of India	Cashew for export
12	Marine Product Export Development Authority	Marine products for export

IMPLEMENTATION OF FOOD QUALITY ASSURANCE SYSTEM (ISO 9000, HACCP, GMP, AND GAP)

World Trade Organization, (WTO) of which India is one of the member countries, has initiated number of steps for smooth export/import of food without any technical barrier. Agreement includes following a system so that SPS requirements, pesticide residues, packing materials, nature of additives and freedom from the contaminants, are observed. WTO has already recognized standards developed by Codex Alimentarius Commission (CAC) as internationally acceptable standards. Under Total Quality Management, HACCP is recognized as a tool of food safety to minimize contaminants in food crops and food. The aim is to ensure proper observance of hygienic measures. HACCP establishes control system that focuses on preventive measures rather than relying mainly on end product testing. The application of HACCP is compatible with the implementation of Quality Management System such as ISO 9000. The basic objective is to provide facilities and extensive education and training to farmers, food handlers, and food industries so that good practices are adopted for producing a wholesome and safe food within the framework of SPS agreement. Though quality aspects of a commodity can be measured by inspection and testing but food safety cannot be improved even after knowing the results. Hence, preventive approach to the safety of food has proved to be more effective than the end product testing and it is necessary that safety aspect built in the entire food chain system. Presently, India lack adequate facilities for training in hygiene, HACCP, and risk management etc. Further, only a general concept of HACCP, risk analysis, traceability, hygiene etc. has been developed in the country. Such concepts have to be transformed suiting to a particular commodity under a particular condition. Reliance on end product testing in food industries may be inaccurate due to improper method of sampling. Comprehensive system of certification for reducing the risk, damage and for continual improvement in the quality of a food through HACCP should be regarded as a problem solving tool, which can be used to identify hazards and risks in the entire system of production, and marketing right from farm to table. HACCP based methods for prevention of mycotoxin formation on food crops and through the food chain and for safe use of pesticide by farmers should be ensured through risk management. Role of food standards and facilitation of food marketing system will go a long way by conformity with the Codex system of code of practices, guidelines, and standards, in achieving a higher quality of safe food. However, such activities should be harmonized and transformed into our conditions for different types of food, agricultural and horticultural produce, etc.

The application of internationally accepted food standards with mutually agreed and accredited SPS system not only reduces the possibility of non-tariff barrier, but also leads to mutual acceptance of the quality and avoidance of rejections of the imported food. Better knowledge of International Codex standards and codes of good practices, along with internationally accepted accredited system of marketing of food with specific requirement of the importing country would be a road map for successful export of food. The South Asian Conference of food safety held in December 2000 in Delhi reaffirmed 'Science based approach to harmonize the regulatory food quality and safety measures in SAARC region. It was emphasized that SAARC countries should initiate the harmonization of their food safety measures and food control, and import, inspection, and certification procedures using Codex standards, guidelines and recommendations as a basis. During the process of harmonization, considerations must be given to (a) uniform level of protection for all the countries to eliminate non-tariff barriers to trade, (b) risk assessment and risk management, technical cooperation among countries to develop expertise, (c) use of Codex standards for harmonization and ensuring conformity with WTO's SPS and TBT requirements, and (d) enhance risk communication both in quality and content at early stage of risk assessment to strengthen consumer's confidence in food safety measures.

CASE STUDY AND ADVANTAGE OF HACCP IN FOOD CERTIFICATION

1. Feedback from three food industries, one at Gwalior dealing with food flavors and food additives, second at Jaipur manufacturing instant powder for making beverages and third at Gajraula engaged in production of various dairy items such as ghee, milk powder etc, which were certified by the competent certification bodies for HACCP six months ago, was obtained through FICCI Quality Forum, New Delhi. All the three industries have acquired confidence in regard to safety of food. Further, there was an element of internal food safety auditing which gave them enough strength to judge the extent of effectiveness of food safety system in their process.

2. A number of food industries in Bangalore manufacturing instant food, cereal products, fruit products, bakery products, plantation crops and tea having HACCP certification have revealed satisfaction in following the system and have expressed that (i) good manufacturing practices have enhanced, (ii) general hygienic conditions have improved, (iii) documented manual and procedure etc., with reference to quality and safety have increased confidence in implementation, (iv) there have been reduction in losses and rejections, and (v) preference for export of their produce.
3. A case study was undertaken to apply HACCP concept in khoa (dairy product) manufactured in two districts of Andhra Pradesh. The identified critical control points (CCP) were, (i) handling by many food handlers, (ii) improper storage, (iii) use of soil for cleaning utensils. Further, CCP varied from district to district. The study was not comprehensive as it aimed only at microbiological quality aspects. However, the study concluded that installation of cold storage at village level, improving the package system besides education to food handlers on hygienic aspects could improve food safety.
4. A number of food industries in Kerala have been accredited with ISO/HACCP/IPQC. Important industries at Kochi dealing with export of tea, spices, flavors etc. have informed that they obtained certification for ISO 9000 and IPQC. From their version, it was gathered that while IPQC enabled them to reduce the charges of F.O.B. expenses from 0.5% to 0.2%, ISO 9000 enabled them to get a recognition in the international market and enhanced queries for their products (especially pepper) from overseas buyers, as ISO 9000 is one of the essential pre-conditions for entering the world market nowadays. Finally they informed that despite all these, the price factor prevailed and was the deciding factor in the competitive international markets. It was emphasized that in future no food industries can enter the world market without obtaining ISO 9000 certification along with HACCP.
5. A success story of Chordia food products, Pune for enhancing quality of their produce by following ISO 9000 with HACCP is attached as Annexure.

CONCLUSIONS AND STRATEGIES FOR INTERNATIONALLY SUSTAINABLE FOOD CERTIFICATION IN FOOD CHAIN

1. Under food safety management program, concept of HACCP should be introduced to food certification system as a part of legislative requirement in a phased manner. Special priority should be given to perishable food to improve hygiene, quality and safety.
2. Integrated quality marketing approach should be adopted at farm, from pre-harvest to post harvest including scientific storage, grading, standardization, certification, labeling, traceability, transportation and marketing.
3. Adequate testing facilities including microbiological and safety parameters analysis should be developed from farm to production to assist the compliance of HACCP, quality certification system and for continual improvement of a produce. Certified reference material and calibration play an important role in uniformity of the test reports.
4. Adequate data should be generated for pesticide residues, toxic metals in different food crops for use in risk assessment work, for ensuring consumer's protection and for harmonization of standards with that of safety standards under Codex. The food control program should continuously monitor the most commonly used pesticides in food crops.
5. There is a need to identify microorganisms in certain foods and food borne diseases out of it for collection of data to provide a platform for specific actions on identified pathogens.
6. Education, awareness and training through manuals, material, practical demonstration as a priority to regulatory measures should be given to farmers, food processors, govt. regulators, policy makers, vendors and other persons involved in the system for compliance.
7. Infrastructure and technical facilities, adequate knowledge and guidance should be available to farmers for strict application of good agricultural and marketing practices for their food crops.
8. Aflatoxins, ochratoxins, fumonisins, zearalenone and trichothecenes constitute priority mycotoxins. There is a need to establish/review safe limits for food additives and contaminants, study data on these mycotoxins, level of risk and recommendation of Codex. Laboratories should follow simple method for detection and quantification of toxins in mycotoxin prone food items.
9. The particular chemical constituents which causes food allergies in specific local food should be identified on the basis of study of food allergens. There is a need for capacity building through trained manpower and well-equipped laboratories in this direction.

10. Certification of genetically modified food has yet to gain confidence of the consumer due to inadequate risk communication, risk assessment. There is a lack of capacity building and human resource development in these directions. GM mustard is the first transgenic crop, which is 100% food. However, apprehension still persists on three points; safety of mustard leaf, which is cooked and eaten, risk to traditional variety of mustard, and if productivity gains, out weigh the risks.
11. Encouragement to certification of organic production of farmed and processed farm products should be on the priority food list because the practice of production process develops a viable and sustainable agro-eco system in a production environment. Integrated quality system from farm to market should be developed to ensure that there is no deterioration in the quality of the organic food and it is properly transported, stored and marketed. Depending upon food crops, concept of ISO 9000 and HACCP should be developed and practiced at farm level. Organic food is another alternative to a safe food produced through conventional techniques.
12. Food safety and other certification system should be reviewed through unified efforts of industries, farmers, regulators, scientists, academicians and consumers so as to develop a state-of-the-art, food safety quality system. The system should not be merely based on adoption of regulation of other countries, but should be followed to suit the needs.
13. Food legislation of the country should be fully in consonance with the internationally accepted food certification system and be conducive to promoting the preventive approach to food safety. The concept of GAP, GMP, HACCP with ISO 9000, IPM and food hygiene, should find a place in the safety standards and well documented system should be developed in different food chains. The food certification should be based on these concepts instead of solely depending upon the final product (food) testing.
14. Various legislations, government agencies at central level, state level, local bodies, private persons, farmers, industries are involved in the production, cleaning, processing, grading, packing, labeling, storage, transportation, marketing and laboratory activities in the entire food chain i.e. from farmer to consumer. Coordinated, unified and well-defined system has to be developed at each step with one objective of quality and safe food. Safety of food is the responsibility of everyone in this complex food chain. Overlapping of legislation and food certification system should be avoided and every agency should have their own definite role to play in achieving the food safety to the acceptance of the world's consumers. The concept of one standard-one test, accepted everywhere should be encouraged.
15. Labeling and traceability in a food package under food certification system should be well defined, clear and knowledgeable from the consumer's angle. It should be categorized depending upon the level of food chain, nature of food and purpose of use.
16. A certification system of graded food for meeting the different requirements of the consumer and food industries, besides meeting the minimum quality and safety standards should be encouraged. This will encourage the farmers to get a better price of food apart from meeting the different quality and taste requirements of the consumers not only within the country but also throughout the world.
17. Cleaning, grading, testing, standardization, packing, storage, labeling and marketing based on well documented principles of good practice, HACCP, scientific storage should be encouraged at farmers' level so as to promote direct integration of food processing units with producers. This will help in producing a quality and certified food for the manufacturing unit.
18. System of end product testing of every lot needs to be limited for certification to reduce cost on testing especially safety parameters. Reliance is placed to accredit the system, which would take due, care to produce/manufacture a safe and wholesome food.
19. Govt. agencies engaged in mandatory food certification should rely more on training, awareness, education at various levels of food chain for the quality and safety of food instead of relying only on implementation and punishment.
20. Various food laws and certification systems at central and provincial level should be harmonized specially with regard to GMP, food hygiene, system of certification and grant of food license, at different food chain, keeping in view the consumer safety and requirement, manufacturer's competence to comply with such requirements. Food certification agencies should act as facilitators. They should adequately demonstrate such act to help encourage the food producers, manufacturers in producing a quality and safe food.
21. Development of scientific storage facilities in food chain would facilitate in retaining the quality of the produce.

22. CAC standards do not fully take care of a number of food manufactured/grown in the country for their quality and safety standards. In such cases, the internationally accepted food certification system should rely on the National standard for marketing.
23. Strengthening of legislation and standards inputs, which affects animal, plant and human health in context of SPS measures in the food chain.
24. To effectively improve quality, safety and nutritional aspects of street foods, integrated approach involving govt., vendors and consumers is essential. Code of hygiene practices be followed by street food vendors and proper training should be given in aspects like quality of raw material, sanitation, code for good practice etc. Besides, a uniform implementation of certification system in street foods would improve quality and safety.

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Essential Commodities Act 1955

ANNEXURE-1

Success Story of Chordia Food Products Ltd.

Chordia Food Products Ltd. (CFPL), Pune is engaged in the manufacturing, marketing and export of high quality ethnic Indian processed foods i.e. Pickles, Spice pastes, Chutney's, Ketchup and Sauces, Instant Mixes etc. With its mission of aiming at the best quality standards in manufacturing food products and its attention continuously focused on customer satisfaction, CFPL strives hard to maintain a leading position in the processed food sector by widening his customer base and making its products available at affordable prices in India and abroad. CFPL operates with different units located at Shirwal, Satara, Dharwad and Chennai. CFPL has won several National quality awards over the years. CFPL has been certified by BVQI for ISO 9000 since April 1999 and HACCP since April 2002 for its unit at Shirwal. CFPL's manufacturing practices are in line with International Standards.

The secret behind this success is the keen interest and involvement of top management in developing the quality norms to ensure safe food. CFPL plant has been designed considering all prerequisite for food industry like a green patch surrounds plants. Architecture or plant lay out is such that the man and material movement is opposite to each other to eliminate product contamination, which is the basic clause of HACCP. The production halls are spacious with full of sunlight illumination. Positive air pressures in production halls are taking care of pest and also provide comfort for workers. Initially pickle-manufacturing process was very traditional. CFPL have studied different aspects of pickle. Their technical team have worked hard and designed different machines to achieve process control. During HACCP implementation, team has identified different critical control points for the process and to get consistent product. Supervisors continuously monitor the quality. Checks are at every stage of the manufacturing process, mainly categorized in three stages.

1. Incoming Material Inspection

This involves the testing of all perishable and non-perishable raw materials with the standard methods and specifications in a laboratory.

Online Inspection: CFPL is following their own defined standard practices named quality-monitoring schemes, which cover online inspections. This is running along with the production process and gives at each step of the process what needs to be checked, who should check, how to check, and when to check. Any deviation in this, leads to generation of non-conformance. Further corrective and preventive measures are taken for continual improvement of the product.

CFPL have identified different critical stages of production process and related control equipments are always calibrated either in-house or by external agency. Date of calibration and next due date is mentioned on the instruments so as to follow the calibration schedule strictly.

2. Final Inspection

Even after strict on line testing, CFPL is having finished product analysis where the products are picked up at warehouse or from market and analyzed for chemical as well as for sensory evaluation.

In addition to this, CFPL have developed the keeping Quality Schedule in which they are keeping one sample of the specified batch under observation till its shelf life. It is needless to say that to produce excellent quality and of-course quantity of products, it needs sincere efforts. Emphasis is, therefore, given on training of employees to ensure good work practices. Quality Circles have been formed to inculcate quality consciousness by imparting the right kind of training on cleanliness and hygiene, productivity, team building leadership, communication skills etc. Efforts are taken for the collective involvement of employees from all the sections and levels. Employees are involved in the development and improvement of their performances through quality circles, which operate in all the departments. In these quality circles, processes are identified and worked upon. The workers with the help of their supervisor and higher authority find out solutions for their problems at work. CFPL have developed a scheme, which recognizes the employees as individual for contribution to the quality and performance objective. This scheme is called as “Man of the Month” and “Man of the Year”. A system of comprehensive declaration on labels and traceability is followed to ensure safety of the consumer.

5. INDONESIA

Ennatha Sri Haryani
Head of Accreditation Division
Centre for Standardization and Accreditation
Ministry of Agriculture
Jakarta Selatan

INTRODUCTION

The Government of the Republic of Indonesia has a great concern to protect consumer's health from any hazards arising from consuming food of agriculture origin, which is unsafe and/or unfit due to contamination of pathogenic and/or spoilage microorganisms as well as chemical and *non-halal* residues. There are many opportunities of food of agriculture origin being contaminated either by biological, chemical or physical contaminants, or by *non-halal* foodstuff throughout its production chain.

Recently, there is a demand that food especially from agriculture origin should not only be nutritious and good quality but also safe as it is the fundamental right of the people. As international trade in food commodities expands, food safety can no longer be considered only as a domestic issue.

In the food chain, agricultural product rolls in as the main raw material and ends up as "ready to eat" food. In the sequence, food safety of agricultural product becomes one of the main considerations. Strengthening food safety and quality control system in agriculture would promote good agriculture practices and educate farmers about the importance of appropriate food handling in producing healthy and nutritious agriculture products.

Regulatory reforms towards international standards of agricultural products can be seen through a quality assurance system within a system of standardization. Perhaps, the main source for formulating technical standard regulation on food safety is the SPS measures, which consists of two aspects, i.e. quarantine and food safety.

QUALITY ASSURANCE (QA) SYSTEM

A System of Standardization of Agricultural Product is derived from Agriculture Standard System and National Standard System based on the Agriculture Ministerial Decree No. 170/2001 and Presidential Decree No. 102/2000. (previously was Presidential Decree No. 7/1989).

The system mainly consists of two subsystems namely Standardization and Accreditation. The main function of standardization is to formulate Indonesian National Standard (Standard National Indonesia or SNI). It is done through a consensus forum. The forum includes among others producers, consumers, associations, universities, government institutions both central and regional. The stakeholders are government, industrialists, associations, scientists and consumers and the main function of accreditation is facilitating the certification body or testing laboratory to achieve accreditation status.

In ensuring the quality of food, the government established standards for quality of food, based on quality, nutrition value and safety criteria. The food standards formulated are obligatory for certain kind of food items either processed or non processed. In accordance with the Presidential Decree No. 102/2000, it is stated that SNI is a harmonized standard. SNI is established by related technical institutions-based on consensus as mentioned before considering the requirements of health, safety, science and technological developments.

SNI could be updated or revised (usually every five years) to accommodate national and international market demands for standards of specific commodity. The revision of SNI could also be done for the purpose to protecting national food safety and human safety programs, including plant and animal. In practice, SNI is formulated gradually, first based on the local national standards, and then improved towards international standards. Usually, regional standards such as ASEAN standards or international standards recommended mainly by the Codex Alimentarius Commission (CAC) are being used as reference.

Through Center for Standardization and Accreditation (CSA), the Ministry of Agriculture facilitates private sector participation in the form of (a) formulating SNI and familiarizing standards including SPS measures, (b) building Quality Assurance System by establishing a credible certification body and/or testing laboratory through accreditation process.

To ensure that the Standardization System on Agricultural Product works properly, the Indonesian government assigns CSA as the institution responsible for application of the system. The responsibility is assigned based on the Agriculture Ministerial Decree No. 170/2001. Moreover, the Secretary General of the CSA has been designated as the SPS notification authority.

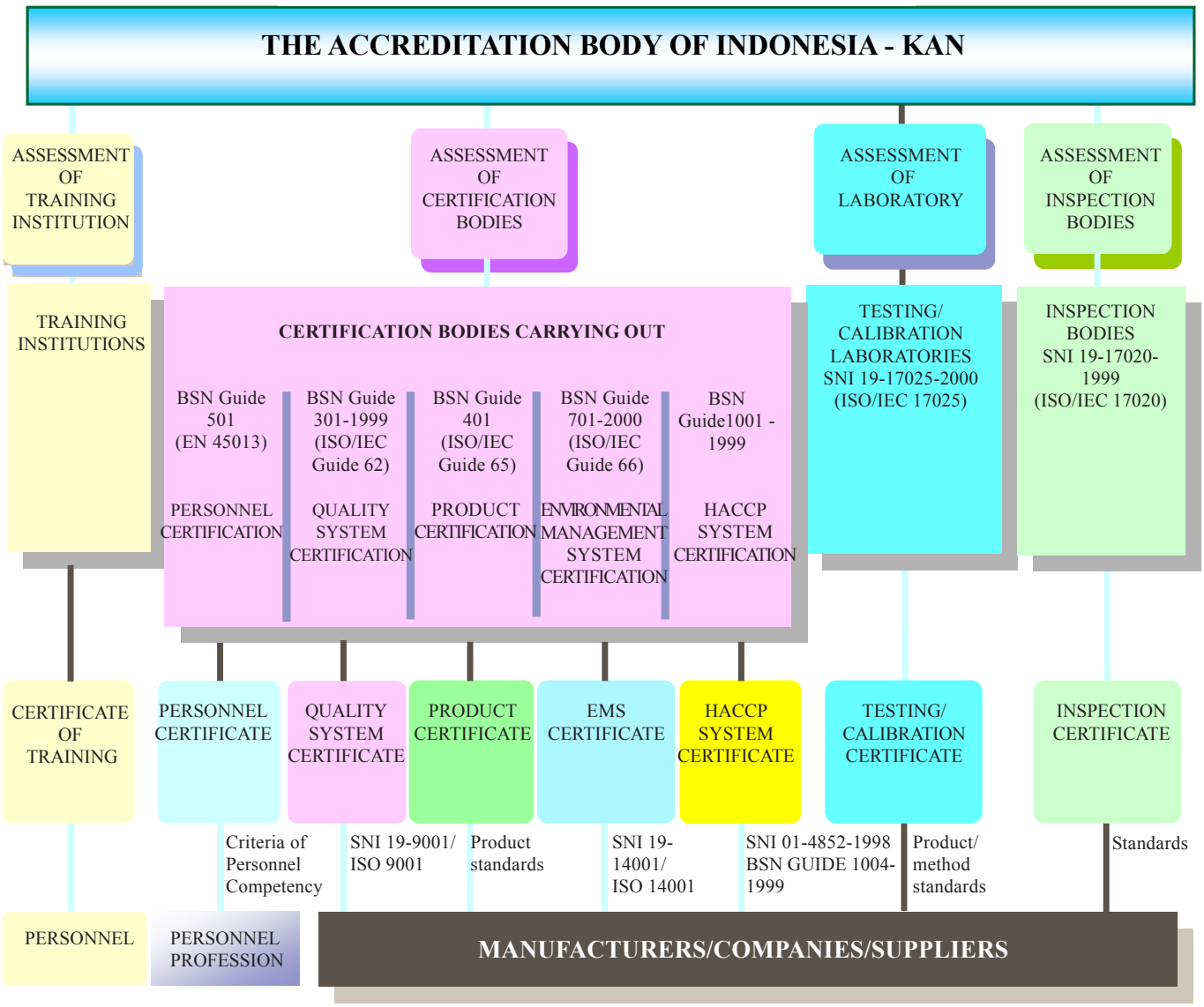
At present, the Ministry of Agriculture is establishing and strengthening a certification body on quality system based on HACCP and testing laboratory among others for residual pesticides, microbiological contaminants, additives and heavy metal testing. This effort is to meet the requirements of developed countries. It requires that the product should be processed based on the HACCP quality system approach. Furthermore, some importing countries need a health certificate to ensure that the product is safe for a human consumption.

THE NATIONAL ACCREDITATION SCHEME

Institutions who are implementing SNI are certification bodies (such as for quality system and testing laboratories). These certification bodies issue certificate that ensures the quality of the product meeting the standard requirements of importing country or SNI. To become certification bodies, the agencies must be first accredited by the National Accreditation Committee/KAN. To achieve credibility, the certification bodies must be recognized by trading partner in terms of its systems and the capability of its personnel.

The recognition could be achieved through a mutual recognition arrangement (MRA). Both private sector and the government institutions are eligible to become certification bodies provided, they fulfill the

SYSTEMS OF CONFORMITY ASSESSMENT



criteria. The objectivity and independence of the certification body is probably the most important criteria to be met.

The National Accreditation Committee/KAN, operate the accreditation process based on ISO/IEC Guide 58 for Laboratory and Inspection Body accreditation and ISO/IEC Guide 61 for Certification Body accreditation. KAN is the member of ILAC/IAF as well as APLAC/PAC, and also a signatory to APLAC MRA for testing laboratory as well as PAC and IAF MLA for quality management system. Certification Body or Testing Laboratory have to refer to the related standards when they propose the accreditation status, i.e. standard for technical competency of testing laboratory based on ISO/IEC Guide 17025:1999; and the technical competency of Product Certification Body is based on ISO/IEC Guide 65:1996; etc.

FOOD CONTROL SYSTEM

Food produced and distributed domestically

Food produced and distributed within the Indonesian territory shall meet the requirements of health and safety as well as the regulation of the Minister of Health RI No. 329/1976 (on Production and Distribution of Food) and Regulation of Minister of Health No. 382/1990 regarding Food Registration. The imported food similarly to be used in production and distributed domestically must comply with the SNI.

Food must also comply with the SNI. In case deviation occurs (the product does not comply with the SNI or does not have the SNI labeling certificate for mandatory SNI), it cannot procure the certificate and subject to sanctions.

Exported Food

The exporter food shall not be lower than the SNI requirements or other standards referred to and acknowledged. The exporter is responsible for the quality of the exported products and the Ministry of Industry and Trade shall control the quality of exported food by issuing a Quality Conformity Certificate or Product Certificate.

Imported Food

In future, Indonesia shall have monitoring system concerning the quality assurance and food safety of imported processed foods to be distributed in Indonesian market to meet the impact of trade globalization. In addition, this monitoring system could protect the consumer from unsafe foods. Indonesia must inspect carefully the imported processed foods at entry points with some requirement to be fulfilled by the exporting country such as :

- ❖ The product shall be registered with Ministry of Health Republic of Indonesia;
- ❖ The product shall have Certificate of Free Sale; and
- ❖ The product shall have Certificate of Analysis.

AGRICULTURE FOOD SAFETY IN INDONESIA

Demand for safe agriculture products is bound to increase both in domestic and international markets. In spite of this opportunity to increase their income, this phenomenon seems to be a serious constraint for most farmers in Indonesia, because most of them lack capability in the implementation of *Good Farming Practice, Good Handling Practices and Good Distribution Practices*. Together with the lack of awareness of food safety, the natural conditions have brought Indonesian agriculture products, one step behind the standard required by the consumers and standards of food safety of the international markets.

Along with the development of food trade in international markets, changing international food safety regulations become one of developing countries concerns in recent times. Developed countries such as the US, EU and Japan require not only TBT and SPS agreements but also the whole food safety program of the country of origin before entry of food products into their territories. This is posing big challenges to the prospective exporters like Indonesia.

HARMONIZATION

Harmonization centers around the development of SNI based on Codex Standards and MRA with Indonesian business partner countries. The success of the Indonesian agricultural sector in international markets, depends on the quality management system based on the HACCP program. A number of Mutual

Recognition Arrangements with a number of importing countries including EU have been signed. In 1994, 155 fish industries received equal recognition in the quality management system and the number had gone up to 175 industries in 1998. Meanwhile the harmonization is developed with Canada mainly based on GMP (Good Manufacturing Practices).

The cooperation in standardization at international level is done through international bodies, such as CAC, International Organization for Standardization (ISO), ASEAN Coordinating Committee for Standard Quality (ACCSQ), International Laboratory Accreditation Conferences (ILAC), Asia Pacific Economic Cooperation (APEC), ASEAN-Australia Economic Cooperation Programs (AAECP) and SPS/ASEAN. With mutual recognition system, it is expected that the exported products no longer face technical barriers at the point of entry and directly enter the markets.

REGULATORY REFORM AND HARMONIZATION TOWARDS INTERNATIONAL STANDARDS

The following is a list of "main' regulations considered as regulatory reform and harmonization. Some of them have already been notified to WTO.

1. Government Regulation No. 102/2000 stated that there is no standard but SNI. SNI must be treated as the only legal standard in Indonesia. Subsequent to the regulation, there were standards such as Indonesian Trade standard (SPI), Indonesia Industry Standard (SII), Indonesia Agriculture Standard (SP). Since SNI is harmonized standard, it implies that SPI, SII and SP no longer exist. They have been replaced by SNI.
2. Act No. 7 - 1994, concerning Ratification of WTO Agreement.
3. In 1996, the Government of Indonesia enacted the Food Act in Act No.7/1996. The objectives of the regulation, apart from development of trade and provision of food are :
   - The availability of food, fulfill the requirement on safety, quality and nutrition for the interest of human health;
   - The creation of on honest and responsible food trade ; and
   - The realization of a food sufficiency level in accordance with the need of the community.

   The regulation contains among others :Food safety; Food quality and nutrition; Food level and advertisement; The import and export of food into and from the territory of Indonesia; Responsibility of the food industry; Food resilience; Participation of the community; Criminal provisions; and, Submission of affairs and the tasks of assistance.

   The regulation considers as a form of the existing food regulation with reference to harmonization towards international standards.
4. In 1996, the government of Indonesia enacted a regulation on Maximum Residue Limits (MRL). The regulation is a joint decree of Minister of Agriculture and Minister of Health and the regulations are mostly based on the International Standards.
5. Decree of the Minister of Agriculture, number 405/1996 concerning the Entry and Exit points for the media capable of harboring Quarantine Fish Pests and Diseases.
6. Establishment of Enquiry Point and Notification Authority.
   a. For SPS Agreement :
      - Enquiry Point is Center for Agriculture Quarantine.
      - Notification Authority is CSA, Ministry of Agriculture.
   b. For TBT Agreement : Enquiry Point and Notification Authority is National Standardization Body (BSN).

CONCLUSIONS

1. Food Certification System based on Quality Assurance System and its application plays an important role in the success of the application on the SPS agreement and international trade.
2. The role of the government is to provide infrastructure such as a testing laboratory, a certification body of quality system (based on HACCP, ISO etc.) to private sector. A credible certification body should be established in order to improve trade efficiency with trading partners.
3. Government's cooperation and intervention to achieve a kind of mutual recognition between both exporting and importing countries through a credible certification body is essential.

6. ISLAMIC REPUBLIC OF IRAN

Dr. Mehrdad Tajkarimi
Expert of Industrial Investigation Office
Iran Dairy Industries Company (Pegah)
Tehran

INTRODUCTION

Islamic Republic of Iran has a population of about 66 million. Agronomic and horticultural crops are cultivated on a land area of about 18.5 million ha. In 2003 the total agricultural production was about 67.5 million tonnes including 59 million tones of agronomic and horticultural produce and 8.5 million tonnes animal products.

Food laws were initially ratified by the Iranian National Parliament in 1961 which have been amended many a times ever since. The food quality control is administratively the responsibility of the Ministry of Health and Medical Education (MOH&ME), Ministry of Jahad-e-Agriculture (MOJA) and Institute of Standards & Industrial Research of Iran (ISIRI) according to their duties and mandates assigned to them.

Iranian food products have to be safe and wholesome. The food industry is encouraged by the prospective organization to concentrate on the quality and safety of their products following GMP, GHP and the national standards.

Legislatively, the quality control of food products in Iran is based on end-point inspection with analysis based on sampling. There is no emphasis on inspection of processing operations**.** Almost all the food products have to contain the label indicating: the name of producer, trade name of the product, address of producer, date of manufacture (Y: M: D), expiry date, ingredients, food additives, lot ID, gross weight, and storage condition.

INSTITUTE OF STANDARDS AND INDUSTRIAL RESEARCH OF IRAN (ISIRI)

The primary objectives of the ISIRI and the dependent offices in different provinces according to their duties and mandate are as follows:

1. Determine, compile and publish the national standards
2. Performing research in order to compile standards, raising the quality of products and devise methods to improve industrial efficiency
3. Monitoring the implementation of compulsory standards
4. Quality control of imported goods, enforcement of compulsory standards, prevention of exporting undesirable goods
5. Propagating the international systems of units (SI) as a formal system of measures and scales in the country and also calibration and measuring the equipment
6. Testing and checking the samples of goods with connected standards, declaring the characteristics and comparative expressions and issuing the essential certificates

FOOD, HYGIENIC AND COSMETIC SUPERVISION DEPARTMENT, MOH&ME

The primary objectives of the department and its regional offices are as follows:

1. Combat food adulteration or misleading campaign of any food item under their jurisdiction specified by the law and ensure conformity of the food specification of these products to national standards
2. Hygienic cover of products including varieties of different ingredients and/or additives used for food or drink and/or packing material, which goes for human consumption
3. Control of GMP supervising HACCP implementation in different food industries
4. Organizing proper control system for imported as well as exported finished products and raw materials by Food &Drug control laboratories MOH&ME and supports 28 Provincial laboratories
5. The requirements conformity for domestically produced as well as imported food based on national or international standards

GMP has been introduced to the food processing industry and has been widely accepted and applied to operation administered by MOH.

IRAN VETERINARY ORGANIZATION (IVO), MOJA

Important activities performed by the organization are :

- Inspection of food;
- Control of animal health on establishments;
- Inspection of slaughtering in abattoirs;
- Control of animal industry;
- Control of animal products; and
- Border quarantine post group activities (40 posts).

FOOD CERTIFICATION SYSTEMS FOR IMPORT AND EXPORT

All of the Imported or exported food products such as raw material and final food products have to be analyzed and certified by MOH&ME, ISIRI and IVO and supervision over the administration relating to food Irradiation shall be the duty of concerned organization i.e. “Iran Atomic Energy Organization (IAEO)”.

GOVERNMENT EFFORTS TO IMPROVE FOOD SAFETY AND SECURITY

Iran government is proceeding with three main programs:

1. Denationalization with free economy and reduction of governmental role
2. Emphasis on export without concern on oil and food security
3. Safe food for all

In more than 5500 Iranian food industries, 18285 food product certificates and more than 100 GMP certificates have been officially issued by MOH and also about 700 certificates for food products and 30 national laboratory accreditation certificates and 6 professional export control laboratory certificates were issued by the ISIRI.

About 400 food industries have implemented ISO 9000 system followed by 40 industries with HACCP systems and 20 industries with ISO 14000 system.

INTERNATIONAL LEGISLATIONS ISSUES: CODEX ALIMENTARIUS COMMISSION (CAC)

The ISIRI is the official codex contact point in Iran for organizing more active participation of Iran to Codex sessions. The NCC consists of 16 technical committees in accordance with priorities and technical potential.

INTERNATIONAL STANDARDS ORGANIZATION (ISO)

The ISIRI is the official ISO contact point in Iran for organizing participation of Iranian delegation to ISO sessions and establish ISO standards.

OFFICE INTERNATIONAL DES EPIZOOTIES (OIE)

The IVO is the official OIE contact point in Iran for organizing participation of Iranian delegation to OIE session and deliberate on developing sanitary rules for international trade in animals and animal products.

WORLD HEALTH ORGANIZATION (WHO*)*

The MOH&ME is the official WHO contact point in Iran.

INTERNATIONAL CERTIFICATION BODIES

Nowadays, 21 certification bodies are certified by ISIRI for establishing international certification standards such as ISO and HACCP in the food industries.

PROBLEMS

1. Slow progress has been made in establishing Iranian laboratory accreditation system and bodies, which can be officially a part of ILAC. Establishment of auditing laboratory related to ISO 17025 and other Laboratory accreditation systems is also slow.
2. Less number of standards for specific food commodities as compared to other national and international food standards systems.
3. Less consideration to the modification of the HACCP system to make it more applicable to small-scale operations and GMP (and national regulatory requirement) as a more effective parameter in establishing HACCP-based food control systems.
4. Slow progress has been made in establishing an effective international and/or Iranian international food safety and quality assurance certificating systems. Many current HACCP initiatives for food safety appear to be based on a systematic application of traditional parameters of GMP and national regulatory hygiene requirements rather than assessment of foodborne risks to consumer.
5. Limited availability of manpower to implement HACCP and its related supervision and risk analysis.

SUGGESTIONS TO ENHANCE NATIONAL FCS FOR BETTER MARKETING

Issues	Recommendations	Mechanisms
1-Inadequate internationally accredited food control laboratories	1-Expedite establishing laboratory accreditation systems 2-Review food inspection activities and human resource requirements	1-Establish an international accreditation body with qualitative certification bodies to implement LA and help receiving solution to the related problems from ILAC 2-Develop a coordinated national program of food inspection including agricultural produce 3-Review training needs of food inspectors
2-Problems in administration of food safety implementation	1-Technical support for design and application of HACCP plan 2-National programs to ensure the quality, scientific validity and consistent application of HACCP systems 3-Regulatory sanctions which may apply if an industrial enterprise does not take up HACCP in a voluntary environment 4-Regulatory verification and audit, including access to industry records 5-Regulatory response to inadequate HACCP plans 6-Regulatory guidelines for appropriateness and severity of corrective action 7-Regulatory response to failure to take corrective action	1-Coordinate responsibilities by establishing an administrative body comprising of representatives from all concerned Departments 2-Formation of management board 3-Selection of chairperson and members 4-Formation of scientific and coordinated committees 5-Draft five-year plan 6-Training of regulatory personnel, and regulatory responsibilities with respect to industry training programs 7-Review and provide comment on the minimal requirements to be covered under HACCP implementation 8-Consider the development of alternate inspection approaches 9-Create coordinated Agency, board and recruit staff

(To be continued)

3-Limited knowledge base and food research commitment	1-Training of key personnel and other staff within each department 2-Review food research commitment and needs	1-Providing free intensive training for food inspection officials in the principles of HACCP and training manuals on HACCP to give a better understanding of the concept 2-Training within the country by country experts or regional experts or international resource staff 3-Identify priority areas for research on the basis of epidemiological surveillance data 4-Research resource needs to be identified 5-Initiate effective research programs 6-Collect and evaluate scientific information on food hazards, risk assessment and risk management
4-Limited participation in standard setting committees and commitment	1-Active participation in Codex should be supported to adequately reflect conditions in Iran. 2-Consideration should be given to the application of the concept of "equivalence" to quality assurance, so that GMP can be accepted as an alternative to the more complex HACCP. 3-Developed importing countries and international agencies might consider limiting the mandating of HACCP for export of those products that are recognized to have minimum risk of hazards to human health.	1-Provide full support and access to technical information for officials and scientists 2-Regulatory authorities will have to be active in removing structural impediments to harmonization that may be rooted in national laws and institutions. 3-Provision of support services to Iran which can minimize the impact of HACCP implementation 4-Consider whether the Codex codes of practice which include HACCP–based systems should be supported in an effort to ensure all Codex provisions are being met for international trade purposes

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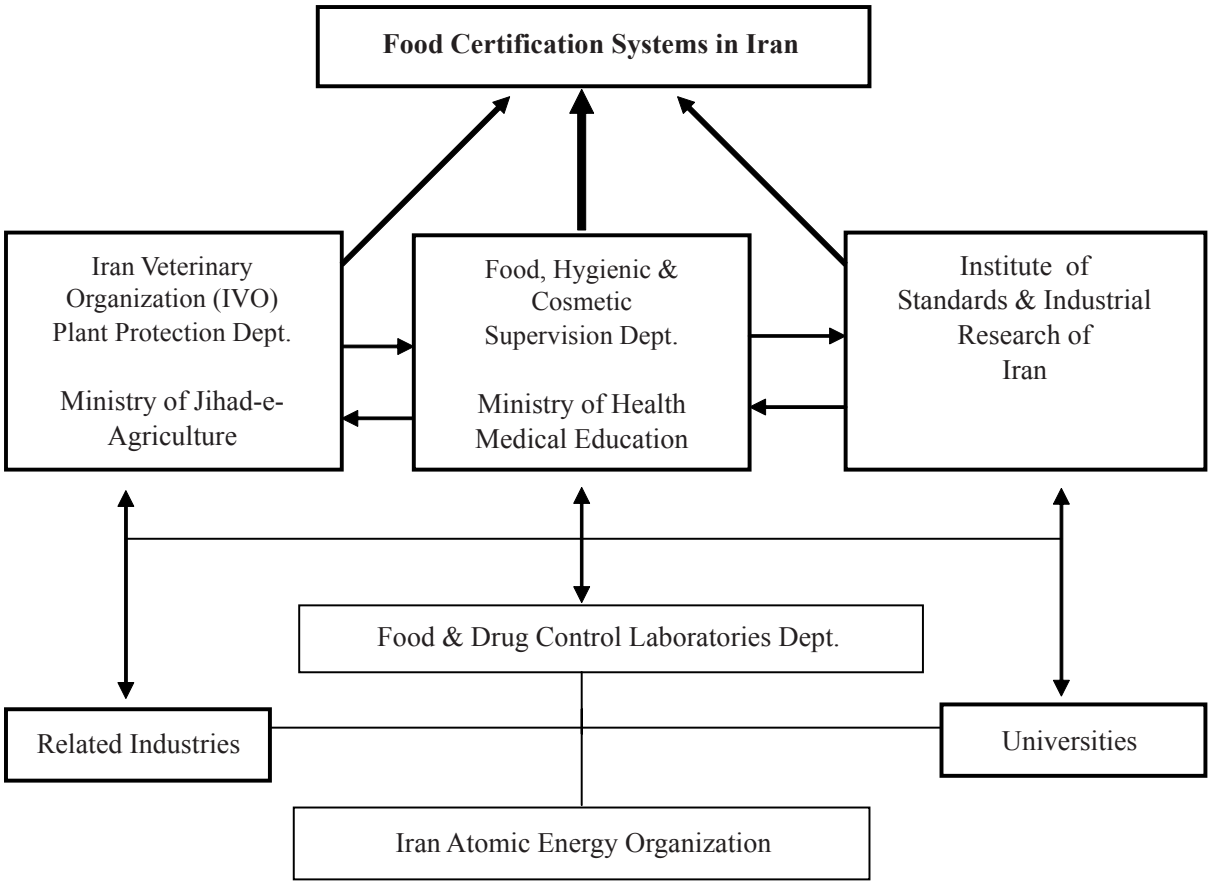
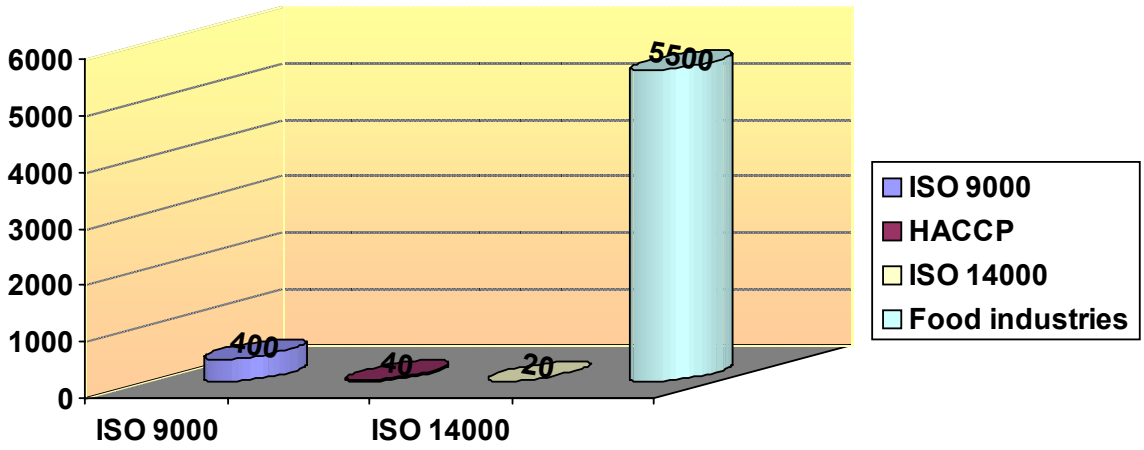
ANNEXURE-1



ANNEXURE-2

Present Status of Adaptation of Quality Management System and Tools in Iranian Food Industry



7. REPUBLIC OF KOREA

Dr. Jeong-Weon Kim
Senior Research Officer
Korea Health Industry Development Institute
Seoul

INTRODUCTION

The food certification system (FCS) in Korea includes 1) GH (Goods of Health) certification for processed foods, 2) quality certification and eco-friendly produce certification for agricultural products, 3) KS certification and traditional food certification (waterfall mark) for processed agricultural products, 4) quality certification for fishery products, 5) HACCP for general food, animal and milk products, and fishery products, and 6) ISO - Quality and Environment Management system on food.

Certification Mark	Products	Management Institution
GH	General and health foods	KHIDI, MOHW
,EFP	Agricultural products	NAQS, MOAF
KS, Waterfall	Processed Products	KFRI, MOAF
,Waterfall	Fishery products	NFPQIS, MOMAF
HACCP	General processed food	KFDA
	Animal and milk products	MOAF
	Fishery products	MOMAF
ISO9000/14000	Agriculture/Fishery Food and beverage	KAB

GOODS OF HEALTH (GH)

Management Institution

Korea Health Industry Development Institute (KHIDI) (http://www.khidi.or.kr) is a government-supported research institute under the Ministry of Health and Welfare. KHIDI is conducting various researches and projects to promote Korean health Industry and one of the projects is the GH certification for excellent health products such as food, pharmaceuticals, cosmetics, medical devices and bio products.

Related Laws

- Korea Health Industry Development Institute Act (1999)
- The regulation of GH Certification (Sep. 1999)

Purpose

- To promote the development of high quality health products based on sound scientific research
- To provide high quality health products and correct information to the consumers

Food Products Eligible for the Certification

- General processed foods
- Functional food, Health foods
- Ginseng and red ginseng products

Evaluation Standards

- Safety, excellence, and credibility of the products
- Product evaluation
- GMP, HACCP, general hygienic practices in the plants

Certification

- Certificate is endowed for a period of one year.
- Strict surveillance is followed for the certified products.

Certification Statistics (Dec. 2003)

- Total 17 items have been endowed with GH mark.
- Health foods, functional cosmetics, living goods, etc.

Problems/Suggestions

- GH mark has not been fully recognized by the industry and public, therefore, more publicity is required.
- More benefits should be provided to the industry with GH products.

QUALITY CERTIFICATION OF AGRICULTURAL PRODUCTS (品)

Management Institution

The National Agricultural Products Quality Management Service (NAQS) (http://www.naqs.go.kr) is a subsidiary organization of the Ministry of Agriculture and Forestry (MOAF), specialized in quality management of agricultural products including safety inspection and quality certification. NAQS is making every effort to support the farmers to produce high-quality farm products and to provide the consumers with safe and high-quality agricultural products by perfectly conducting quality management at every production and distribution stage.

Related Laws

- Agricultural Products Quality Management Act, Article 5 and 7
- Regulations on Quality Certification of Agricultural Products (2001-76)

Certification History

- QC for general agricultural products (July 1992)
- QC for organic agricultural products (Dec. 1993)
- QC for animal products (Sep. 1995)
- QC for low-fertilizer-used products (March 96)
- QC for organic processed agricultural products (Nov. 1998)
- Separation of QCs for general and eco-friendly products (July 2001)

Purpose

- To improve the quality and competitiveness of Korean agricultural products
- To set up a sound supplying system for qualified agricultural products
- To provide high quality agricultural products and increase the credibility among the consumers

Certification Type

- Quality Certified Produce: Produce with excellent quality or characteristic cultivation method
- Eco-friendly Produce: Produce or animal products produced without or low level of agricultural chemicals

Procedure

- Application
- Evaluation

- Report of the evaluation results
- Survey on the production, distribution and markets
- Surveillance after Certification

Evaluation Standards and Management

- Cultivation conditions - land and water quality
- Examination of applied produce
- Examination of Residual hazardous materials

Agricultural Products Eligible for the Certification

- Grains: 16 items
- Fruits: 17 items
- Vegetables: 31 items
- Potatoes and special crops: 14 items
- Animal products: 4 items

Certification Statistics

Number of quality certification and households certified by the group of agricultural products (Dec. 2003)

Item	No. of certifications	No. of Certified Households
Grain	232	48,185
Fruits	698	7,511
Potatoes	4	34
Vegetables	82	1,821
Animal products	89	864
Special crops	68	633
Total	1,173	59,048

Problems/Suggestions

- The 品 mark is in the stage of getting public recognition.
- To promote the quality certification of agricultural products, the value of ù¡ù¡ mark should be increased through advertisement to the public and farmers.

ECO-FRIENDLY PRODUCE CERTIFICATION

Management Institution

- The National Agricultural Products Quality Management Service (NAQS)

Related laws

- Eco-Friendly Agriculture Promotion Act, Article 17

Purpose

- To protect the environment by minimizing the environmental contamination due to agricultural practice
- To set up a sound supply system for eco-friendly agricultural products

Procedure

- Application
- Evaluation
- Report of the Evaluation results
- Survey on the production, distribution and markets
- Surveillance after Certification

Certification Type

- Classification: Agricultural Produce (4 types), Animal Products (2 types)
- Organic agricultural products: the agricultural product that has been cultivated without using chemical fertilizer and agricultural chemicals
- Organic agricultural products in transitional period: Organic products cultivated in the farmland with residual salts and agricultural chemicals
- No-chemical agricultural products: the agricultural products that have been cultivated without using agricultural chemicals
- Low-chemical agricultural products: the agricultural products that have been cultivated spraying agricultural chemicals below 1/2 of safety standards

Evaluation Standards and Management

- The safe agricultural and animal products guaranteed by the government that didn't use any chemical materials like agricultural chemicals, chemical fertilizers and fodder additives, or use below the optimum level
- Instructing farmers thoroughly to produce and ship their products according to the certified standards, and strictly not to allow forged or fake products distributed
- Cultivation conditions, packaging, residual chemicals, harvesting time, processing conditions, etc.

Certification Statistics

Number of certification for the produces, households and land

Year	No. of certification	No. of Certified households	Land (ha)
1999	598	1036	875
2000	704	2448	2039
2001	1128	4678	4553
2002	2919	11892	11240
2003. 9.	4899	21857	20841

Suggestions

- The rate of certification is increasing, which reflects the need organic products for consumers
- Proper management and improvement of the certification system is the most important factor.

KS FOR PROCESSED FOOD PRODUCTS

Management Institution

Korea Food Research Institute (KFRI) (http://www.kfri.re.kr) is a government-supported research institute, and conducting diverse research to utilize Korean produce and also has developed Korean Standards for the processed agricultural products and certifies KS mark being entrusted by of MOAF and MOMAF.

Related Laws

- KFRI Fostering Act
- Industrial Standardization Act

Purpose

- To improve the quality of processed food by establishing Korean standard (especially on traditional Korean food)
- To innovate the processing technology, simplify the purchase line and related services to increase the competitiveness of Korean food industry

Food Products Eligible for the KS Certification

- General processed foods specified by the Ministry of Agriculture and Forestry

Evaluation Standards and Items

- Quality evaluation of the product / Plant inspection
- Standardization, distribution management, ingredient management, processing management, quality management, facility management, and test equipment management

Certification Statistics (by March 2003)

- Standard establishment: 146 items including margarine
- Product specification: 133 items including sugar, margarine
- Test method: 145 items including sugar
- KS certified items and plants: 35 items in 101 plants

Problems/Suggestions

- Although the standards for the traditional Korean foods are prepared, many food industries do not recognize the necessity of adapting the system due to the low level of merits by KS certification.
- Government should provide an appropriate support to motivate the industry (e.g. Advertisement)

WATERFALL MARK FOR TRADITIONAL KOREAN AGRICULTURAL PRODUCTS

Management Institution

- Korea Food Research Institute (KFRI) (http://www.kfri.re.kr) by the entrust of MOAF

Related Laws

- Agricultural Processing Industry Promotion Act

Purposes

- To increase the value of traditional Korean processed agricultural products and eventually to protect the consumers as well as to increase the income of Korean farmers

Food Products Eligible for the Certification

- Traditional Korean processed agricultural products specified by the Minister of Agriculture and Forestry

Evaluation Standards and Items

- Plant inspection: 12 items including ingredients, facilities, processing
- Quality evaluation of the products

Certification Process

- Processors apply to city, county or district.
- Via province or city, KFRI conducts evaluation.
- Report to MOAF and MOAF informs to the Applicant for the result.

Certification Statistics (by Dec. 2003)

- Standard establishment and specified products: 45 items
- Certified items and plants: 31 items in 184 plants

Problems/Suggestions

- The recognition of Waterfall mark for the traditional Korean agricultural products is increasing and this mark is being used as an indicator for high quality in the distribution channel.
- The system is currently focused on providing a guidance and training to the industry to improve the quality of traditional Korean products.
- Governmental support for the publicity of the mark is needed.

QUALITY CERTIFICATION OF FISHERY PRODUCTS (品)

인증번호:0-00-00-00

(해양수산부 전통 제 호)

Management Institution

National Fishery Products Quality Inspection Service (NFPQIS) (http://www.nfpqis.go.kr) is a governmental institution under the Ministry of Maritime Affairs & Fisheries (MOMAF), and it is responsible for the safety of Fishery Products thorough sanitary control.

Related Laws

- Fishery Products Quality Management Act, Notice, and Regulations
- Quality Certification Standard for fishery products, special fishery products, traditional fishery products (2001-78, Sept. 2001)

Purpose

- To increase the value of Korean fishery products by certifying high quality fishery products
- To achieve fair trade and increase the income of fishermen

Types of Certification

- QC for fishery products
- QC for special fishery products (indigenous products)
- QC for traditional fishery products

Categories of Fishery Product Certification

	QC for fishery products	QC for special fishery products	QC for traditional fishery products
Objective	To improve the fishery products harvested and processed in a special way	To improve the processed fishery products harvested in a special area and processed by a special method	To improve the quality of traditional Korean fishery products
Subjects	21 items including bream - dried products - salted products - sea weed products	4 items including filefish jerky - seasoned products - processed seaweed - filefish jerky, clam - Processed tangles	43 items including salted fish products - salted fishes - soup - salted crabs - others
Mark	品	品	Waterwheel
Certification body	NFPQIS	NFPQIS	MOMAF

Evaluation Standards

- Processing plant inspection
- Product evaluation by the notice of MOMAF

Certification Statistics (Sept. 2003)

- QC for fishery products: 181 companies
- QC for special fishery products: 5 companies
- QC for Korean traditional fishery products: 58 companies

Problems/Suggestions

- Lack of motivation for the certification due to the low level of incentives
- To promote the quality certification of fishery products, the value of 品 mark should be increased through advertisements to the public.
- The post management of the certified products should be strengthened.

HACCP

Management Institution

HACCP is being regulated by three organizations depending on the products, KFDA (http://www.kfda.go.kr), a governmental body for controlling the safety of food, drugs and related products, National Veterinary Research and Quarantine Services (http://www.nvrqs.go.kr), and National Fishery Products Quality Inspection Service (http://www.nfpqis.go.kr)

Related Laws

Related Law	Notice	Food Item	Institution
Food Sanitation Act A32 C2	HACCP	- Every item except livestock and exporting fishery products	KFDA
Processing of Livestock Products Act A9	Livestock HACCP	- Milk and milk products - Meat and meat products - Slaughterhouse (cattle, swine, poultry)	MOAF NVRQS
Quality Management of Fishery Products Act A23	HACCP	- Fishery and fishery products purchased and stored by government - Fish and fishery products requested or agreed by foreign countries	MOMAF NFPQIS

Purposes

- To secure safety of food products by implementing HACCP system

Certification Statistics

- Generic HACCP Model announced items: 11 products (95 plants)
- Non-announced items: 9 products (18 plants)

HACCP implementation Status in Korea (Oct, 2003)

Year	Plants	Certified Items
1997	3	6
1998	28 (2)	30 (4)
1999	6	7
2000	16 (1)	16 (1)
2001	9	13
2002	34 (1)	61 (1)
2003. 10.	26 (5)	57 (5)
Total	122 (9)	170 (11)

Generic HACCP Model announced items**:** 11 items

Processed meat products, milk products, processed fish products, frozen fishery products, frozen food, frozen desserts, cooked food for catering, cooked food in restaurant, packed ready-to-eat food, non-heat-treated food, retort food

Non-announced items**:** 9 items

Seasoned food, health food, canned fishery products, tea, beverage, vegetable cream, oils and fats, instant dried food, bakery product

Problems to be Solved

Industry related

(1) Lack of acknowledge of HACCP
- The food industries are more interested in marketing rather than securing food safety with extra cost.

(2) Less attention to general hygiene management
- A large portion of food industry is dominated by small businesses which tend to pay less attention to basic hygiene practices.

(3) Difficulty in developing HACCP plans
- Professional knowledge is needed to develop HACCP plans; however, most of the small food businesses lack human and technical resources.

Post management aspects

(1) Lack of corrective action for the HACCP system implemented
- HACCP system should be flexible to the changes in processing procedures, occurrence of new hazards, etc.; however, small businesses are more concerned about the designation as a HACCP-implemented plant, and do not pay much attention to the correction of the system as and when warranted.

(2) Lack of government support
- With the increase in the number of HACCP-designated plants, government may have less resources for the post management of the system.

Suggestions for the Improvement

Government related

(1) Establishing Mid- and long-term plan of HACCP
- Cost-benefit analysis of HACCP implementation, establishing mid- and long-term plan on HACCP, etc. are needed.

(2) Increasing the support to the food industry
- Developing manuals for implementing HACCP, standard training materials, and their distributions is needed.

(3) Publicity
- Knowledge and information on HACCP should be provided to the public, and the food industry should also have motivation to implement HACCP.

(4) Establishment of a professional service institution for HACCP

(5) Collaboration among the related agencies
- Currently, Korea has a multiple regulation system on HACCP and these agencies should collaborate with each other towards a systematic approach.

Food Industry related

(1) Recognizing the necessity of HACCP
- The food industry including small businesses should recognize the necessity of HACCP in order to secure food safety as well as to respond PL.

(2) Recognizing the necessity of general hygiene management
- In addition to HACCP management, the general hygiene management should be fully recognized as a basis for HACCP.

(4) Continuous correction and improvement of HACCP systems

Research related

(1) Providing information on Hazards

(2) Providing sound scientific knowledge

ISO9000/ISO14000

Management Institution

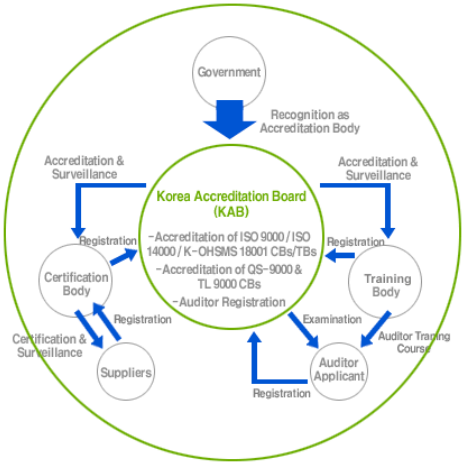
Korea Accreditation Board (http://www.kab.or.kr) entrusted by Korean Agency for Technology and Standards, MOCIE on the accreditation system performs the following functions:
- Accreditation of certification/training bodies for Quality/Environmental Management Systems and other sector schemes
- Certification of management system auditors
- Establishment of multilateral recognition arrangements in the field of management systems
- Publications and public relations regarding the accreditation and certification schemes
- Research and development for accreditation and certification activities
- Mutual cooperation with domestic or overseas bodies in relation to accreditation and certification schemes
- Other businesses required to achieve KAB's objectives including those to be delegated by the government

Related Laws
- Quality Management & Industrial Product Safety Management Act (ISO9000)
- Promotion of Industrial Structure Act (ISO14000)

Year of Enactment
- Quality Management System: 1994
- Environment Management System: 1996

Certification System
- KAB designates accreditation bodies and these accredited bodies conduct certification works.
- Accredited bodies develop the professionals for certification
- KAB also designates training bodies, which provide education and training programs to the industry.

Governmental Support to the ISO Certified Industry
- Partial exemption of KS plant inspection
- Exemption of tax on technology fee
- Providing certification fund to the SME up to US $17,000
- Providing consulting fee on certification for the SME up to 70%
- Endowing additional points for technology and credit evaluation
- Mandatory certification for water supplying materials and equipments



ISO9000/ISO14000 - Flow of Accreditation & Registration

Yearly status of certificates by the scope of accreditation (ISO 9000)

No	Accreditation Scope	94	95	96	97	98	99	00	01	02	Total
01	Agriculture, fishing	-	-	-	-	-	-	-	3	1	4
03	Food products, Beverages and tobacco	1	8	19	59	63	125	124	98	108	605

Yearly status of certificates by the scope of accreditation (ISO 14000)

No.	Accreditation Scope	94	95	96	97	98	99	00	01	02	Total
01	Agriculture, fishing	-	-	-	-	-	-	-	-	-	0
03	Food products, Beverages and tobacco	-	-	6	2	6	15	42	17	9	97

Yearly status of KAB-registered auditors

	94	95	96	97	98	99	00	01	02
ISO9000	76	202	260	356	531	690	856	997	1069
ISO14000	-	-	27	49	61	71	114	131	193
Total	76	202	287	405	592	761	970	1128	1262

Problems/Suggestions

- The certification for ISO9000 in Korea is getting accelerated recently, which reflects the efforts of both food industry as well as government; however, most of them are from the food/beverage and tobacco industry and there are only a few from agriculture and fishing area.
- It is partly due to the small-scale nature of the most of the Korean agricultural businesses, and a suitable approach might be necessary to address the issue.
- Also the certification bodies should be monitored with high standards to keep up their reputation.

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8. LAO PDR

Bounta Athitang
Chief of Trade Promotion Policy Division
Lao Trade Promotion Centre
Ministry of Commerce
Vientiane

INTRODUCTION

Lao PDR has a population about 5.5 million people and a land area of 236,800 square kilometers. It has significant natural resources like forestry, minerals and hydro-electric power. Agriculture remains the core sector of the economy, contributing around 51% of GDP and employing over 80% of labor force; industrial and service sectors account for 23% and 26% of the GDP respectively. Though landlocked, Laos is the center of the Mekong river region, bordered by China, Vietnam, Cambodia, Thailand and Myanmar.

MAJOR ECONOMIC INDICATORS (1997-2001)

Items	1997	1998	1999	2000*	2001*
GDP growth	6.9	4.0	4.0	4.5	5.0
Gross domestic investment/GDP	26.2	26.1	23.7	24	25
Gross saving /GDP	9.4	15.5	13.4	13.0	13.0
Inflation rate (consumer price index)(a)	26.6	142.0	86.7	30.0	10.0
Money supply growth	**65.8**	**113.3**	**86.3**	**50.0**	**30.0**
Fiscal balance/GDP(b)	-8.8	-13.9	-9.3	-8.5	8.0
Merchandise export growth	-1.2	7.7	2.9	5.0	6.0
Merchandise import growth	-6.0	-14.7	-2.9	7.0	6.5
Current account balance/GDP©	-16.8	-10.6	-10.3	-11.0	-12.0
Dept service/exports	9.0	11.1	12.0	12.5	12.0

Source: Bank of Lao PDR.; IMF; Ministry of Finance; National Statistical Center
Note: Figure for 1999 are preliminary estimates.
*Estimates for 2000 and 2001
(a) End of period
(b) On a fiscal year basis ending 30th September; exclude official transfers
© Exclude official transfers

Since 1986 Lao PDR (Laos) has been engaged in a process of market reforms called New Economic Mechanism (NEM). The NEM aims to develop a multi-sector market oriented economy in Laos. As a result, Laos' real GDP Growth averaged over 7% during the period 1993-1997, and slowed down in mid-1997, largely due to the impact of the Asian regional crisis.

Membership of the Association of the South-East Asian Nations (ASEAN), which Laos joined in July 1997, requires the Government to lower tariffs on a wide variety of products to below 0-5% by 2008.

The government has expressed its desire to join the World Trade Organization (WTO) although membership may still be some years away.

The integration to these organizations enforce Laos to comply to the international obligations and related agreements, such as Sanitary and Phytosanitary Agreement in terms of future access to export markets for agricultural and food products.

TRADE SITUATION

Although the GDP grew in the 1990's, at an annual average rate of more than 6%, and 5.7% during 2000-2002. The trade balance still shows deficit and is a matter of great concern.

Laos is heavily dependent on imported finished goods as a result of its small manufacturing base. Imports rose continuously throughout the 1990s until the Asian economic crisis struck in 1997. From 1997 to 1999, imports fell from nearly US$ 703 million to US$ 497 million in 1999 and rebounded from 2000, due to increasing domestic and foreign investments.

Major imports are consumer products (including foodstuffs), equipment and machinery for construction work and agriculture, raw material for the garment industry, electrical appliances, medicines and fuels.

According to IMF figures, Laos merchandise exports increased at an average rate of just 1% a year during 1997-2001. Main exports are: Timber and wood products, garments, hydroelectric power, coffee, and other manufactured goods.(Table 2 shows the trade balance of Lao PDR).

TRADE BALANCE OF THE LAO PDR FROM 1997-2002

Unit: thousand US$

Year	1997	1998	1999	2000	2001	2002
Export	217.454	251.054	271.059	323.974	324.885	322.618
Import	703.100	599.323	497.042	540.561	528.271	533.583
Trade balance	-485.646	-348.264	-228.983	-216.587	-203.386	-210.965

Source: Ministry of Commerce, statistics section

In an effort to reduce country's import dependence and trade deficit, the Government is seeking ways to promote production for domestic consumption and for export, especially in targeted sectors such as agriculture, construction materials and light industries including Food processing.

CURRENT STATUS OF FOOD CERTIFICATION SYSTEMS IN LAOS

Throughout the world increasing number of consumers and governments are becoming aware of food quality and safety issues and realizing the need to be selective about the Food people eat.

In order to ensure food safety to consumers, Laos government has enacted rules and regulations for controlling food standards and health safety, and promoting the significance of food quality that introduced in Laos and for export, by disseminating the information to people about how to protect their interests in the selection of quality and safety food products.

The implementation of these regulations are expected to bring order to society, and serve as legal basis to relevant state officials of all levels in the management, care and control of food products quality and standard.

Ministerial Decision, in 1990, resulted in a primary committee called 'Food and Drug Control Commission' (FDCC) comprised of nine members from seven Ministries and Organizations, presided by vice Minister of Health and the Secretariat is located in the Food and Drug Department (FDD) of the Ministry of Health.

The main roles of the commission are:

- formulate rules and regulations concerning provisions on control of export oriented and imported food stuff;
- Inspect, test, analyze food contamination; and
- Certify and register food quality.

Line ministries/organization member of the FDCC:

- Ministry of Health, FDD: keep control of foodstuff storage sites throughout the country as necessary or assign other organizations to implement various tasks and issue food product quality certificates.
- Science, Technology and Environment Agency (STEA): improve standards and quality awareness in all economic sectors; organize formulation of standards and maintain national metrology standards; provide and implement quality systems, food and product certifications.
- Ministry of Agriculture and Forestry (MAF): Plant and animal quarantine control; issue Phytosanitary Certificates.
- Ministry of Industry and Handicrafts (MIH): promoting production, particularly export production.
- Ministry of Commerce (MOC): Research and planning, implementing Party's policies, develop law and regulations for the sector, Register of enterprises, market research, trade promotion.

- Committee of Plan and Cooperation (CPC): economic plan, management on domestic and foreign investment.
- Ministry of Interior (MOI): security control.

Food and Drug Department, as secretariat of FDCC implement the food control under the Codex Alimentarius to protect health of consumers and to ensure fair trade practices in the food trade, and to promote coordination of all food standards work undertaken by international community.

But, as Laos is among the least developed countries, in practice, the implementation of some measures is still limited due to lack of technology, tools, budget and human resources.

FOOD IMPORT PERMISSION

As import business permission is obtained from the MOC, documents must be presented to the FDD for quality consideration and certify for food security. Documents required are:

1. Application form;
2. Food quality certification from relevant authority of export country (GMP, GHP and HACCP);
3. Copy of food import-export business permit;
4. Original invoice from the exporter of relevant Country;
5. Certificate of free sale from exporter Country;
6. Sanitary and phytosanitary certification (if required); and
7. Certification of Analysis for the product(if required).

FOR EXPORT

Entrepreneurs of export-oriented food products must submit the mentioned food products to the FDD if importing country requests for certification of food safety or quality from the exporting country.

As Laos is an underdeveloped country and has limited scientific expertise available, the importing countries usually analyze the food products in their laboratories.

FOOD RESTRICTIONS

Import-export entrepreneurs are forbidden to bring the following food products into Laos:

1. Food products lacking labels, information on production and certification from the relevant Country
2. Adulterated food products
3. Counterfeit food
4. Foodstuff non-conforming to the standards

EXISTING ISSUES CONCERNING FOOD CERTIFICATION SYSTEMS

Laos government has promulgated the following food regulations during the last decade:

1. Decree No 49/PCM, dated 30/8/1990 concerning the establishment of Food and Drug Control committee (FDCC)
2. Decree No 45/PCM, dated 3/06/1991 concerning the appointment of members of FDCC
3. Regulation No 035/FDCC dated 26/10/1991 -Controlling quality of import-export of food. Regulation No 048/FDCC dated 26/10/1991-controlling of food circulation (food stored, super market)
4. Regulation No 1600/FDCC, dated 25/11/94- Food registration
5. Instruction to regulation No 035/FDCC-Sub-standard food that is not allowed for import into Laos
6. Instruction to regulation No 048/FDCC-Food color and its limitation
7. Instruction No 027/FDCC to regulation No 105/FDCC-Food labeling
8. Food inspection manual dated 5/1994
9. Decree on Universal Salt iodization 42/pm, dated 20/5/1995
10. Regulation for Application of HACCP in food factories No 3706/MOH, dated 30/10/1997

PROBLEMS IN THE IMPLEMENTATION OF THESE MEASURES

Laos Government has great intention to expand the activities of food certification for better marketing but there are many obstacles which are listed below:

1. Limitation of human resources and the scientific expertise
2. Lack of specific and accredited laboratories
3. Limitation of operational budget
4. The current state of information technology skills and computer equipment
5. Stringent food quality and safety requirements of developed countries such as EU, USA.
6. Existing Rules and Regulations are outdated and do not have extensive number of food sanitary/ phytosanitary standards.
7. Retirement of some of FDCC's members

The government is proceeding to review and improve rules and regulations regarding food quality control with the cooperation of the international organizations for improving the national food certification systems to supply high quality and safe food to the domestic consumers.

As the food processing industry in Laos is still young, only a small quantity of few agricultural products is exported. Though Regulation for application of HACCP is promulgated in practice the implementation of food quality assurance methods and management systems in food production chain are still weak.

To enhance the national food certification systems for better marketing the following problems need to be addressed:

1. Development of human resources and scientific expertise
2. Encourage food producers to adopt quality assurance methods
3. Set up modern laboratories with advanced technology and upgrade the existing laboratories for food inspection
4. Develop research institutes in the context of food quality and health assurance
5. Develop information system on standards and quality
6. Re-engineering of food administration committees
7. Encouraging the appointment of suitably qualified scientists and technical officers to the FDD with a base qualification of a degree or diploma
8. Development of industry associations is likely to prove useful in the development of more consistent quality standards for food products.

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9. MALAYSIA

Norma Othman
Assistant Director
Department of Agriculture
Kuala lumpur

INTRODUCTION

Malaysia has further diversified her economy with greater emphasis on the agriculture sector as the third engine of growth after manufacturing and services sectors, due to the increasing demand for trade in food. The 3rd National Agricultural Policy has embodied several factors that will see the food agribusiness industry transform itself into a competitive sector producing safe and quality products that can effectively compete in both the domestic and world markets.

The question of food safety has become increasingly more important following liberalization in the world trading system. At the regional level, Malaysia has become a competitive player in the ASEAN food market. With the full implementation of ASEAN Free Trade Area (AFTA) by January 2003 and the World Trade Organization (WTO) regulations, greater attention is given to food safety. In addition increased awareness among consumers on public health has also underlined the need to address the issue of food safety. Under such circumstances, a concerted effort was made to enhance our food safety and quality standards in order to compete in the world market and also to meet consumers higher expectations.

The sporadic outbreaks of foodborne diseases indicate that food hygiene at the distribution, retailing and catering level is still a problem. It is widely recognized that most foodborne diseases occur as a result of incorrect handling and preparation of foods for consumption. The authorities in Malaysia are closely monitoring this situation as well as the use of pesticides, antibiotics, growth hormones in food production and the use of preservative agents in food products.

QUALITY ASSURANCE SYSTEM IN MALAYSIA

Food safety incidents which are widely publicized by the mass media, have led to the introduction of new regulations to minimize food safety risks. In Malaysia, ensuring the safety of food is one of the core functions of the government. Authority is divided among government agencies and the private sector also plays an important role. From the farms to the consumers, the responsibilities can be summarized as follows:

- On the farm, crop protection measures on food crops and the use of drugs and feed in milk and food producing animals are regulated by Ministry of Agriculture which acts to ensure that pesticides and the chemicals are approved for use and safe use according to label, whereas Department of Environment covers the production and harvesting activities that discharge waste into the environment.
- Food processing other than livestock products is regulated by the Ministry of Health, whereas regulations on livestock products are carried out by the Ministry of Agriculture.
- The importation of food from foreign countries is overseen by the Department of Veterinary Services under the Ministry of Agriculture for livestock products and Ministry of Health for all other foods.
- National standards for drinking water are set by the Ministry of Health, and enforced by the local public water authorities.
- Surveillance of foodborne illness is primarily the responsibility of the Ministry of Health and local health departments, which seek to identify causes of illness, determine their sources and control outbreaks.
- Restaurant operators and consumers at home also have a responsibility for proper handling and storage of food, as mishandling contributes to many foodborne diseases.

The Ministry of Health Malaysia, has established the National Food Safety and Nutrition Council to coordinate in an integrated manner all actions as well as advise the government on all issues pertaining to food safety and nutrition. The Ministry has also formulated guidelines for Malaysian Certification Scheme for Hazard Analysis and Critical Control Point System (MCS HACCP) which describes procedures applied to food premises in gaining HACCP certification.

The Malaysian Ministry of Agriculture has responded to the challenge of food safety and quality by establishing a Quality assurance system for primary producers. A Farm Accreditation Scheme for fruits and vegetables was launched in January 2002. This scheme establishes the criteria and standard for accrediting farms that follow good agricultural practices (GAP). Produce from farms awarded the certificate of Farm Accreditation Scheme of Malaysia (SALM) are of quality and safe to eat.

The Ministry of Agriculture is also planning to launch the organic farming Certification Scheme not only to accredit these farms but also as an effort to promote food safety where consumers are assured of the quality and safety of the organic produce.

FOOD CERTIFICATION SCHEME

Malaysian Certification Scheme for Hazard Analysis and Critical Control Point System (MCS HACCP)

MCS HACCP describes procedures which apply to food premises in gaining HACCP certification. The scheme requires the food premises to set up and implement a HACCP system that meets the MCS HACCP criteria, followed by the application and granting of the certificate. The certification scheme is developed with the objective of granting recognition to food premises that have effectively implemented and maintained the HACCP systems for their food products. Food premises applying for HACCP Certification shall fulfill the following requirements:

a. Food premise shall be licensed.
b. Company is registered with the Registrar of Companies.
c. Pre- requisites programs shall be in place and documented.
d. The HACCP manual shall be available and shall be duly signed and dated by the company management with executive responsibility.
e. The HACCP system shall be developed based on the Malaysian Standard MS 1480:1999 and any other requirements imposed by the importing country/countries.
f. The HACCP System should have been implemented for a minimum of three (3) months.

Farm Accreditation Scheme of Malaysia (SALM)

SALM is a national program implemented by the Department of Agriculture (under the Ministry of Agriculture Malaysia) to recognize and accredit farms which adopt good agricultural practices (GAP), operated in an environmentally friendly way and yielding products that are of quality, safe and suitable for human consumption.

i. Process of Accreditation

Accreditation is achieved through visits to farms to evaluate farming practices so that these are in conformity with stipulated conditions imposed by standards, guidelines and regulations currently in place.

ii. Forms of Recognition

Farms conforming to the stipulated conditions will receive a certificate of official recognition**,** which allows the producer to affix seals of quality on their products destined for domestic and international markets.

iii. Scope of Evaluation

Three major aspects, covering different conditions of conformance, will be evaluated before a farm is accredited. Most of the conditions evaluated are similar to those listed under EUREPGAP Protocol for Fresh Fruits and Vegetables and the CODEX Code of Hygienic Practices for the Primary Production and Packaging of Fresh Fruits and Vegetables.

These are conditions relating to (a) the environmental setting of the farm, (b) farmer's adherence to GAP and (c) safety of the produce. Data and information required for the purpose of this evaluation are sourced from site investigations, farm records, field observations and through sampling of products for analysis.

Elements evaluated under SALM

Aspects	Elements Evaluated
1. Environmental Setting of Farm	• Legality of farm • Altitude above mean sea level (a biodiversity consideration) • Previous use or history of the land

(To be continued)

	• Soil type and suitability of the farm • Slope and terrain of farm • Soil erosion risk factor • Source and quality of irrigation water and farm use • Source and distances from pollution centers
2. Verification of Farm Practices	• Farm records of activities undertaken • Soil and substrate preparation and management (including soil fumigation, if any) • Selection of planting materials (variety, root stock, clones etc.) • Crop nutrition or fertilizer program • Crop pest management system (pesticides usage, IPM, etc.) • Harvesting techniques and field transport • Postharvest treatment, grading and packaging • Storage of farm inputs and products • Farm waste disposal system (empty pesticides containers and other non-degradable products) • Farm workers legal status, welfare and safety training of farm operatives
3. Safety of Farm Products	Physical and chemical analysis of ex-farm gate produce covering: • Physical quality of produce such as appearance, infestation from pests and taste • Levels of pesticide residues in the produce covering groups such as dithiocarbarmates, organo-chlorine, organo-phosphates and synthetic pyrethroids • Contamination of heavy metals such as arsenic, lead mercury and cadmium

The Major Must of Accreditation

The minimum standard of conditions that must be fulfilled before accreditation is given to the farm are as follows:

1. The farm is a legal entity.
2. The farm has a soil inspection report.
3. The soil and terrain is suitable for the intended crop.
4. The farm is situated at an elevation less than 1000 meters above sea level - exemption is given to those operated before 2002.
5. The farm practices sound soil conservation measures.
6. The farm maintains up-to-date records of activities (17 types).
7. Sewage or industrial sludge is not permitted for fertilization.
8. Genetically modified planting materials are not permitted.
9. The pesticides used are legally registered by the Pesticides Board.
10. The farm practices integrated pest management (IPM).
11. The farm posses a proper storage area for pesticides and fertilizers.
12. Farm workers use personal protective clothing when applying pesticides.
13. The farm possesses a proper waste disposal plan.
14. The farm practices good harvesting techniques, handling and transport.
15. The farm employs workers that are legal (with ages more than 16 years).
16. Pesticide residues in farm produce are less than the Maximum Residue Limits (MRL) of Schedule 16 of the Food Act 1983.
17. Contents of heavy metals below the permissible limits of Schedule 14 of the Food Act, 1983.

To date, 57 premises have been certified under MCS HACCP and 350 farms have been registered to participate in the SALM scheme but only 15 farms have been accredited and awarded the SALM certificate.

ISSUES

1. Participation in the food certification scheme, both the MCS HACCP and SALM in Malaysia is voluntary there is no legislative control, therefore the response from the operators and producers are quite slow.

2. The industry is still heavily dependent on the public sector in developing the food safety standard (both MCS HACCP and SALM). Participation of the private sector is very minimal, so the standard might not be transparent to the industry. Unlike EUREPGAP the documents/standards are developed by representatives from all stages of the food supply chain. The operation is transparent since the industry own the standard.

CONCLUSION

Malaysia has recognized the importance of establishing a safe food supply system. New regulatory requirements, standards and guidelines for harmonization of food safety and quality to compete in the increasingly more challenging global market are being developed. In order for the local systems to be internationally recognized, Malaysia has to become more aware of the development of new standards and regulations in other countries as well as play an active role in trade agreements and the development of international standards on food safety, as food safety has become one of the major issues in the international trade. Effort must be made to get the private sector to participate actively in developing and improving the food safety standards in Malaysia as to make it more transparent to the industry.

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10. MONGOLIA

Altangerel Khajidsuren
Member of Board of Directors
Mongolian Food Association
Ulanbataar

While implementing the open economic policy one of the main issues of the national safety of the country becomes the competitiveness and quality of food products, improving the safety and supplying domestic market with good quality food products.

Mongolian National Center for Standardization and Metrology (MNCSM) is a government regulatory agency responsible for coordinating and managing the MSTQ (which means metrology, standardization, testing and quality) sector throughout the country.

The main mission of the organization is to contribute to the social and economic development of Mongolia through the strategic tendency by applying standardization, quality and metrology. MNCSM acts in framing of the following laws:

- Standardization and Quality Certification
- Traceability of Measurement Uniformity
- Protection of Consumer Rights

The main functions of MNCSM are:

- Standardization;
- Certification;
- Establishment of national measurement standards;
- Legal metrology;
- Accreditation;
- State supervision on standardization, quality and metrology;
- Training and consulting; and
- International cooperation.

MNCSM is involved in standardization, quality confirmation and accreditation to provide safe food, protect environment and consumer rights, improve the quality and competitiveness of product and service, to ensure stable economic and social situation.

The technical policy of safe food includes food industry standardization, testing and analyzing of food quality assurance of products, authorization of experimental laboratories and confirmation organizations and controlling.

Since 1997 Mongolia has been a member of WTO. In the country a total of 508 standards are followed of which 196 have reached international level. MNCSM maintains close cooperation with concerned international, regional and foreign organizations. It is a full member of International Organization for Standardization (ISO), a corresponding member of International Organization for Legal Metrology, member of Asian Forum of Standardization of Information Technology, Inter-Regional Standardization Association, Asian ISO 14000 Information Network and MNCSM. It has close connections with KRISS (Korea research institute of Standards and Science), CSBTS (China State Bureau of Technical Supervision), TSE (Turkish standards Institute), GOSTSTANDARD Russia, etc.

In the recent past several foreign grant in aid projects were implemented at the MNCSM such as setting up of Food Bacteriological and Toxicological Laboratory, support to the Mongolian legal metrology, support in the field of Mongolian standardization, metrology and quality management.

MNCSM Standards Information Center provide services such as selling standards in electronic and paper-based forms, publishing standards and technical regulations and monthly journal “Standard and Metrology”. 600,000 standards and technical regulations from international and 16 foreign countries and PERINORM are available here.

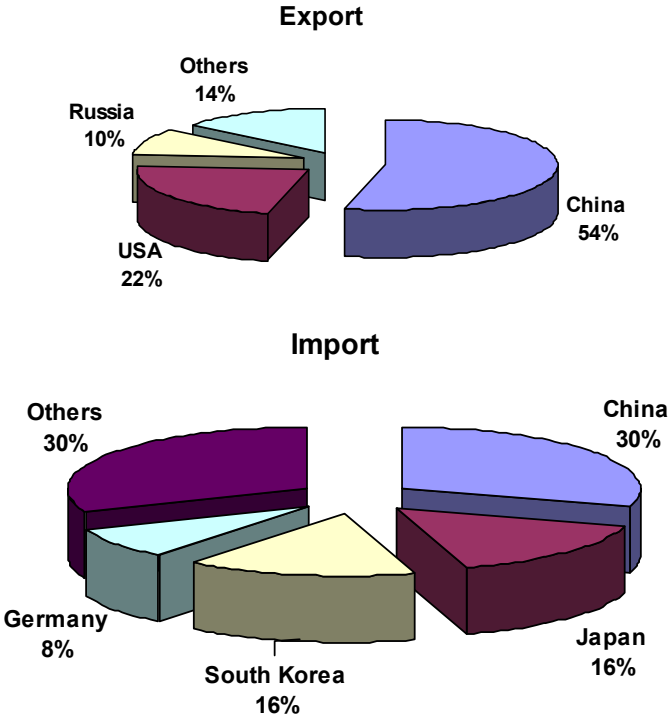
Standardization and Quality Certification Department is one of the four departments of MNCSM. The main objectives of this department are:

- To ensure occupational health and safety, environment protection and quality of life;
- To improve national economic capability, facilitate export grading-up reputation and competitiveness of domestic products; and

- To protect customers and promote trade on the basis of suppliers quality assurance and competence of product quality.

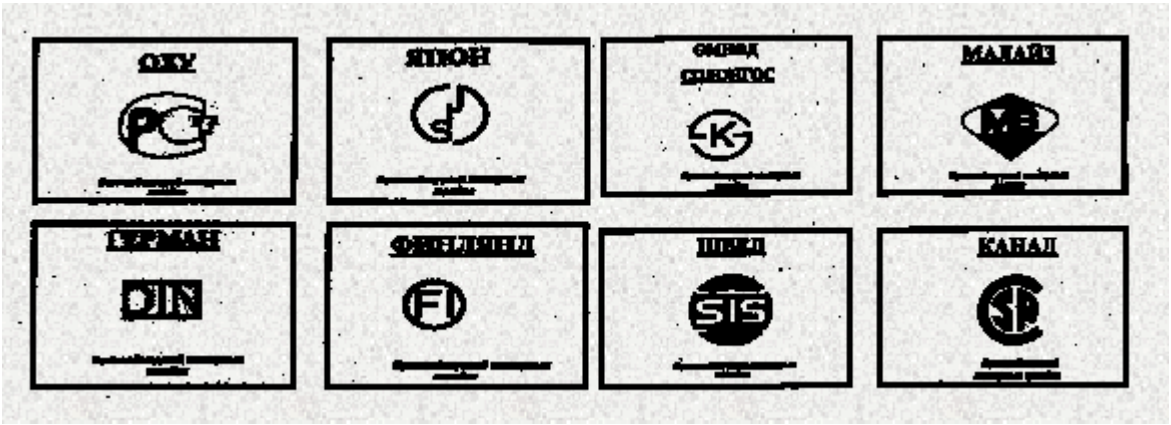
So the main activities that carried out to reach the objectives are product and service quality certification and management certification. Certificate of conformity, Conformity mark, Quality certificate, quality management and environmental management certificates are issued to the organizations, which fulfill the requirements.

Nowadays Mongolia is importing 70% of whole foodstuff, especially 80% of flour, which is one of the staple food items of Mongolians, like rice in East Asia. Mongolia also imports rice, sweets, oils, fruits and most of the vegetables. Details of imports and exports during the year 2001 are as follows:



To reduce technical difficulties in trade and commerce Mongolian government had issued Conformity Assessment Procedures and Technical Regulations. Also several agreements on product certification and quality were made with the countries such as China and Russia.

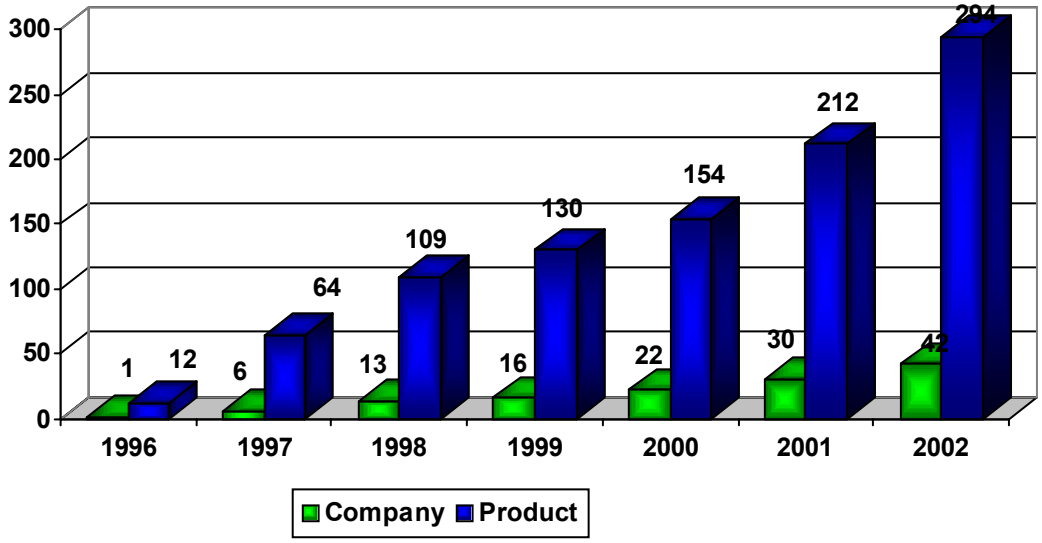
At present the product or service that meet the concerned standard or technical regulation use the following conformity marks.



The conformity assessment issues are becoming essential due to following reasons:

- More attention is paid to complexity and difficulties in trade and commerce.
- Increasing demand and necessity to distinguish correctly the roles and functions of conformity assessment operations such as audit, consulting etc.

- Much attention needs to be paid to negative outcome of the old product conformity assessment procedures.
- Provide support to technical specialists and experts who work on technical regulations and standards to develop appropriate conformity assessment procedures with minimum expenditure.
- By the year of 2001, 171 products of 28 companies were granted conformity marks. In the past decade growth of products with conformity mark have registered a remarkable increase.



The quality certificate is issued to products meant for exports. The quality management certificate is granted to only enterprise "Gobi" which implemented ISO 9000 standard. It is a leading manufacturer of cashmere goods in Mongolia. The national brands "APU" (beverage manufacturing), "UB Carpet", "Erdenet Carpet" (carpet manufacturing), "Erdenet" (copper mining), "Eermel" (textile) are in preparatory stage to meet the requirements of quality management certificate.

Quality and management certification system and conformity assessment procedures are relatively few especially from the food industry. It is becoming one of the big concerns in food production now and appropriate measures are required to control quality and safety of food, improve coordination between professional quality assurance organizations.

To enhance our Food Certification System we need:

At Government level:

- Organizational changes among the quality assurance organizations
- Provide conformity assurance for foodstuff require conformation on quality and safety before delivery into Mongolia
- Establish a system to improve the responsibilities of the media to provide free information to consumers on quality and safety of foodstuffs
- Improve interaction between customer, board and conformation agencies
- Make regulations on small traders

At organizational level:

- Implement Quality Management System within the organization
- Meet all standard requirements for product and services and provide all information

At consumer level:

- Demand high requirements and possess good l knowledge to become a smart and polite consumer
- Learn to make a correct choice from the market and distinguish genuine products

Besides MNCSM, Mongolian Food Association has taken lead in Food Certification Systems by performing the following roles:

- Actively participating in the work on formulating Government's action plan, its strategies and policies concerning the improvement of the food supply for the population of Mongolia
- A Law on Food which came into force in 1995 in Mongolia was actually drawn up by the Association's Presidium.
- Taking steps referring to the implementation of Law on Food in co-operation with the state and public organizations and exercising proper control and supervision over their performance

- Measures for providing consulting services on legal, economic and technological issues for those engaged in the food industry
- Measures for conducting training for qualified personnel together with the concerned state and public organizations in the food production sphere, improving their qualifications, professional knowledge and skills

Immediate tasks and action of the Association are as follows:

- Extending the scope and range of activities of the Association, formulate and outline policies regarding the protection of national and external markets of enterprises by providing assistance and support to the Government and the State thereupon
- Participate in the formulation and outlining of policies and laws for the improvement of food supply and ensure proper supervision over the measures taken to improve their performance
- Undertake to perform some of the functions of the state organizations such as concluding contracts and agreements thereupon
- Ensure opportunities by providing market-related information to the enterprises which are members of the Association
- Within the Association's framework assist affiliated unions to be specialized in the production of certain foodstuffs (industries to deal with the processing of meat, flour, sausages, bakery, drinks and fermented produce)
- Establish contacts with counterpart foreign establishments, become a member of concerned international organizations, participate actively in any kind of activities of international character to get more experience and expertise
- Initiate measures to ensure that adequate share of international assistance and credit granted be channeled for solving food quality and safety related issues in Mongolia
- Encourage food producers of any pattern of ownership to set up a database storing information about the latest technologies and packaging materials in the food industry
- Provide assistance to producers with the aid from international institutions through projects designed to meet the food demands of herdsmen and residents living in aimags, soums' centers and other settlements

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11. NEPAL

Sandhya Karmacharya
Chief, National Food Laboratory
Food/Feed Public Analyst
Dept. of Food Tech. & Quality Control
Ministry of Agriculture & Cooperative
Kathmandu

INTRODUCTION

Agriculture is the mainstay of national economy. It contributes 38% to GDP, 80% to employment and 17% to export earnings (MOA, 2002). Nepal with a per capita income of US$ 220 has a total population of 23.2 million with a growth rate of 2.27 and a family size of 5.38. Other indicators of development such as adult literacy rate (53.7%) and Life expectancy at birth (59 years) are also very low (CBS, 2002).

CURRENT STATUS OF FOOD CONTROL SYSTEM

The Food Act 1966 and Food Regulation 1970 is the basic legislative framework for ensuring safe food supplies to the consumers. Department of Food Technology and Quality Control (DFTQC) with its five regional food laboratories, under the Ministry of Agriculture and Cooperatives, is the recognized authority for food quality control activities, maintaining standards of food commodities in production, import and export. The major food control infrastructure comprises of inspection, laboratory facilities and enforcement. The DFTQC is assigned to conduct inspections and laboratory investigations and to provide analysis report as a quality certificate of the tested product to the concerned for legal action, import/export business licensing, or for other purposes as per demand of the request. Chief District Officers are responsible for implementing food legislation in the country. The Food Act 1966 and Food Rules 1970 give a clear mandate to ensure safety and quality of food to the consumers preventing adulteration of food stuffs with the undesirable elements or prohibit the change on any originality of the food and to maintain quality standard of food. The basic elements of the Food Act 1966 take account of the following:

- Defining food and adulterated foods
- Ban on production, sale, distribution of substandard, adulterated, and hazardous foods
- Misbranding or sale by false statements
- Detention of food products
- Provision for licensing (food establishments, stores, etc.)
- Provision for penalty
- Liabilities of the offence committed by firm and corporate body
- Provision of power to lay down standards and quality of food
- Analysis of food in the specified laboratory
- Food standardization board
- HMG as plaintiff (authority to hear cases)
- Authority to deal with offences
- Appeal - any person not satisfies with a decision may file an appeal within 35 days of the decision
- Power to make rules

The food rules cover different aspects of food hygiene, food additives, tolerance level of pesticides and mycotoxin, food labeling, inspection and method of sampling, licensing as well as food analysis. Food legislation has been enforced in the whole country. Food Act/Regulation has been enforced all over the country. Food Inspectors carry out inspection of food processing industries, entry points, warehouses, markets (wholesale/retail) and collect suspicious samples in duplicate. One part of the sample is sent to the Public-Analyst and other part to the Chief District Officer (CDO) for further verification if need arises. Public Analyst is the authorized analyst so far as the investigation of the sample under the Food Act is concerned. He/ She carries out the required analysis or test of proximate composition analysis or quality test, food additives test or contaminant test (microbial, pesticide residues, heavy metals, radioactivity or aflatoxin

or any toxicant test) as per need or as per request of food inspectors, and delivers the report to the concerned Food Inspectors. If the report does not conform with the standard, the Food Inspectors files a case against the owner of the sample in the office of CDO. If the concerned party is not satisfied with the decision, he may request the Director General of DFTQC through the CDO for re-analysis.

The Food Standardization Committee is responsible to recommend appropriate standards and to advise His majesty's Government (HMG) on all matters relating to food standards and other safety issues. The Committee is chaired by the Secretary, Ministry of Agriculture and Co-operatives with representatives from Ministry of Law and Justice and Parliament Affairs, Ministry of Industry, Commerce and Supply, Ministry of Health, Representatives of Consumer Associations nominated by Ministry of Industry, Commerce and Supply, Industrialist nominated by Federation of Nepalese Chambers of Commerce and Industry (FNCCI), Representative of Kathmandu Metropolitan Corporation and the Director General of DFTQC as the Member Secretary of the Board.

FOOD STANDARDS

With the approval of the Food Standardization Board and the notice published in the Nepal Gazette, 92 food articles commonly used in Nepal have minimum mandatory standards. This process is a continuous one and additional food articles will be added to the standardized food list in the coming days. There are two types of standards fixed namely; Generic standard applicable to different food commodities and horizontal standards embracing for contaminants, hygiene, additives and labeling, etc.; which applies across different food commodities. Now from the perspective of SPS, Horizontal standards are receiving much attention due to health consequences. Colors and preservatives have been restricted to certain users in foods with the maximum quality limit established. Hazardous additives have also been prohibited. Limits of pesticide residues are also fixed for cereal grains, pulses and mineral water. Safe aflatoxin limit is also prescribed for cereal grains, pulses and animal feed. The allowable limits of some microorganisms commonly found in unhygienically prepared food has been established. Like-wise, microorganisms, which cause disease when the food is consumed, have been prohibited. Radioactivity level is also fixed.

Harmonization of Food Standards

In the context of WTO, harmonization of National Food Standards with the Codex Guidelines is felt to be compulsory in developing countries for easy access to the international market. The limits on Food additives, food contaminants, food hygiene measures and food labeling are in the process of harmonization with the Codex.

Pesticide residue limits are important for enhancing export potential of Food products. Nepal has started pesticide residues monitoring program since 1980 but not at the national level. Therefore, export of Honey to Norway and orthodox tea to Europe is facing problems on the ground of Nepal's non-compliance with pesticide residues level.

Some of the parameters of Nepalese standard of Fats and oils, milk and milk products, have been amended in line with Codex Standards. Level of hazardous contaminants like pesticide residues, aflatoxin, heavy metal and microbial contamination and safe level of radioactivity is included in milk powder with the Codex Standard.

Code of Practice in the Dairy industries and implementation of GMP and HACCP have already been adapted for the improvement of quality of milk and to ensure the health of the consumers as provided by the Codex guidelines.

Amendment of Food Act / Regulation

Food Act and Regulation has been amended 3-4 times and again in the process of amendment for the harmonization as per Codex principles, guidelines and recommendations. Good Manufacturing Practices (GMP), Good Agricultural Practices (GAP), Good Veterinary Practices (GVP), Good Hygienic Practices (GHP) have been considered main for the amendment of Act/Regulation in food production, manufacturing, transportation, storing and handling to enhance quality and safety of food and food products and also with the target to enter into WTO. Main emphasis is on Horizontal Standards like food additives, food contaminants like pesticide residue level, mycotoxin, heavy metals, radioactivity level, Veterinary drug residues and microorganism contamination as per Codex guidelines and requirement of WTO/ TBT and SPS agreement for easy market access.

Food Sampling Monitoring Program of Food Quality for Domestic Consumers and Food Export/ Import

The Food Act 2023, and Food Regulation 2027 and subsequent amendments are the main source of the institutional mechanism for addressing issues on food safety and hygiene. Traders and manufactures have mandated DFTQC to carry out the function of food investigation, research activities, analytical and inspection evidence for all kinds of violation.

All together 25 inspectors are deputed to inspect the market, industry and import/export (consumers) points of the country. The regional laboratories cover the function of inspection in the region. The inspection system covers the entire country and then carries out day-to-day inspection; food analysis and other surveillance activities in coordination with the District Administrate Office. National Food Laboratory is the major laboratory for providing analytical services and work in the matter of analysis related to the food additives, contaminants and food microbiology. Altogether 14000 - 15000 samples per year are checked regularly for different purposes in national and Regional Food Laboratories, in which around 5000 samples are from market inspection under Food Act. Around 15 - 20% of samples are reported to be violating the act due to adulteration and contamination.

Food Certification System

DFTQC has the main role to provide food certification for the following:

a) Food Import/Export business
b) For Licensing to Industries
c) Report of Public Analyst as a quality certificate for enforcement of legal action
d) Quality certificate report for the samples of consumers, industries, farmers, media, and Government/ Non Government & private agencies
e) Lot / Batch certification

Food Certification System for Food Export/Import business

Food products imported to Nepal must conform to the minimum government standard as per the Food Rules/Regulations. Food samples are collected at the custom points and analyzed for their standard. On the basis of analysis report the Custom Agency permits the food product to enter the country. DFTQC keeps informed of the situation in other parts of the world that may affect the food, which is imported into Nepal. This is to prevent hazardous contaminated or adulterated food entering Nepal. Coordination of these activities with international agencies is important for the success of this program.

For import of food commodities some important documents like Invoice letter, Certificate of origin, Quality certificate related to imported commodity must be provided by the exporting agencies. The Food Inspectors or the Custom Authority verify its identity and the quality indicated in supplied documents, and withdraws a representative sample of the imported item for quality testing. If the test report confirms the item, quality and non-contamination with hazardous matters, then a quality certificate of the imported commodity is issued to the custom office for the clearance of the product. If the product is found to be sub-standard or contaminated with hazardous substance or does not comply with the minimum government standard, the product is detained.

The food labeling is strictly administered to all the food imports and the provisions such as name of the product, net contents and weight, name and address of the producer, country of origin, lot identification, ingredients used, manufacture date, expiry date or used before etc. must be declared in the label of the product as per Food Act/Rules of HMG of Nepal. Test report of radioactivity contamination issued by DFTQC is compulsory for the product imported from EEC countries to check the radioactivity contamination level. Maximum permissible prescribed limit of radioactivity food commodities is 300 Bq/Kg.

Food commodities exported to foreign countries are also assured for quality by providing quality certificate after sampling, factory inspection and laboratory analysis. Technical assistance is also provided upon request from the exporting parties.

Certificate for Licensing

The License for food factory establishment, manufacturing of food products, sale distribution and marketing is compulsory as per Food Act/Regulation. These licenses can be issued by DFTQC on the basis of satisfactory inspection report. For this, industry must file an application which provides DFTQC with the particulars of the food manufacturing process, the equipment and machinery to be used, the conditions under

which the food will be processed and the quality control of the food is made before it is sold. This scheme is reviewed by DFTQC. If changes are needed, the factory operators must agree with the changes. Licenses should be renewed annually at the beginning of the fiscal year. About 500 licenses were issued till now to small and medium scale Food Industries.

Report of the Public-Analyst for Legal Action

Public-Analyst appointed by HMG in DFTQC is an authorized government analyst; the report provided by her or him with remarks is the main basis for legal action taken by enforcement authorities as a quality certificate.

Quality Certificate of Food Products

DFTQC also provides analytical services for food beverage, mineral water, animal feed as per request from consumers, industries, farmers, media and other Government / Non Government private agencies. Analysis report is considered as the quality certificate issued by an authorized organization as for any legal action or against complaints.

Lot / Batch Certification

Lot/Batch certification report is also provided by DFTQC on the basis of inspection, sampling and analysis report of the factories as a quality certificate of their products, batch wise or lot wise.

Nepal Quality Certification Mark or NS Mark

Nepal Quality Certification Mark or NS mark on any product (food and non-food) is the indication of Third party guarantee being provided by Nepal Bureau of Standards and Metrology (NBSM) under the Ministry of Industry, Commerce and Supply for the quality of that product. The Act provides mandatory standard (purity standard) with over riding concern for safety. The Nepal Quality Standard Act 1980 is a voluntary standard and these standards are made taking into account of the minimum mandatory standards of the Food Act, as the benchmark so far as the food products are concerned.

With the NS mark, consumers are assured of the quality of the product and the manufacturers are more confident of their production process. It is a win-win situation for both sides.

The scheme is voluntary, when a request for obtaining the mark is made by any manufacturer, the inspection and testing are done for exercising strict quality control and vigilance at all stages during production. In case of noncompliance the license shall be withheld or suspended or cancelled depending upon the nature of non-conformance.

Some of the food industries such as Biscuits, vegetable oils and fats, noodles, mineral water, alcoholic beverage (beer) are already assigned with NS mark and their performance towards the maintenance of quality is good. In this way NS mark as food certification mark imparts satisfaction and protects consumers from sub-standard products.

Other Legislations Specific to Different Aspects of Food Control/Certification

In addition to the Food Act/Regulation and Nepal Quality Certification Mark, the following legislations are also in action which are directly/indirectly related to controlling the quality of consumables.

- Plant Protection Act 1975/Regulation 1977
- Meat Inspection Act 1997 / Regulation 2001
- Feed Act 1976/ Regulation 1985
- Municipality Act 1991
- The Consumer Protection Act 1998/Regulation 2000
- The Black Market Control Act 1975
- The Iodized Salt Act 1998/Regulation 2002
- Pesticide Act 1995 / Regulation 1998
- Drug Act 1979

ISSUES AND PROBLEMS

The problem of adulteration and contamination has become much more challenging and complex due to increase in socio-economic activities, small-scale and unorganized food production establishments, and importation of sub-standard quality items from the open border with neighboring countries. Although

the government is committed for ensuring the quality and safety of the food products throughout the country, the efforts are falling short. Some of the problems faced at present are as follows:

- Inadequate human resource development in Food Quality Control, as well as equipment and physical facilities
- Inadequate number of Food Inspectors to cover all parts of the country
- Laboratories not well equipped with required modern and sophisticated equipments and facilities to carry out all the necessary tests for risk factors such as microbiological safety, food contaminants and some emerging risks like BSE, Dioxin and PCBS
- Inadequate number of trained and experienced analysts
- Inadequate training for food control officials to carry out specialized tasks
- Inadequate consumer education and consumer protection and awareness programs about food hygiene and sanitary measures and contaminants
- Poverty
- Open border system with neighboring country
- Inadequate coordination among industry, traders and government
- Uncontrolled use of food additives, pesticides and fertilizers
- Ignorance about aflatoxin contamination in food commodities
- Inadequate research and development
- Lack of repair and maintenance facilities for sophisticated laboratory equipments
- Increased consumption of processed foods as a result of changes in life style

GOVERNMENT'S EFFORTS (POLICY MEASURES) TO IMPROVE THE NATIONAL FCS

Nepal faces a great challenge of food adulteration and contamination, emanating from primary products, processing, distribution, marketing and preparation that has impact on safety and quality, including nutrient contents. Also the environmental or industrial chemicals are entering into food chain during production and processing. HMG has been committed to provide safe food supply to the consumers by strengthening food safety infrastructure. Monitoring of quality and safety has become more imperative both in the domestic and export market supplies. Quality of the imported foodstuffs will be routinely monitored before it is sold in the domestic market. Nepal has given priority to food safety and quality control with the following objectives:

- To safeguard the rights and well being of the consumers by effective implementation of the Food Act 2023 thus retaining the quality standards of the food articles during production, processing, consumption and export/import.
- To provide laboratory services for the food quality control, import / export and improvement of the industrial skills.
- To strengthen the management in the supply of quality feed by implementing the Feed Act in the context of liberalized food trade and enter into WTO and meet SPS Agreement.
- To strengthen the whole food control infrastructure along with the process of harmonization of food laws and regulations as per the Codex principles, guidelines and recommendations and SPS agreement.
- To introduce good practices in food production, manufacturing, transportation, storing and handling.
- To enhance the human resources related to food quality control by according top most priority to develop skilled, qualified and experienced inspectors and analysts.
- To strengthen the existing laboratory to increase more capabilities of risk analysis like food additives, chemical contaminants like pesticide residues, fertilizer residues, mycotoxin contaminations, plant toxins, heavy metal contamination, veterinary drug, antibiotic and hormones residues in animal based food item and harmful pathogenic microbial contaminations, BSE, dioxin and PCBS.
- To improve labeling requirement in food standards.
- To accredit the laboratories with international systems.
- To participate in national and international Quality Assurance Programs.
- To shift food standards from vertical (generic standards such as food commodities standards to the horizontal standards such as food contaminants and food additives, etc. for ensuring safety to the consumers as per SPS requirements for the easy assess in the international trade.
- To strengthen the capacities of risk assessment of food by introducing it in health, agriculture and education systems.

- To enhance consumer education, protection and awareness program effectively.
- To provide technical input and advice to small food industries to improve their quality assurance systems.
- To establish networking system to share the experience inside the country as well as among the SAARC countries.

CASE STUDIES REGARDING IMPLEMENTATION OF HACCP, GMP IN DAIRY PLANTS

Implementation of GMP is felt as an urgent need to most of the commodities prone to contamination with health hazardous microbes like milk, meat, fish etc., but milk as an essential commodity for daily life for every age group, and milk samples were found to be very much contaminated with coliform, priority was given to modernize dairy plants for the implementation of GMP/HACCP.

Case studies regarding GMP through HACCP on different dairies have already been completed. During studies all the dairies were regularly monitored through periodical inspection and regular sample analysis. Inspection included strict examination of all procedures beginning from the milk receipt, storage of raw materials, processing, cooling, filling, cleaning methods by individual industries and storage of end products. Particular attention was paid on the Critical Control Points in the processing. Samples were drawn from the process line as well as from the market to evaluate the quality of the milk. Post pasteurization contamination was found to be the most predominating factor that influence the quality of milk. A need for Good hygienic conditions, and cleaning of the plant was felt. Labeling defect according to Food Act / Regulation and documentation were found to be improved. To improve the quality of pasteurized milk guidelines for GMP for dairy plants have already been published by DFTQC, and implemented.

After implementation of GMP, coliform contamination in milk samples of Government Dairy plant was found to be very much controlled and other dairies are also paying much attention to follow GMP as much as possible to control contamination.

The general modality of GMP / HACCP implementation is based on gradual process of creating awareness of food safety among the stake holders at the first step followed by enforcement of major critical control points at the second step and the total implementation of GMP./HACCP at the third step.

SUGGESTIONS TO ENHANCE NATIONAL FCS FOR BETTER MARKETING

- The food control infrastructure to be strengthened along with harmonization of food laws and regulation as per Codex principles guidelines recommendations and SPS agreement and preventative approach of food safety management.
- To accredit the laboratory with international systems and participate in national and international programs.
- Good practices in food production; manufacturing, transportation, storing and handling should be embodied in food legislation for implementation to enhance quality and safety of food and food products.
- A preventive approach to food safety to be adapted to reduce risk of food contamination by addressing problem at source.
- Top priority should be accorded for enhancement of human resources related to food quality control in addition to skilled, qualified, and experienced inspectors, and analysts.
- To modernize existing laboratories to increase capability of risk analysis like food additives, chemical contaminants like pesticide residues, mycotoxin analysis, other plant toxins, heavy metals, veterinary drugs residues, and pathogenic microbial agents, BSE, dioxin and PCBS.
- Improvement is also necessary in food labeling, methods of analysis and sampling, meat hygiene, food import/export inspection, certification systems and nutrition and foods for special dietary uses.
- The SPS agreement focused on risk analysis, as the key elements in making food safety decision in international food trade should be followed, as this is the lifeline for assuring safety and consumer protection.
- Food standards to be shifted from vertical (generic) standards such as food commodity standards to the horizontal standards such as food contaminants, and food additives, etc. for ensuring safety to the consumers.
- Enhancement of consumer education, protection, and awareness programs.

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APPENDIX-1

Composition of Large-Scale Food and Beverage Industries in Nepal

S.N.	Industry/ Product	No. of units	No. of persons engaged
1.	Dairy	32	2,535
2.	Canning/ Preservation (Fruits and Vegetables)	9	279
3.	Oils and fats	52	1,922
4.	Grain mill products	261	5,839
5.	Bakery products	106	3,148
6.	Sugar	30	6,239
7.	Confectionery	28	540
8.	Food products	61	1,401
9.	Animal feed	27	780
10.	Spirits	31	1,138
11.	Wine	9	120
12.	Beer	4	891
13.	Soft drinks	3	616
	Total	656	25,441

Composition of Small Scale Food and Beverage Manufacturing Establishment

S.N.	Industry/Product	No. of units	No. of persons engaged
1.	Dairy	557	1,609
2.	Oils and fats	720	2,512
3.	Grain mill products	14,278	36,302
4.	Bakery products	579	2,608
5.	Sugar	876	3,428
6.	Confectionary	76	362
7.	Food products	570	2,302
8.	Animal feeds	27	156
9.	Wine	241	1,204
10.	Soft Drinks	7	35
	Total	17,167	50,515

12. PAKISTAN

Dr. Faqir Muhammad Anjum
Director
Institute of Food Science & Technology
University of Agriculture
Faisalabad

INTRODUCTION

Despite experiencing phenomenal industrial development, Pakistan is still a predominantly agrarian economy. Agriculture still accounts for 29.2 per cent of the GNP, and is the largest single sector of the national economy. Pakistan supports a population of 140 million in a geographical area of 804,000 sq. kilometers. Twenty-four per cent of Pakistan's total area is under cultivation, 3 percent is under forest and rangeland and 14 percent is classified as culturable waste.

CURRENT STATUS OF FOOD CERTIFICATION SYSTEM

Myriad of food products produced by large number of manufacturing companies have brought diversity of products for consumers. This scenario also initiated a challenge to bring forth quality, certified and safe products to the consumers. Pakistan had adopted the quality certification in 1990 when a multi-national electrical giant became the first company to acquire the quality certificate. At National level there are two organizations dealing with food certification. Pakistan Standards and Quality Control Authority (PSQCA) was established in 1999. The Standards Development Centre (SDC) of the PSQCA (previously called Pakistan Standards Institution, PSI) has established about 15000 standards for different items including food items. Pakistan National Accreditation Council (PNAC) is a national body assigned to assess, qualify and supervise certification agencies, laboratories, providing training and personnel in the relevant fields.

The ISO-9002 and ISO-14000 certificates are considered as safest tools to recognize the local products on global standards besides complying with the requirement of quality conscious foreign buyers. Pakistan has made a remarkable improvement in this field. Local exporters and manufacturers have geared up efforts to obtain ISO-9000-ISO-14000 certificates, raising the number to 1,450 units. Government of Pakistan has announced a subsidy of PKR. 200,000 for each unit as an incentive for certification. Currently, 13-14 international bodies are operating in private sector, providing quality and environment certificates to local companies. In food and beverage sector only 63 units have obtained ISO 9002 certification.

At provincial level food standards are adopted from Pure Food Rules 1965. According to rule 35 of pure food rule 1965, public analysts are appointed. Public Analyst Institution works under pure food rules 1965 and under the standards of the PSI (now SDC). For items not covered by these, WHO standards/ guidelines are followed. There is a three-tier system comprising of:

a) Sample collection by food inspectors,
b) Analysis by laboratory, and
c) Prosecutions by courts.

A food inspector is a key person in regulation of pure food rule 1965. According to rules he has to perform the duties for the collection of samples as provided in the rules.

ROLE OF FOOD CERTIFICATION AUTHORITIES

Food Quality Systems Operating in Pakistan

The safety of the food products must be considered the top priority. The new quality tools not only ensure the product safety only but they are the essential components of the regulation of food products through an effective management systems like ISO-9000, Food Safety Management system HACCP (Hazard Analysis and Critical Control Point), Total Quality Management System (TQM) and supplying the consumer manufactured goods processed through safe working environment (ISO-14000). Pakistan on its way

to International Agreements, WTO, is focusing on the implementation of the quality management as well as the product safety systems to provide the consumer a healthy, wholesome product at its best.

The PSI (now SDC) establishes standards for quality control, industrial materials and dimensions of engineering in Pakistan. Food standards follow the Codex Alimentarius Commission/FAO standards, but standards are only enforced for biscuits, edible oil and ghee. Manufacturers may obtain certification from the PSI (now SDC) indicating compliance with these standards. In 1997, the PSI (now SDC) formulated Pakistan Standard PS-3951, which describes standards for product packaging, foodstuff and perishables. All basic raw materials used, however, must be food-grade materials. Food packaging material manufacturers in the country use internationally acceptable standards, including those of Japan, Germany and the United States. The types of standards used often depend on the country of origin of the machinery used to manufacture the packaging materials. They are sometimes modified to suit customer requirements.

Role of PSQCA

The PSQCA started operations in September 2000 in Karachi. It has 3 components:

a. Pakistan Standards Institution, PSI (now Standards Development Centre, SDC);
b. Central Testing Laboratory, CTL (now Quality Control Centre, QCC); and
c. Metal Industries and Research and Development Centre, MIRDC (now Technical Service Centre, TSC).

Objectives of PSQCA

a. Provision of one window services for standardization and quality control operations
b. Setting up standards on quality and promotion of general adoption of Pakistan standards specifications of operation of certification of marked system and to provide assistance in the manufacture of quality products
c. Testing and assessment of industrial raw material and finished products to establish their quality, grade and composition with reference to national and international standards specification of quality in various fields like chemicals, textiles, food items, building materials, etc., it also provides consultancy services to industrial units with regard to the improvement of quality of products.

Efforts of PSQCA for Improving Country Food Certification System

a. Establishment of 4638 standards for various food and other commodities.
b. Central Testing Laboratory, CTL (now QCC) working under the umbrella of PSQCA has tested 44000 samples of different natures.

Role of PNAC in Food Certification System

The PNAC has been established as an autonomous body under the administrative control of the Ministry of Science & Technology to regulate the Accreditation and Registration System in the country. The PNAC is seeking membership of the International Accreditation Forum (IAF) and International Laboratory Accreditation Council (ILAC) and would act as focal point for co-ordination with relevant international, regional and national organizations. This will ensure that all ISO certification in Pakistan will have international recognition and thus save cost and time spent by local companies on testing and inspection by the buyers. "Crash Awareness Raising & Training Programme in the field of Quality" has been launched. Under this program, more than 500 seminars and courses will be held throughout the country in the coming 2 years. So far, around 100 seminars and courses, have been organized on different topics like ISO 9000, ISO 14000, SA 8000, ISO 17025 and other certification systems.

Food Marketing System in Pakistan

The main food marketing organizations in the public sector are Directorate General of Food (DGF), Pakistan Agricultural Supply and Storage Corporation (PASSCO) and Trading Corporation of Pakistan (TCP), which handle specific foodstuff and its marketing strategy. Every province in Pakistan has a directorate, which is responsible for carrying out survey, collecting price statistics and enforcing market laws, rules and regulations according to the Agricultural Produce (Markets) Act. The Act has established regulation of 120 wholesale markets in Punjab, 64 in Sindh and one in NWFP. Balochistan is developing its first regulated wholesale market. The purpose of regulation is to curb illegal practices and reduce costs to farmers.

The potential of Pakistan's agriculture is much more than its existing status but the marketing inefficiencies like lack of quality market intelligence, insufficient infrastructure, exaggerated role of middlemen, adulteration, hoarding and profiteering, excessive rates of various services, collusion amongst traders to suppress prices, and mismanagement of input and output markets are some of the main constraints on

development of agriculture. Meager marketable surpluses of small farmers together with their weak financial position make it difficult for them to withhold the produce for better prices, while the remoteness from the organized markets generally influences farmer's decision to sell locally at comparatively low prices. Typical problems faced by the small farmers in Pakistan in dealing with the marketing of their comparatively small quantities of produce relate to production orientation, small marketable surplus, inefficient produce preparation, ineffective rural assembly markets, credit availability, lack of group action and lack of vertical coordination of marketing channels.

However, the Government is anxious to improve the marketing conditions of agricultural produce, particularly of fruits and vegetables, financially assisted by the Asian Development Bank (ADB). In-service marketing training in developed countries should be fully taken advantage of by the federal government. The fellowships, scholarships, travel grants etc. offered by various donor countries under various programs such as Colombo plan, Common Wealth, US Aid etc. are adequately availed of under various marketing development projects. Government also makes its own arrangements for overseas training.

ISSUES AND PROBLEMS IN IMPLEMENTATION OF FOOD CERTIFICATION SYSTEMS

Countries like Pakistan has to change their strategies to combat such situation on emergent grounds and revolutionize its agriculture, food industry, food quality control, food laws and regulatory agencies, in order that every person could have an easy access to wholesome, safe and nutritionally acceptable food. It is the need of the hour that food certification system should be mandatory for all food items to enhance quality and ensure safer food supply to the consumer through an effective marketing approach.

Status of Food Safety in Pakistan

- According to a study of National Institute of Health, Islamabad (NIH 1984), particularly all foods analyzed were found contaminated with pesticide residues (organochlorine and organophosphorus compounds).
- Unauthorized food additives are employed by traders and small scale processors like non food grade colors in the production of confectionery resulting in harm to consumer particularly children. Food processing equipments made from aluminum, copper, and iron ore can contaminate food with metal (Awan 1999, 1983 & 1979).
- In Pakistan there is hardly any sewage treatment plant in public sector, while some industries have set up their own plants. These effluents are dumped directly into streams, storm water channels and rivers contaminating the water, causing damage to aquatic life and polluting ground water (Anjum and others 2000).
- Clean and safe potable water is unavailable as 20% urban and 47% rural population is deprived of access to clean water (GOP 2001).
- Carcinogenic effects of excessive heating of fats in production of fried products is more pronounced in preparation of local dishes like Pakora, Samosa, Puri, etc. (Awan 2001).
- NIH studied on samples of cereal, grains, condiments and sweetening agents and found 6 percent contamination of aflatoxins.
- Toxicity of packaging material is also creating health hazard problems in Pakistan as it contains toxic chemicals. Recycled packaging material is also a potential contaminant. In Pakistan used fertilizer bags are employed for packing of pulses, sugar and other foods (Awan 1999).

CONSTRAINTS

1. National and provincial food regulatory systems are weak.
2. The responsibilities of the government and food industry to ensure safe and wholesome food are not clearly demarcated.
3. Inadequate food control infrastructure for ensuring quality control
4. Lack of harmonization of food regulations in the country
5. Paucity of food professionals in the public and private sectors
6. Lack of interest by food authorities
7. Lack of awareness among the consumers
8. Unavailability of high tech laboratories
9. Shortage of staff, equipments and laboratories
10. Poor knowledge of food inspectors working in the fields

11. Acute shortage of experts and qualified resource personals in the area of food certification
12 Lack of coordination between different organizations

Governments Efforts in Improving the Food Control Systems in Pakistan

Increasing customer awareness of the significance of food quality and safety has created a dire need in developing countries to improve their food quality, safety and certification approach. Pakistan, foreseeing this scenario established an ISO 9000 Cell, staffed with an expert, within the headquarters of Export Promotion Bureau, established in technical collaboration with Quest Technologies, to disseminate the required information to Pakistani exporters. The activities include publication of useful How-to booklets, standards, directory of organizations certified with ISO 9000 Quality Management System and campaign through mass media.

FUTURE VISION FOR ENHANCING THE FOOD CERTIFICATION SYSTEMS

The importance and benefits of economic liberalization cannot be contested for the developing economies like Pakistan. However, focusing exclusively on one area while neglecting other aspects of human and social development can be very dangerous. As research has proven that it is social and human development that makes a strong basis for sustainable economic development. This is where Pakistan needs to pay attention. Trade liberalization under the WTO regime is Pakistan's obligation, but at the same time it should be complied to in a manner with least implications for the social sectors of the economy. For the Doha Round of trade negotiations, it is suggested that any future binding commitments by the Government of Pakistan must be made in consultation with the relevant industry and business sectors. Pakistan should not liberalize more than what is required. Any move towards liberalization should be carefully measured in terms of its prospective costs and benefits.

These include Good Manufacturing Practices, Certification of Fruits in the areas where they grow abundantly like Faisalabad, Multan, Sargodha, and Northern areas of Pakistan, for industry-specific ISO 9000 implementation courses and an International Quality Conference on Quality Control, HACCP introduction training and certification among the exporters. These programs are in addition to numerous other technical quality, product specific and human resources institutes that EPB has instituted or assisted in establishing in collaboration with various trade and export sector organizations. Export Promotion Bureau is also gearing itself for the promotion of the Environmental Standard (ISO 14000) as well as labor standard (SA 8000) among the Pakistani exporters.

EPB aims to become the pioneering organization in Pakistan when it comes to assisting local enterprises in expanding their horizons and would continue to make available its resources and facilitate their success in the global markets.

FOOD CERTIFICATION IN THE CONTEXT OF INTERNATIONAL TRADE LIBERALIZATION

Pakistan generally follows Codex rules and guidelines regarding the importation of bulk food items as well as food ingredients. Pakistan controls certain imports through a "negative list." The negative list is comprised of :

- items banned for religious, security or luxury consumption reasons;
- capital and consumer goods banned to protect the domestic industry; and
- intermediate goods used to produce protected goods.

Pakistan also maintains a "restricted list" of items that may be imported only by certain parties (i.e., the government or other specified users) or under certain arrangements (such as imports against credit). Since Pakistani consumers have more confidence in the quality of foods imported in the manufacturers own packaging, most foods are imported in consumer-ready packs. Refined vegetable is the one major exception: it is generally imported in bulk and re-packed locally.

Pakistan is a member of the World Trade organization and is also a party to two agreements seeking to promote regional trade liberalization. The first is the Economic Cooperation Organization (ECO), whose members include Pakistan, Turkey and Iran among others. The second is the South Asian Association for Regional Cooperation (SAARC), whose major members are India, Pakistan, Bangladesh, Bhutan, Maldives, Sri Lanka and Nepal.

Pakistan's economic liberalization of the 1990s was not done under the WTO obligations, but largely as a part of the Structural Adjustment Programme of the IMF. However, the way liberalization was carried out could not lead to a successful outcome. There are concerns that Pakistan will continue to face serious challenges for its socio-economic development in the future, as it moves towards integrating WTO laws into its economy.

Product and Environmental Standards

Product standards under Technical Barriers to Trade (TBT) and Sanitary and Phytosanitary measures (SPS) are also a source of concern for developing countries, which lack the capacity to meet the increasingly complex health and technical standards. TBT relates to all products and measures, while the SPS covers sanitary standards for food and phytosanitary standards for animals and plants. In maintaining these standards, both fixed (product redesign and administrative system) and variable costs (of maintaining quality control, testing certification and conformity assessments) are involved. In addition, revision to standards can have important implications for exporters. For example, World Bank estimates that EU's new standards for level of *aflatoxin* can reduce African exports of cereals, dried fruits and nuts to Europe by 64%. Pakistan, along with Malaysia, India and Thailand lost the famous 'Shrimp Turtle case' when the WTO Panel upheld the US prohibition of shrimp turtle imports from these countries on the basis of environmental standards, as conforming to the WTO laws. Hence, for Pakistan, it will remain a distant dream to benefit from these standards, unless the required technical and scientific expertise is developed within the country. Pakistan requires technical and scientific expertise to use and benefit from those measures and protect its domestic market.

Domestic Implementation Issues

Domestically, the implementation of the WTO agreements goes far beyond trade-related policy, especially when it comes to the supporting legal and regulatory environment. This is where the cost of implementation matters. Pakistan's trade and investment regime is fairly liberal. The average import tariffs declined to just over 20% in 2001-02, which is less than half its levels during the mid-1990s. Under its 1997 foreign investment policy, Pakistan has fully opened most sectors of its economy to foreign direct investment (FDI), thus allowing 100% foreign ownership except for certain activities that are subject to specific conditions. From November 1997, Pakistan has provided national treatment to foreign companies under its WTO obligations with respect to incentives such as duty and tax exemptions and other import concessions.

In case of Pakistan, foreign direct investment (FDI) has been very low, despite liberal economic policies pursued by various governments. The level of FDI is specifically very low in the agriculture sector as compared to other sectors of the economy and is concentrated mostly in oil and gas and power sectors. There are many factors contributing towards the creation of an environment that is not conducive for attracting higher FDI in Pakistan. These factors include: weak property rights, lack of continuity in policies and lack of credibility of various governments in honoring international agreements and, above all, weak politico-security situation within the country and in its relations with India.

Strong IPRs are considered as one of the incentives for FDI and technology transfer. But stronger IPRs in developing countries may not necessarily decrease the technology gap between North and South. Once a product is patented and multinationals are getting royalties they might not be interested in investing overseas under uncertain political and security environment for example, as in Pakistan.

Import Trade Regime

Pakistan, being a developing country, is pursuing policies directed towards rapid economic development of the country. Accordingly, emphasis on Import Trade Regime has been on stimulation and acceleration of industrial development with special emphasis on export oriented, and high tech industrialization as well as modernization of agriculture sector for creating employment opportunities with the ultimate objective of achieving higher standard of living for the people of Pakistan.

The Import Trade Regime of Pakistan therefore aims at:

i. Un-interrupted supply of adequate raw materials to the industries;
ii. Facilitating liberal import of machinery for industrial development;
iii. Availability of essential commodities for the general consumers;
iv. Providing a measure of competition to the informal channel;
v. Facilitating inflow of latest technology into the country; and
vi. Increasing efficiency of the domestic industry by gradually exposing it to the international competition.

SUGGESTIONS TO ENHANCE FOOD CERTIFICATION SYSTEM FOR BETTER MARKETING

1. Revision of the existing food legislation (Pure Food Rules, 1965) with a view to harmonize with FAO/ WHO Codex Alimentarius Commission standards/guidelines.
2. Improve inspections and expand preventive food safety measures such as HACCP in food industries and establish a national education campaign that will improve food safety and security situation.
3. Strengthening the surveillance system at national, provincial and local and district government levels.
4. National food Safety commission, as a coordinating agency at Federal level, may be constituted with the following tasks:
   a. Coordinate all food safety activities, legislation and quality control, both at national and international levels
   b. Help the provinces technically and financially to ensure supply of safe and wholesome food to the consumer
   c. Act as an advisory body
5. The existing Public Analyst Laboratories should be increased in number and strengthened in terms of technical manpower (Food Technologists) and equipment.
6. Food Analysis Laboratories may be strengthened at national and provincial levels for speedy and quality analysis of the submitted food samples. Qualified professionals in relevant disciplines may handle these laboratories. This will result in effective monitoring of the food safety system.
7. As a short-term strategy, a comprehensive and integrated training program should be started for necessary skill based training to the personnel already working on food safety and certification in each province.
8. The international UN agencies and in particular WHO, FAO, ILO, WFP and UNICEF and the bilateral organizations have to provide the necessary technical support to ensure the development of relevant food safety policies and strategies and improve the performance of national institutions assigned to these responsibilities.
9. A strong infrastructure is needed for ensuring efficient marketing.
10. Market intelligence is needed by the Government traders, trading organizations, producers, consumers and researchers to play an important role in the formulation of plans and policies by the Government.
11. In the age of information technology, there is a need to interconnect all our wholesale markets at the national and international levels by setting up computerized market information network.

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13. PHILIPPINES (1)

Alberto R. Cariso, Jr.
Acting Assistant Director
Food Development Center
National Food Authority
Manila

INTRODUCTION

Coverage and Objective

The objective of this paper is to provide information on the Philippine food certification system to APO member countries and others who may have interest in its use for better marketing and assuring the safety and quality of food products being distributed in and out of the country. The paper include:

- Current status of the food certification system in the Philippines;
- Contribution of the food certification system to food quality and safety for domestic consumers and food exports/imports;
- Issues and problems in the implementation of the food certification system;
- Government's efforts to improve the national food certification system; and
- Suggestions to enhance the Philippine food certification system further for better marketing.

What is the Food Certification System as Defined by CODEX

CODEX defines certification as "the procedure by which official certification bodies or officially recognized certification bodies provide written or equivalent assurance that foods or food control systems conform to requirements".

"Certification of food may be, as appropriate, based on a range of inspection activities which may include continuous on-line inspection, auditing of quality assurance systems, and examination of finished products".

"Inspection is the examination of food or systems for control of food, raw materials processing, and distribution including in-process and finished product testing, in order to verify that they conform to requirements".

"Requirements are the criteria set down by the competent authorities relating to trade in foodstuffs covering the protection of public health, the protection of consumers and conditions of fair trading."

CURRENT STATUS OF THE FOOD CERTIFICATION SYSTEM

Types of Food Certification System

There are two types of food certification system being implemented by the government. The first type is the provision of food certification systems to comply with the requirements of export markets. This includes the following:

a) The Bureau of Fisheries and Aquatic Resources (BFAR) of the Department of Agriculture, certification of food plants and fishing vessels to comply with the requirements of the European Union (EU) for seafood products exported to EU.
b) The United States (US) Seafood HACCP Certification Program being implemented by a Joint Management Committee for the Harmonization of Certification and Accreditation Programs in Government (or the JMC), created by the Export Development Council of the Department of Trade and Industry. The program was established to help industry complies with requirements of the US Seafood HACCP Regulations.

The second type is the provision of food certification system as a government strategy to promote food quality and safety for domestic consumers and food exports on a voluntary basis. The system is also being implemented by the JMC. The JMC was created in response to a Presidential Directive dated May 27, 1997 to harmonize certification and accreditation programs in government.

The JMC is composed of the following government agencies:

- The Bureau of Food and Drugs (BFAD) of the Department of Health,

- The Bureau of Fisheries and Aquatic Resources (BFAR) of the Department of Agriculture,
- The Food Development Center (FDC) of the National Food Authority of the Department of Agriculture, and
- The Bureau of Export Trade Promotion (BETP) of the Department of Trade and Industry who serves as its secretariat and source of funding support.

Status of BFAR Seafood HACCP Certification System

Presently, there are a total of fifty- seven (57) seafood plants certified by BFAR complying with the EU requirements.

Status of JMC Food Certification System

Between 1998 and 2003, a total of one hundred seven (107) food plants applied for certification. Thirty-seven (37) plants have been certified for the implementation of Good Manufacturing Practices (GMP) and twenty-two (22) products have been certified for the implementation of Hazard Analysis Critical Control Point (HACCP) during manufacture.

Procedure for the JMC Food Certification

a) Review of Document: (5 days)

Food industry requesting for food certification shall submit the following documents which shall be reviewed by technical staff with specialized knowledge and training on HACCP and the particular product-specific process:

- The BFA License to Operate (LTO)
- The Sanitation Standard Operating Procedure (SSOP) or other documented procedures for the implementation of GMP
- The HACCP Plan

b) Announced Inspection for GMP and HACCP Implementation: (3 days)

If the documents are adequate a plant inspection, shall be conducted by an inspector, to confirm the adequacy of implementation of the SSOP/GMP and HACCP Plan as documented.

c) Unannounced Inspection: (3 days)

If plant passed the announced inspection, an unannounced inspection shall be conducted within two months after the announced inspection. This is to validate the findings found during the announced inspection.

d) In-process and End Product Testing: (14 days)

This is a verification of compliance through product quality test and in-process testing of finished products, raw materials, and a plant hygiene check, as deemed necessary.

e) Certificate of Compliance: (10 days after last inspection)

Plants and products that meet requirements for certification are recommended by the JMC for awarding of the certificates by the Export Development Council.

Criteria for the JMC Food Certification

Government will issue certificates under the following conditions:

- Plant where the product is processed meets local and international requirements for Good Manufacturing Practices.
- Plant has documented procedures for support programs such as Good Manufacturing Practices (GMP) and/or Sanitation Standard Operating Procedures (SSOP) and implements it.
- Plant has an acceptable HACCP plan for the manufacture of a given product and applies it.

CONTRIBUTION OF THE FOOD CERTIFICATION SYSTEM

- Greater capability of industry to meet the requirements of importing countries regulations on HACCP such as the US Seafood HACCP regulation has been provided.
- Greater awareness of food safety requirements and understanding of the application of food safety principles in government and industry has been enhanced.
- Three (3) agencies in government have combined their expertise and resources to harmonize their food inspection and certification policy and procedures. This has upgraded manpower expertise and given government a more uniform process for judging the safety of food and the level of sanitation of food plants.

Industry's request for streamlining government procedures for food inspection and certification has been addressed.

ISSUES AND PROBLEMS IN THE IMPLEMENTATION OF THE FOOD CERTIFICATION SYSTEMS

Reasons for Low Numbers of Industry Applying for Food Certification

- No pressure on industry.
- Cost of certification still prohibitive for small and medium enterprises (SMEs) particularly the cost of transportation for government inspectors when visiting SMEs located far from Manila.
- Plant needs upgrading to comply with GMP requirements.
- Certification already provided by private certification bodies.

Reasons for Low Number of Plants with Valid Certificate

a) Plants cannot be inspected due to the following:
   - Plants undergoing upgrading
   - HACCP Plan being refined
   - Plants do not have continuous operation.

b) Some plants had closed down.

c) Some plants were no longer interested.

d) Plants of SMEs that failed extension of certification are not willing to pay the full cost for repeat inspection.

GOVERNMENT'S EFFORTS TO IMPROVE THE NATIONAL FOOD CERTIFICATION SYSTEM

Technical assistance in meeting requirements for Food Certification System is being provided.

a) Seminar on Good Manufacturing Practices/Hygiene and Sanitation, has been attended by 4,347 industry participants between 1998 and 2003.

b) HACCP training courses were given to 832 participants from the food industry and government agencies for the same period.

c) Generic HACCP plans for the manufacture of the following products have been developed and transferred to industry:
   - Frozen shrimps
   - Frozen smoked milkfish
   - Canned tuna
   - Bottled salted tiny shrimps
   - Banana chips
   - Frozen mango puree
   - Dried mango
   - Bottled acidified sweet fruit preserve
   - Copra pellets

d) Specialized training programs on microbiological analyses and others have also been provided:
   - Predictive Microbiology and Applications
   - QA in the Microbiology Laboratory
   - Rapid Tests and Automated Methods in Food Microbiology
   - Establishment of Thermal Processes for Canned Foods

Inclusion of the meat certification system being provided by the National Meat Inspection Commission (NMIC) of the Department of Agriculture to the JCM is underway.

SUGGESTIONS TO ENHANCE FOOD CERTIFICATION SYSTEM FOR BETTER MARKETING

1) Put Added Value in Availing the Government Food Certification System, for example:
   a) Promote certified companies in major newspapers and in television.

b) Award a quality seal logo to companies consistently meeting the food certification system.
c) Provide scheme for certified companies to acquire government's licenses and registrations easily.

2) Develop an Assistance Program to Help SMEs Maintain the Food Certification System, for example:
   a) Continuous information dissemination and training, *e.g*. Training on HACCP Plan Development; How to Simplify HACCP, etc.

      The government should continue sponsoring seminars and training courses on GMP and HACCP. Information on principles and importance of GMP and HACCP in food processing operations should be continuously disseminated because more food plant personnel should be trained on HACCP particularly from the SMEs as most of the major export markets are incorporating HACCP requirements in their regulations. The topics should include pre-requisite programs for HACCP such as GMP program and Supplier's Accreditation Program, HACCP development with focus on hazard analysis. The industry likewise, should continue to co-share in the cost of conducting these training courses.

   b) Availability of soft loans for plant upgrading

      Government should provide liberal, low-cost and long term financing schemes for plant upgrading. This is necessary for industry to comply with the requirements of the government food certification systems. The industry on the other hand should commit to schedule plant upgrading and should be made to understand and encourage to commit to apply for food certification. The industry should identify in their organizations the technical personnel who will be committed to be in charge, for example, of HACCP development and implementation.

   c) Subsidize the cost for certification

      The government should continue to finance the programs in the conduct of the following activities that will help the certification of food plants and food products:

      - Development of generic HACCP plans for major food exports
      - Provision of technical assistance to the industry for generic HACCP plan adaptation, validation and implementation in their plants
      - Subsidized inspection of SME plants to assess compliance to food certification requirements
      - Continuous assessment of the HACCP application by the industry for its effective implementation
      - Development of a database on hazards and risks associated to food products. This is important in strengthening our risk assessment capabilities, which will likewise strengthen the industry's application of a HACCP system as well as government food certification systems.

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14. PHILIPPINES (2)

Gilberto F. Layese
OIC-Director
Bureau of Agriculture and Fisheries Product Standards
Department of Agriculture
Quezon City

INTRODUCTION

"Food safety is a right and privilege of every citizen"[1]. The implementation to ensure food safety involves a collaborative and orchestrated effort, not only on the part of the competent regulatory authorities and academic institutions, but also largely depends on the industry's initiatives. Food safety and quality systems are very important in the protection of consumers against health risks and in enhancing trade. The current farm-to-plate model of food safety entails an integrated, multi-disciplinary approach in the management of food safety systems throughout the food chain - harvesting, production, processing and distribution; the identification of hazards, its prevention and control, as well as verification and auditing procedures should be closely monitored, a clear departure from the traditional food safety regulations where end-product verification is of primary interest.

As a nation of 80M population, the Philippines continually endeavors to adopt the highest level of food safety in terms of legislation, infrastructure support and capacity building. In fact, the country has several national laws pertinent to food safety. They are the following:

- *The Food, Drugs, and Cosmetic Act - Republic Act No. 3720*

  RA 3720 has the basic provisions of ensuring safe and good quality supply of food and regulate the production, sale and traffic of the same to protect the health of the people. The Bureau of Food and Drug was thereby established to set standards for food and adopt measures to ensure pure and safe supply of food.
- *The Consumer Act of the Philippines - Republic Act No. 7934*

  The Consumer Act of the Philippines was established in 1993. The aim of RA 7934 was to develop and provide safety and quality standards for consumer products and to undertake research on quality improvement of products and investigate causes and prevention of product-related deaths, illnesses, and injuries.

  Provisions in the Act include sections on:
  - Adulterated Food (Article 23)
  - Regulations on Unprocessed Food (Article 24)
  - Tolerance for Poisonous Ingredients in Food (Article 25)
  - Unsafe Food Additives, Exceptions for Conformity with Regulations (Article 26)
  - Petition for Regulation of Food Additive (Article 27)
- *The Code of Sanitation of the Philippines - Presidential Decree 856*

  Presidential Decree 856 was effected in 1995. The code provides for sanitation requirements for operating a food establishment.
- *The Agriculture and Fisheries Modernization Act of 1997 - Republic Act 8453*

  AFMA or RA 8453 prescribes that sectors involved in the production, processing, distribution and marketing of food and non-food agricultural products shall adhere to and implement the use of product standards in order to ensure consumer safety and promote the competitiveness of agriculture and fisheries products.
- *The Philippine Fisheries Code of 1998 - Republic Act 8550*

  The Philippine Fisheries Code was responsible for transforming the Bureau of Fisheries and Aquatic Resources (BFAR) into a line bureau. It was organized to advise and coordinate with local government units (LGUs) on the maintenance and proper sanitation and hygienic practices in fish markets and fish landing areas.

- *Creation of the Bureau of Animal Industry - Republic Act 3639*

  Republic Act 3639 created the Bureau of Animal Industry. BAI is now the responsible agency to investigate, study, and report the condition of the domestic animals, and the causes of dangerous communicable diseases among them, and the means to prevent and cure them.
- *Creation of the National Meat Inspection Commission - Presidential Decree 7*

  Presidential Decree 7 refers to the rules and regulations governing meat inspection in the Philippines.
- *Creation of the Fertilizer and Pesticide Authority - Presidential Decree 1144*

  PD 1144 mandates the Fertilizer and Pesticide Authority to monitor pesticide residues and establish tolerable levels of pesticides in food.
- *The Local Government Code - Republic Act No 7160*

  Under this code, provincial, municipal and city governments are mandated to regulate the preparation and sale of meat, fresh fruits, poultry, milk, fish, vegetables and other foodstuff for public consumption. This act supports RA 7394 or the Consumer Act of the Philippines, Chapter II Article 24 with regard to regulation of unprocessed food.
- *Various Administrative Orders*

  There are a number of Administrative Orders (AOs) that reinforce acts and decrees pertinent to food safety.

  Consonant with the AFMA, AO 17 established the Bureau of Agriculture and Fisheries Product Standards (BAFPS) in 1997. The AO states that "all sectors involved in the production, processing, distribution and marketing of food and non-food shall adhere to and implement the use of product standards in order to ensure consumer safety."

  Similarly, under the Philippine Fisheries Code of 1998, Rules and Regulations Governing Importation of Fresh/Chilled/Frozen Fish and Fishery/Aquatic Resources was established in 1999 under AO 195 to ensure safety of imported fish and aquatic products.

The Philippine Government, by enactment of the above laws, is deeply committed in addressing food safety and security issues in the country. However, further moves to strengthen and improve certification and monitoring systems is essential in coping with the trends and changes in the domestic and international markets. Updating and identifying the strength, weaknesses, opportunities and threats of the food control system are essential for growth and global competitiveness.

CURRENT STATUS OF THE FOOD CERTIFICATION SYSTEMS IN THE PHILIPPINES

In the Philippines, previous assessments of the local food safety situation have shown the apparent lack of an organized approach to ensure food safety [2], or a surveillance system specifically for foodborne diseases[3]. Although laws have been established with regard to regulation and monitoring of food safety in the industry, tasking and delineation of work are important in facilitating and effecting such laws. A proposal to clearly delineate the regulatory functions of DOH-BFAD and DA-BAFPS and other agencies has been prepared, Annex I illustrates the proposed delineation of the two departments.

Although there are large multinational companies in the country, employing state of the art equipment, as well as utilizing the latest technologies and employing qualified technical personnel, the food industry in the Philippines is largely comprised of medium, small, and even cottage industries. Annex II (Table 1) presents the classification of food processing industries based on labor requirement and capitalization. It is seen that micro industries, requiring only 1-5 workers utilize about PhP 150,000 or US $ 3,000, as compared to large industries which have 200 and more workers, with a capital outlay of US $ 1.2M.[4]

With the majority of the food industry coming from the small, cottage and micro industries, application of food safety systems and Total Quality Management (TQM) remains to be an enormous task. The capability of these small and medium industries (SMIs) to apply food safety systems such as HACCP and other certification systems are faced with obstacles such as the lack of testing laboratories in the less developed provinces, and the lack of simple microbiological and physico-chemical analytical tools for food safety.[1]

In 1997, there was a clamor from the industry and food exporters to harmonize accreditation procedures of the agencies specifically on HACCP. As a result, a Joint Management Committee was created in July of 1997, consisting of BFAD, FDC and BFAR and the Department of Trade and Industry. The number of GMP-HACCP accredited companies grew from 16 in December 1998 to 27 in 1999 and, 33 in 2000.[5] While there is an increasing trend over the years, the need to intensify accreditation for firms to be HACCP compliant remains to be pursued.

Similarly, the National Meat Inspection Commission (NMIC) has also endeavored to strengthen the Food Certification Systems for Meat and Poultry. As the lead agency, the NMIC issues accreditation for slaughterhouses and meat processing plants. Upon the issuance of accreditation, audits are continually conducted through the designated NMIC official in the corresponding firm. For 2003, the NMIC has accredited a total of 129 slaughterhouses and meat processing plants throughout the country and aggressively strives for increased HACCP compliance nationwide. By 2006, all meat processing plants are required to be HACCP compliant.

ISSUES AND PROBLEMS IN THE FOOD CERTIFICATION SYSTEMS IN THE COUNTRY

Philippine export competitiveness is greatly influenced by its compliance with the standards of the importing country. The effects are either total loss, if the entire shipment is rejected, or increased cost of shipment by about 7 percent, because of the mark-up to provide for loss due to detention, and additional cost for demurrage and storage.

From a commissioned study of the Department of Agriculture in 2000, it was discovered that the USFDA recorded a total of 3,004 detention cases of Philippine horticultural and aquamarine products from 1995 to 1999 involving 228 companies. The number of cases ranged from 438 in 1996 (15% of total number of detentions) to 798 in 1998 (27% per cent), or an average of 601 cases per year.[6]

A wide variety of products and product forms were involved in the cited detention cases. These are dried, bottled in syrup, and canned in syrup for fruits and nuts; bottled and canned for vegetables; fresh, bottled and fermented for coconuts; fresh/chilled, fresh/frozen, dried, smoked, canned, and bottled fermented for aqua-marine; and bakery and confectionery products. Many of these products are indigenous, local formulations, and are mostly manufactured using traditional, low to medium technology methods, especially rice- or root crop-based snacks or confectionery.

ROLE OF DIFFERENT GOVERNMENT AGENCIES IN IMPROVING NATIONAL FOOD CONTROL

Government agencies in the Philippines with regulatory functions are the Department of Health (DOH) and the Department of Agriculture (DA). Under the umbrella of the Department of Agriculture, attached bureaus and agencies regulate and monitor safety and quality concerns of produce. These include ***Department of Health - Bureau of Food and Drugs***.

Under the direct supervision of the Department of Health, the Bureau of Food and Drugs is mandated as per RA 3720 to ensure the safety of the food supply in addition to being responsible for the control of pharmaceuticals, medical devices, cosmetics and household products.

BFAD's food control activities are directed towards the production and distribution of processed foods. Food processing plants are required to secure a license to operate and subject to periodic inspection to monitor compliance with Good Manufacturing Practices (GMP).

RA 7304 reiterated BFAD's mandate to "protect consumers from adulterated or unsafe product with false, deceptive and misleading information." The BFAD is presently strengthening its Food Control Program.[7] Various areas of concern are now being studied as six clusters namely:

- Systems and procedures,
- Food additives and contaminants,
- Food labeling,
- Dietary/food supplements,
- Commodity standards, and
- Novel foods/ingredients and new technology

Department of Agriculture

Department of Agriculture has several bureaus and attached agencies responsible for the regulation, monitoring, and ensuring food safety and consumer protection in agricultural and fisheries products. The Bureau of Plant Industry (BPI), Bureau of Animal Industry (BAI), Bureau of Fisheries and Aquatic Resources (BFAR), and the Bureau of Agriculture and Fisheries Product Standards (BAFPS) are in the forefront of the Department. Similarly, attached agencies such as the Fertilizer and Pesticide Authority (FPA) and

the National Meat Inspection Commission (NMIC) are also engaged in many of the activities of the Department. The mandates and responsibilities of the different departments and attached agencies are listed in Appendix-2.

Case Studies

The Bureau of Fisheries and Aquatic Resources has been engaged in the certification of fish and fishery products for export, mostly in the European Nations. According to the PQS Study, fish and fishery product imports registered an average of 240.65 thousand metric tons valued at PhP 2.36 billion from 1993-1998, while exports were recorded at 171.65 thousand metric tons worth 16.13 billion for the same period[6].

Exportation of fish and other aquatic resources involve a series of procedures. The BFAR is the lead agency involved in the issuance of permits/commodity clearance for such products. A commercial permit/commodity clearance is issued for commercial purposes attesting that the quality of the export product is in accordance with established/applicable standards for such products. These are products that should be processed in an accredited establishment and should follow the HACCP system.

The products intended for export shall be presented to BFAR for inspection, quality control and other administrative and technical services. If upon inspection, the product for export does not meet the prescribed quality requirements of BFAR or prohibited fish/fishery products are included in the exportation, the same shall be removed and, in the case of the latter, confiscated.

An improvement in the Fisheries Administrative Order involves the inclusion of the requirements for the exportation of fish products (e.g. the Sanitation Standard Operating Procedures). Similarly incorporation of the general requirements for manufacturers/processors and exporters of fish and fishery products were added. Some of those requirements are: (1) only processors and exporters with HACCP plans and SSOPs verified by BFAR shall be allowed to export, and that they shall maintain records related to the implementation of their HACCP plan to facilitate verification/audit by BFAR. A pre-shipment inspection shall be conducted by BFAR to verify the veracity of the products as declared (i.e. packaging/labeling), and to ensure completeness of the accompanying documents.

With these developments, BFAR has undertaken capacity building and prepare its technical capability in food quality assurance. Under the ASEAN-CANADA Fisheries Post Harvest Technology project (1993-1997), BFAR fish inspectors participated in international/regional training courses on HACCP, fish inspection and quality assurance. The agency likewise acquired new laboratory equipment to support its fish quality and safety assurance program. It has also accredited 52 fish processing establishments that export to the European Union.

CONCLUSIONS AND RECOMMENDATIONS

In the recently conducted Global Forum of Food Safety Regulators sponsored by the FAO from January 28-30, 2002 in Marakkesh, Morocco, the role of competent authorities such in the implementation and surveillance of Food Certification and Audit systems was emphasized. According to the Forum, the main task of the competent authorities is to ensure that producers, processors and traders, who are identified as having primary responsibility for food safety, have an adequate internal control system based on HACCP Principles. Furthermore, it was suggested that the this task of ensuring the adequacy of internal control systems would be accomplished more efficiently by having a single agency or close coordination of one or more agencies handle the responsibility for the whole food chain.[8]

As emphasized by Dr. Mitsuhiro Ushio in his paper presented in the Forum, strategies in ensuring the effectiveness of food safety systems could be: "1) appeal to an individual moral sense and ethics, 2) economical inducements, 3) education and communication, 4) regulatory procedures including guidance, recommendation and legal action with penal regulations."[8]

Education, as a part of the strategy, also remains to be a powerful tool. The challenge now is for the cottage food industries in all sectors handling other commodities besides fish and fish products for export to inculcate the culture of quality and apply food safety systems in the production, processing and distribution chain. This is a gargantuan task for the competent authorities to implement.

Furthermore, it is recommended that developing economies continue and sustain its technical assistance to developing countries more specifically on capacity building, both on soft and hard infrastructures. BAFPS, a new bureau of the Department of Agriculture, with its fixed mandate of standards formulation and

enforcement, to ensure food safety, needs support such as laboratory facilities as well as capacity building in order to aggressively put into effect HACCP compliance and advocate food safety, thus ensuring health protection and market access to the products.

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APPENDIX-1

Classification of Food Processing Industries in the Philippines

Industry Classification	Number of Workers/Laborers	Capitalization	
		In Philippine Pesos	In US Dollars(US$1=PhP50.00)
Micro Industry	1 - 5	150,000 and below	3000 and below
Cottage Industry	6 - 9	150,000 to 1.5M	3000 to 30,000
Small Industry	10 - 99	1.5 to 15M	30,000 to 300,000
Medium Industry	100 - 199	15M to 60M	300,000 to 1.2M
Large Industry	200 or more	60M and above	1.2M and above

APPENDIX-2

Mandates of the Different Bureaus and Attached Agencies of the Department of Agriculture

Bureau of Plant Industry (BPI)

The Bureau of Plant Industry has the primary task of promoting the development of plant industries through research and development, crop production and protection, and effective technology promotion and transfer.

As created through series of laws, Executive and Administrative Orders, other functions of BPI with a bearing on the safety and quality of plants and food crops are:

- Protection of agricultural crops from pests and diseases (E.O. 116);
- Recommend plant quarantine policies and prescribe rules and regulations for the prevention, control and eradication of pests, diseases and injuries to plants and plant products (E.O. 116);
- As stated in the Plant Quarantine Law (P.D.1433): " Prevent the introduction of exotic pests in the country and prevent further spread of plant pests already existing from infested to pest-free areas and to enforce Phytosanitary measures for the export of plants, plant products and regulated articles";

- Establish pesticide laboratories all over the country to monitor levels of pesticide residue in crops in order to protect the local and international consumers from possible health hazards and to generate data for the establishment of Maximum Residue Levels (MRL). (L.O.I. 986);
- Perform technical analyses on formulated pesticide products (P.D. 1144);
- Ensure safe supply of fresh agricultural crops and improve the quality of local fresh agricultural crops and promote its export (R.A. 7394);
- Monitor the level of chemical residues of agricultural crops and recommend policies for safety of consumers (R.A 7607) and;
- Promote use of organic fertilizer and Integrated Pest Management (IPM). (R.A. 7607).

Bureau of Fisheries and Aquatic Resources (BFAR)

The following regulatory functions of BFAR is executed by the Fisheries Post-Harvest Technology Division (FPHTD):

- Conducts inspection, monitoring and verification of fish processing plants and fish and fishery products for export and import
- Conducts inspection of processing plants for domestic consumption, market and fishing port complex
- Conducts physical, chemical and microbiological analysis of fishery products in support of export and import
- Issues commodity clearance and other requirements for fish and fishery products

Fertilizer and Pesticide Authority (FPA)

Another attached agency of the Department of Agriculture, FPA was created through the issuance of P.D. 1144. The agency is mandated to protect the public from risks inherent in the use of pesticides and educate the agricultural sector in the use of these inputs. In the execution of the above mandates, the FPA is employing two strategic thrusts, namely: (1) Integrated Plant Nutrition System [IPNS}, which is a systematic approach that relates plant nutrition needs to actual soil fertility condition; and (2) Integrated Crop Protection System [ICPS], a holistic crop protection system that relates farm productivity to the protection of human health and the environment.

National Meat Inspection Commission (NMIC)

An attached agency of the Department of Agriculture, NMIC's functions are similar to BAI. The only difference is the area of coverage (slaughtered animals), which includes inspection of slaughterhouses. NMIC also requires registration of quality assessors. NMIC offers four services linked with its regulatory functions:

- Meat Laboratory Services
  - linkages with food control laboratory and other local laboratories and organizations concerned with disease control
  - provides rapid and intensive analysis when meat is suspected of presenting a public hazard or when an epidemic of food borne disease has occurred
- In-Plant Operation and Inspection Services
  - provides technical supervision on meat inspection and meat plant operation designed to ensure the production of clean and wholesome meat in meat establishments
  - assists in the dissemination to LGUs of the technical regulation and standard requirements of operation and inspection
  - manages the certification for local transport of meat and meat products
- Regulatory Services
  - manages a systematic evaluation (classification) and computation of rated capacity of meat plant activities and transport vehicles
  - directs the agency's review and compliance activity relating to transport, storage and distribution of meat
- Meat Import/Export Services
  - ensures that meat and meat products have been produced under condition and system equivalent to the NMIC

Bureau of Animal Industry (BAI)

The Bureau of Animal Industry is at the forefront of ensuring animal health, as well as food safety and quality. Its chief directives include the following:

- Regulate animal feeds, feed ingredients and veterinary products;
- Prevent, control, contain and eradicate communicable animal disease;
- Regulate the flow of animal and animal products;
- Ensure effective and efficient implementation and advocacy of the Animal Welfare Act of 1998 and its implementing rules and regulations;
- Provide laboratory support to other divisions thorough production of biologics and pharmaceuticals, quality control testing, feeds and feed stuff analyses and drug assay;
- Formulate long and short term plans on production, acquisition, distribution and marketing of improved breeds of livestock;
- Conduct research on animal health, breeding, nutrition, production and management as well as the processing and utilization of feeds, forage and pasture resources;
- Regulation of the movement of animals and animal products through the issuance of Veterinary Quarantine Clearance and other permits;
- Provide diagnostic laboratory services and conduct animal health researches and disease surveillance.

Besides these, BAI does inspection of products on the basis of quality, safety, good manufacturing practices (GMP)/sanitation, bio-safety, product transport/movement and export/import control within their area of coverage (animals for slaughter). In terms of accreditation/certification, BAI requires registration of quality assessors.

Bureau of Agriculture and Fisheries and Product Standards (BAFPS)

The Bureau of Agriculture and Fisheries Product Standards (BAFPS) was established in consonance with "the policy of the state that all sectors involved in the production, processing, distribution, and marketing of food and non-food agricultural and fisheries products shall adhere to and implement the use of product standards in order to ensure consumer safety and promote the competitiveness of agriculture and fisheries products."

Section 3 of Administrative Order No. 17 that created BAFPS in 1997 provides that "in collaboration and coordination with the appropriate department and other government agencies, including but not limited to the Bureau of Product Standards and the Bureau of Food and Drugs of the Department of Health, state and private universities and colleges (SPUCs), local government units (LGUs), and the private sector including people's organizations (POs) and non-governmental organizations (NGOs), the BAFPS shall formulate and enforce standards of quality that will ensure human, animal and plant health and safety, environmental protection, competitiveness and efficiency in the marketing and trade of agriculture, livestock and fisheries and aquaculture products. Enforcement shall include the formulation and implementation of standards utilized in the enforcement of quarantine rules and regulations."

BAFPS for this year will commence the accreditation of private sector institutions to certify organic products. A draft administrative order and the standards for organic agriculture are now in the finalization stage. With such actions, the BAFPS aims to strengthen and intensify its drive for HACCP compliance in harmony with the standards that the Bureau is developing. Capacity building, installation of a state of the art laboratory and other infrastructures, and technical assistance is needed to support the efforts of the Bureau.

15. SRI LANKA

Dr. D.B.T. Wijeratne
Director
(Research, Development and Marketing)
Export Agriculture Enterprise Development Unit
Ministry of Agriculture &Livestock
Battaramulla

Sri Lanka maintains strict standards to ensure the quality of the food commodities that is used and exported. The main controlling body for local standards is the Sri Lanka Standard Institute, while there are three other organizations namely, "Sri Lanka Industrial Technology Institute", a semi-governmental organization; "SGS" and "Bambon & Bruce", private organizations.

In Sri Lanka, the Standard Institute formulates local standards and award local as well as international standards such as ISO, HACCP and GMP. The semi governmental and private organizations are capable of issuing quality analysis reports and international quality certificates.

According to the Sri Lankan regulation, following food products should comply with the standards set by the Sri Lanka Standard Institute.

- Condensed milk
- Canned fish
- Fresh fruit cordial
- Jam & marmalade
- Artificial cordial
- Brown sugar
- Fruit cordial & concentrate
- Fruit squash & concentrate
- Ready to serve fruit drinks

Without the Sri Lanka Standard certification, above products cannot be marketed in Sri Lanka. At present, about 40 manufacturers and importers are having the certification to produce and/or import the above items.

In addition to above mandatory certification, standards were set for about another 50 food items. However, these items can be produced or imported without complying the standards. At present, about 25 organizations are having the certification for the standards, which are not mandatory.

In food sector, there are 22 organizations with ISO 9001 and ISO 9002 (1994 standard), while 2 organizations have obtained ISO 14001 - Environment Management System.

Already 10 organizations in Sri Lanka have obtained HACCP certificate for food items and several are in the process of getting the certificate in the near future.

The GMP certification process has just initiated by the Institute, but no certification was awarded as yet.

Sri Lanka Industrial Technological Institute, Bamban & Bruce and SGS are mainly issuing quality reports and certificates, especially to fulfill buyer requirements in export markets. These semi-governmental and private organizations are operating on individual basis, but are authorized to issue internationally valid reports and certificates. However, the standard institute is working closely with the semi-government and private certifying organizations, in the formulation of standards. In addition, the standard institute is obtaining the technical expertise and consumer response from the other government departments, universities and consumer protection organizations.

Food certification system of Sri Lanka has identified the importance of providing high quality commodities to the local consumers with special emphasis on food safety. Therefore, about 10 commodities were identified on priority basis and mandatory standards were imposed. The prioritization of commodities for mandatory standards was carried out after considering several factors including health risks, contamination problems and product popularity. In this group some of the items such as canned fish, brown sugar and concentrated fruit juice are not produced in Sri Lanka, but imported. However, these commodities are consumed

in large volumes by middle-income groups and to be fair to the consumer, canned fish should have very high drained weight, brown sugar should have high sugar content and concentrated fruit juice should have high fruit content and /or potassium content.

Production of fruit cordials, jams and ready to serve beverages was a popular medium scale industry in Sri Lanka and many started producing without proper know-how and the machinery. Therefore, about 15 years ago local market was flooded with inferior quality products, which had very high amounts of preservatives, low fruit contents and fungal infections. To avoid the glut of poor quality, sub-standard products, the Standard Institute imposed a mandatory standard system for the above processed fruit items. In the process of formulating the standards, due attention was paid to the type and amount of preservatives used, sugar content, fruit content and other food additives such as colors and flavors. The imposed compulsory certification system for the above widely used processed fruit products resulted in improving the overall quality of the products. However, as these processed items can be produced with very small capital investment, several unauthorized medium and small-scale producing units are in operation, especially in rural and semi-urban areas. Many of these unauthorized, sub-slandered products contain high amounts of preservatives, either sodium benzoate or sodium/ potassium metabisulphite, which can initiate cancer or allergic reactions to consumers. In addition these poor quality products lack real fruits, but contains pectin-rich low priced vegetable fillers or fruit by products with fruit flavors and colors. One such popular unauthorized product is "Strawberry-Jam", which does not contain any strawberry, but made out of pumpkin and flavors.

At present, the quality certification of the Standard Institute is well accepted by the local consumers. Therefore, in Sri Lanka, most of the food manufactures mention about the Standard Certification in their product advertising, even though it is not required by the regulation. This is a clear indication for the customer confidence in local standards. However, the local certification system is not without problem areas. One such issue is non-existence of mandatory standards for fresh and processed milk products, which can lead to health problems. Another area, which is not yet covered by the mandatory standards are the processed meat products. In Sri Lanka there are some medium scale operations, which use higher amounts of preservative- sodium nitrite to achieve better color and flavor without considering the ill effects of the preservative. However, the Standard Institute has taken steps to avoid this unhealthy situation by classifying sodium nitrite as a restricted preservative. According to local regulation, restricted preservatives can be used only in specified products and misuse or overuse is prohibited.

In Sri Lanka, overall reputation for certified products is very good. However, the reputation of the local standards was somewhat damaged by an unfortunate incident occurred several years ago. Sri Lanka standard institute has stipulated standards for spray dried powdered milk, but radiation contamination was not one of the quality determining parameters. One organization has imported large amount of spray dried milk powder, which was exposed to radiation. When the media made the fact that the milk powder was contaminated with radiation and not suitable for human consumption, the importer responded that the product comply with local standards of spray dried milk powder. Although image of the local certification system was somewhat damaged during that time, this was only a single isolated incident.

The ISO certification system has gained a very high regard among Sri Lankan consumers. Therefore, most of the large-scale food manufacturers have already obtained the ISO certification, as a marketing tool. At present, HACCP and GMP certification is obtained mainly to fulfill the requirements of foreign buyers. In Sri Lanka, most of the large-scale desiccated coconut industries are keen in getting the HACCP certification, for better marketability. Sri Lankan desiccated coconut is comparatively expensive than that of most of other countries, but has very special flavor characteristics. Since desiccated coconut manufacturing process is vulnerable to microbial contamination, buyers are very particular about the product quality and consistency. Therefore, HACCP certification in desiccated coconut industry is giving the producers a definite advantage in international market.

With the current world trends in marketing, Sri Lankan Government has identified the importance of certification systems, which are accepted by the global consumers. As an initial step relevant government authorities are now in the process of educating the food manufactures, the importance of quality certifications of the food products. Awareness programs and training programs on ISO, HACCP and GMP systems are conducted on regular basis. As a result of this awareness activity about 35 organizations already have either ISO or HACCP and about another 30 are in the process of getting the certificate in due course. In addition to the producers and importers, local authorities are in the process of creating awareness among the consumers as well. The current consumer trends in safe foods and food contamination problems also reminds

the general public to be more concerned about quality assurance systems. In addition, product certifications in Halal, organic and bio-dynamic labels add value to the food products in niche markets.

Taking the current world trends in to account the Ministry of Agriculture and Livestock has already launched a series of programs to produce and market, high quality and safe food for local and international markets. In this regard, the ministry is in the process of drafting legislation of procedures to ensure adherence to international standards maintaining quality. Also, the relevant authorities have launched programs to promote environmental friendly production methods such as organic agriculture, which maintains high standards of quality for niche markets as a strategy to increase export income. At present Sri Lanka exports fair amount of tea, spices & condiments, fruits, coconut, cashew as certified organic products. However, all the certification has been carried-out by international organizations such as IMO, SKAL, NASSA and OF&G. The high cost involved in the certification is hindering the popularization of organic cultivation in Sri Lanka. Recently the Ministry of Agriculture and Livestock (now Ministry of Agriculture) has amended the agricultural policy and included organic agriculture as a sub-sector. In addition, the Ministry of Agriculture and Livestock is in the process of negotiating a grant from FAO to develop an internationally accepted local system for organic certification. Availability of a local certification system for organic agriculture will be a boost to local organic cultivation program, as it will reduce the certification cost and make the process accessible to small- and medium-scale cultivators. Also, the Ministry of Agriculture and Livestock is in the process of initiating bio-dynamic cultivation and certification process in Sri Lanka. The quality improvement program and internationally valid certification systems will facilitate to increase the international market share of the local food industry.

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16. THAILAND (1)

Janna Sanguanroongvong
GMP/HACCP/ISO14000 Consultant
Thailand Productivity Institute
Bangkok

INTRODUCTION

Thailand is an agricultural country and is the only net food exporter in Asia. Thailand has a total area of 513,115 sq. km., 45% of which is used for agriucltural production.

Thai Food Market Growth Rates

Product/Year	Export value (million US$)					
	1997	1998	1999	2000	2001	Ave. Growth rate
Rice	1,519	1,628	1,578	1,476	1,382	-2.2
Processed rice products	716	98	111	118	114	0.2
Frozen shrimps	1,463	1,380	1,233	1,474	1,209	-3.7
Processed shrimp	893	890	1,023	1,182	960	2.8
Canned tuna	550	6,055	576	468	584	2.8
Canned pineapple	187	166	301	197	190	8.0
Pineapple juice	54	45	61	46	42	-3.6
Frozen Chicken	340	402	403	391	539	13.3
Processed Chicken	58	209	67	218	280	111.6

Source: Information Services Department, National Food Institute [5]

The development of the food industry is very much associated with the country's entry into international trade. The highlights of the food industry development may be summarized as follows:

Before 1960 - most exports were surplus agricultural products, 70% of which were foods. The technologies available in the country to preserve foods were only drying, pickling and sugar glazing.

1960-70 - Through the introduction of the Government Industrial Promotion Privileges, Thailand substituted most of its imported products with its product surpluses. Likewise, the technology to process sweetened condensed milk, canned fruits and vegetables and vegetable oil were then imported from Taiwan and Japan.

At present, fierce competition has forced businesses in various fields to upgrade their products and organizations, to meet worldwide customer requirements. Thai Food Manufacturing has decided to launch the GMP/ HACCP/ ISO. Moreover, the trend emerging in the European Union, USA and other countries indicates importing only from manufacturers and suppliers who are ISO 9001, GMP and HACCP certified.

GMP, HACCP and ISO certification is also increasingly becoming a requirement for the following reasons:

- Ever since the EU White Paper on food safety was adopted, speculation about its implications for Thai food exporting have been making rounds, due to the guiding principle of the food safety policy which conveys a comprehensive and integrated approach covering food safety from "farm to fork" or throughout the entire food chain.
- USFDA, which is responsible for ensuring the safety and wholesomeness of all food in the USA, is insisting on a food safety system to ensure that the imported products are consistently manufactured to meet quality and safety requirements. Therefore, the food manufacturers in Thailand are committed to get GMP/ HACCP and ISO certificate.
- The port Authority of Thailand requires companies bidding for contracts with the agency to have ISO 9001 certification.

FOOD CERTIFICATION SYSTEM IN THAILAND AND MAJOR PROBLEMS IN ITS IMPLEMENTATION

In Thailand, HACCP is designed for use in all segments of the food industry from growing, harvesting, processing, manufacturing, distribution and merchandising to preparing food for consumption. GMP is an essential foundation for the development and implementation of successful HACCP.

Good Manufacturing Practice (GMP) and ISO 9001 have a lot in common. Many food manufacturers have embraced GMP, HACCP and ISO 9001 together integrating them in their overall management strategy. The basis of GMP is to operate your company in order to prevent contamination and produce consistent product quality. The basis of ISO 9001 is to present proven methods not only to stabilize a process, but to actually improve the process on a continual basis and reduce variation which leads to the reduced probability of contamination. In addition, ISO 9001 is a systematic approach to managing a business, which integrates GMP as a part of the foundation upon which are built the tools and techniques of process improvement.

In Thailand, problems with regard to food safety certification have several issues that can be concluded as follows:

Old Machinery or Process in Production

Old machinery and lack of preventive measures in production processes are causes of contamination. Small and medium sized food manufacturers in Thailand lack resources to improve or change the machine for hygienic production process and not in a position to get food system certification.

Lack of Awareness of Food Safety

Lack of awareness of food safety and hygiene, insufficient knowledge and awareness of ideal working conditions are also contributing to contamination. Many health hazards could be prevented, by convincing food workers to be more concerned about food safety. Large number of employees, high rates of turnover, language and literacy barriers, and non-uniform systems of training and certifying workers characterize the food service industry forcing manufacturers to take lenient view of food safety.

Legislation and Enforcement

Lack of sufficient number of qualified officers to monitor and measure according to food safety laws in Thailand is having an adverse effect on the food industry. In addition, no single national government agency on its own can succeed in addressing the whole food safety issues.

Food safety problems of small and medium-sized enterprises (SMEs) in Thailand are important because their business activities occupy an important position in Thai economy. SMEs focus less on food safety than large enterprises. In case of large enterprises, the employer can establish effective hygienic design for production to prevent contamination. In addition, they can select and purchase raw material, ingredients and packaging material through the manufacturing chain to produce quality products. But SMEs have no abilities to do so by themselves because of lack of technical base and food safety professionals.

GOVERNMENT AND NON-GOVERNMENT ORGANIZATIONS' POLICY TO IMPROVE FOOD CERTIFICATION SYSTEM

Government Policy involved in FCS in Thailand has been adopted as described in the 9th National Economic and Social Development Plan (2002-2006).

The Ninth National Economic and Social Development Plan

It has been shown in the plan that food safety management is a part of it. The objective of the plan is to provide safe food to Thai people and deal with issues related to public health, health promotion and development, and anything to promote food safety. To achieve these objectives, the government has developed the plan as followings:

- Promote food safety legislation and its enforcement. GMP has been incorporated in Thai law since 2001 and effective from 24 July 2003 (All Thai Food Manufacturers must comply with this law).
- Mobilize funds to be used for food safety system promotion, e.g., in support of educating and consulting for food safety in Thai Food industries.

Government Organizations

- **Department of Export Promotion [DEP]**

DEP is entrusted with the following duties and responsibilities to:

- Promote and expand the market for Thai food exporters by penetrating new markets and to preserve existing ones.
- Develop and perform activities that promote trade and increase the competitiveness of the export sector, for instance, the expansion of production bases overseas.
- Reinforce the ability of Thai exporters to deliver products such as food that are of international standards and meanwhile increase the competitiveness of Thai exporters to further penetrate the international market.

- **Thai Industrial Standards Institute [TISI] [2]**

As the national standards body of Thailand, TISI will carry out the standardization work of the country and coordinate the activity into a system with unity to be recognized internationally and contribute to the maximum benefits of the consumers as well as to the social and economic development of the country. TISI participates in the meetings of he International Organization for Standardization (ISO), the International Electrotechnical Commission (IEC) and the FAO/WHO Foods Standards Programme (Codex Alimentarius Commission).

The activities about food safety system certification can be divided into 2 categories as follows:

- GMP for food factory: TISI provides consultation to food manufacturers and assists them to develop the appropriate hygienic system according to the international standards
- HACCP for food factory: TISI, in co-operation with the Food and Drug Administration, established a joint certification scheme in HACCP (TIS-7000).

For the purpose of trade and industrial development and of co-operation in technical areas, TISI has been participating in the standardization activities both at regional and international levels.

Standardization promotion activity of TISI is to publicize and disseminate the knowledge in standardization and to create the correct understanding as well as the awareness of standardization among the public. It also aims at promoting the application of standards in production and service industry, to meet competition and improve quality of life.

- **Thai Food and Drug Administration [TFDA]**

TFDA is an agency whose primary duty by virtue of Food Act B.E.2522 (1979) is to implement and enforce the law, and guarantee the quality and safety of food, by means of:

- Setting up food standards and specification as well as hygienic and labeling requirements.
- Controlling production of both domestic and imported food products.
- Approval for registration of specific-controlled food.
- Taking legal action, e.g., Seizure, product recall, prosecution.
- Promotion of consumer awareness and voluntary compliance among food manufacturers, other government agencies, consumer and public interest groups, educators, and the media to foster effective delivery of food safety education and information.
- Setting up the GMP as a guideline for all food plants for all kinds of food manufacturers throughout the country.
- Development of hygienic practices in food processing and quality grading of food establishments intended for international trade, issuing different forms of certifications for exporters and food producers for export.

In addition, Plant layout is to be submitted for approval and plant inspection by TFDA inspector is required before manufacturing license is issued. This license is to be renewed every three years.

- **Department of Medical Sciences [DMSc]**

DMSc is involved in activities involving food services and food quality assurance for the manufacturing as follows:

- Provide analytical services for all food control activities through Food Analysis Division.
- Recently, the Food-for-Export Analysis Division was established to provide laboratory services, pre-export inspection of the consignments.
- Issuing certificates for food export consignments for safety and health standards according to the requirements of importing countries and promotion of food export industry with reference to health requirements.

• **Department of Livestock Development (DOLD)**

DOLD is involved in feed quality assurance for the manufacturing sector as follows:

- Setting up the GMP for animal feed manufacturing as a guideline for all feed plants in Thailand.
- Providing certification under the framework of GMP and HACCP for animal feed manufacturing.
- Provide analytical services for animal feed manufacturing.
- Providing the most comprehensive training services in Thailand including legislation for feed, best practice for feed manufacturing, GMP and HACCP courses.

• **Department of Fisheries**

- Providing certification under the framework of GMP and HACCP for frozen food and seafood manufacturing.
- Provide analytical services for frozen food and seafood manufacturing.
- Inspection of frozen food establishments.
- Sampling and quality assessment of frozen food and seafood products.

Non-governmental Organizations (NGOs)

• **Management System Certification Institute (Thailand) [MASCI]**

MASCI was established under Cabinet endorsement with supporting fund from government to be responsible for the certification work. The mission of MASCI is as follows:

- Providing certification under the framework of ISO 9000, ISO 14000, HACCP and TIS 18000.
- Training on ISO 9000, ISO 14000, HACCP and TIS 18000.
- Participating in activities related to certification of ISO 9000, ISO 14000, HACCP, and occupational health and safety management systems at international and regional levels such as APEC.
- Coordination of industrial and government sectors in solving problems related to certification, both from technical and policy aspects.

• **National Food Institute [NFI]**

NFI has the mission to support, analyze and provide appropriate technical and scientific reviews and information that contribute to the improvement of Thai food production and marketing and to coordinate with the concerned agencies and organizations to facilitate changes and policy support for improvement of food industry. The Institute supports the initiatives of the Thai food industry to improve its position with respect to its production and marketing activities. It focuses on technical and scientific issues and their technological transfer to industry as a means of contributing to this improvement.

• **Thailand Productivity Institute [TPI]**

One of the missions of TPI is to assist food manufacturers obtain a competitive edge in the world trade. Services are focused on two major areas, namely, consistency in HACCP implementation, and training projects. TPI has a group of trained and capable HACCP consultants who provide consultation services to food factories wanting to improve food safety. Likewise, its training group organizes courses and workshops to create greater awareness among the food sector on the current food safety issues, regulatory movements and other related developments.

CURRENT STATUS OF PROMOTION OF FOOD CERTIFICATION SYSTEMS

The Food Safety Management System or HACCP was officially published as standard to be adopted in Thailand. There were about 377 HACCP certified companies in Thailand in January 2003. These companies include large, medium and small categories. However, relatively only a small number of Thai companies have begun the process of implementing HACCP.

Therefore, there are several organizations, including government and private participating in the enhancement of the food safety systems as detailed below.

Thai Industrial Standard Institute (TISI)

The TISI has set up Training Lead Consultant (TLC) Project for Food safety Management System or HACCP in Thailand. The project is of about 10 months duration divided into 5 sections as follows.

Section 1 : Training requirements and legislation
Section 2 : Document preparation
Section 3 : Internal audit training and work shop
Section 4 : Follow up and corrective action
Section 5 : Pre-certification

To create multiplier effect enterprises which received certification, are encouraged to provide opportunities to interested parties for factory visits.

National Food Institute

National Food Institute conducts training programs to improve food safety practices for industries and the programs are similar in nature as that of TISI.

Thailand Productivity Institute

Thailand Productivity Institute has launched a food safety management system program with the funds received from the Thai government (industrial reconstruction project; IRP). Under this program the beneficiary company would pay only 10,000 baht. The duration of this project is about 12 months and divided into 5 sections as follows:

Section 1 : Training GMP/ HACCP requirement
Section 2 : GMP/ HACCP Document preparation
Section 3 : Internal audit training and work shop
Section 4 : Follow up and corrective action
Section 5 : Pre-certification

CASE STUDIES REGARDING THE IMPLEMENTATION OF FOOD QUALITY MANAGEMENT SYSTEMS

The Grand Asia Co., Ltd. was founded in 1982. Grand Asia's 30-rai-production plant is located in Rajburi Province, and produces many kinds of canned fruit and vegetable products.

Since 1997, Grand Asia has been implementing the HACCP to control its production processes for premium quality and safety. The company has also implemented the ISO 9002 quality management system to further upgrade its quality system. Grand Asia received the ISO 9002 certification from SGS (Thailand) Co., Ltd. Moreover, the company has also implemented the ISO 14001 environmental management system to further enhance the company's superb standards. Grand Asia also received the ISO 14001 certification from SGS (Thailand) Co., Ltd. in 2001.

Grand Asia Co., Ltd. invested in equipment and machinery to convert the production process conforming to the actual international standards of technology and hygienic conditions.

In addition, every stage of production and distribution unfolds with the greatest attention to detail, ensuring the optimum quality of every item. Stringent quality controls are maintained, by well-trained personnel from the early stages such as raw materials inspection. This care continues throughout the production process. Grand Asia has instituted a system of inspection for products already in the supermarket shelves.

High technological process is accompanied by both a flow of new product developments and constant improvements in customers services, which are essential to maintain the leading position in Thai market, as one of the nation's leading canned food manufacturer.

Today, Grand Asia, with an annual production capacity of 600-1,000 TEU, export over 90% of its products to foreign markets, covering five continents - the USA, Europe, Australia, the Middle East and Asia.

Yan Wal Yun is a leading soy sauce producer in Thailand, controlling as much as 70% of Thailand's sauce market and employs about 900 staff members. The company manufactures oyster, plum, sukiyaki, chili sauces and soybean paste. The company's mission is to provide customers only high-quality, safe products for consumption. Therefore, the company had set up and implemented several management systems. In 1992, the company received many awards such as ISO 9002 quality management system certification (from BVQI), Good Manufacturing Practice (GMP) certificate from FDA of the Ministry of Public Health, HACCP certificate from SGS and Good Performance Exporter award from the Ministry of Commerce and Industry, Thailand.

The company gradually developed overseas marketing channels. In 2002, the company overcame barriers to international trade and distributed products through its highly efficient distribution channels, both in domestic and export markets. The company also exports its products to 30 countries around the world, such as USA., Canada, Great Britain, France, Germany, Sweden, Denmark, Luxemburg, Australia, United Arab Emirates, Japan, China, Malaysia and Laos.

From company's experience, it is evident that for successful implementation of a HACCP plan, management must be strongly committed to the concept. A firm commitment to HACCP by top management provides company employees with a sense of importance of producing safe food.

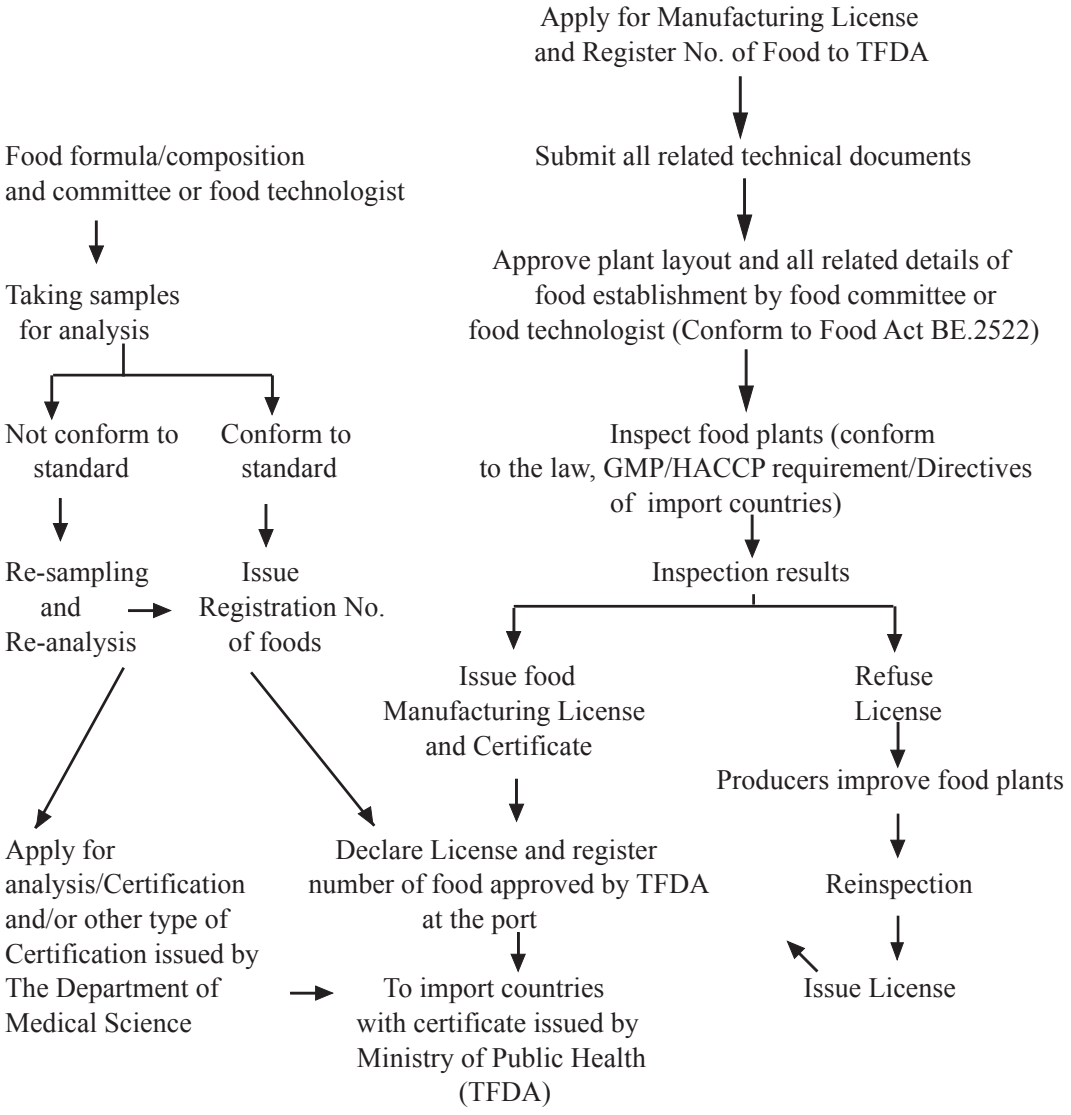
GMP and HACCP can be integrated with ISO 9000 implementation and certification. ISO 9000 will cover all the prerequisite programs to HACCP including GMPs. Combining the systems is highly cost-effective approach and helps food companies compete more effectively in the world market.

SUGGESTIONS TO ENHANCE FOOD CERTIFICATION SYSTEMS FOR BETTER MARKETING

Thailand believes that the voluntary application of food safety and quality assurance programs based on GMP and/or HACCP principles can be useful in formulating risk reduction strategies, and many industry groups are implementing such programs. Food safety during transportation, storage and retail sale is also an important link in the food safety chain. Strategies outlined below can enhance FCS in Thailand.

- Efficient, effective and consistent food law enforcement
- Additional Budget for Thai Food Manufacturers especially in small and medium sized enterprises
- Improving Public Perception and Understanding about food safety
- Public information and education about food processing, safety and nutrition
- Food safety management system should cover the entire food chain

Finally, Government and industry must work together to maintain and enhance consumer confidence in food safety.



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17. THAILAND (2)

Dr. Suwimon Keeratipibul
Assistant Professor
Department of Food Technology
Faculty of Science
Chulalongkorn University
Bangkok

INTRODUCTION

Thailand is one of the top producers of rice, cassava, sugar, canned pineapple, fishery products, processed meat and poultry, vegetable and fruits. In 2003, the total food export was worth approximately US$9.5 billion (or 426,662.30 million baht; 1US$ is approximately 44.35 baht), which was about 18% of the country's exports.

Despite the current economic recession in Thailand, the food industry remains resilient and continues to add value to the agricultural sector. This is because the industry uses up to 70% of the agricultural produce as raw materials and has the ability to manufacture a wide variety of products. Food exports, as a result, bring in over hundred billion baht in revenue each year.

THAILAND'S FOOD EXPORT MARKET

Thailand's major food export markets include Japan, the United States, and the European Union. Over the years, Japan became the largest importer of food products from Thailand accounting for 22.25% of the total food exports in 2002. The top 5 products exported to Japan are frozen chicken, canned seafood, frozen shrimp, frozen squid, and frozen fish meat.

The US comes second after Japan in terms of market share accounting for 17.68% of Thailand's total food exports. The top 5 food products exported to the US include canned seafood, frozen shrimp, canned and processed fruits, processed seafood, wheat products, and other ready-to-eat foods with the total export value in 2002 at US$1.7 billion (75,427.39 million bath).

The EU is the third largest market for Thai food exports holding 11.31% of the market share in 2002. The top 5 food commodities imported by EU are canned and processed fruits, canned seafood, frozen chicken meat, processed chicken products, and frozen shrimp.

THAILAND'S FOOD AND BEVERAGE SECTOR STRUCTURE

Thailand has a total of 57,217 factories in the food industry consisting of small, medium, and large-scale plants. These factories, which include both domestic and export food plants, are categorized by the Department of Industrial Works under the Ministry of Industry according to capital investment and the size of workforce as shown below. In order to illustrate the overall structure of Thailand's food industry, number of factories in each category, i.e. small, medium, and large, are also categorized by food commodity and is tabulated below:

Table 1. Capital Investment Category

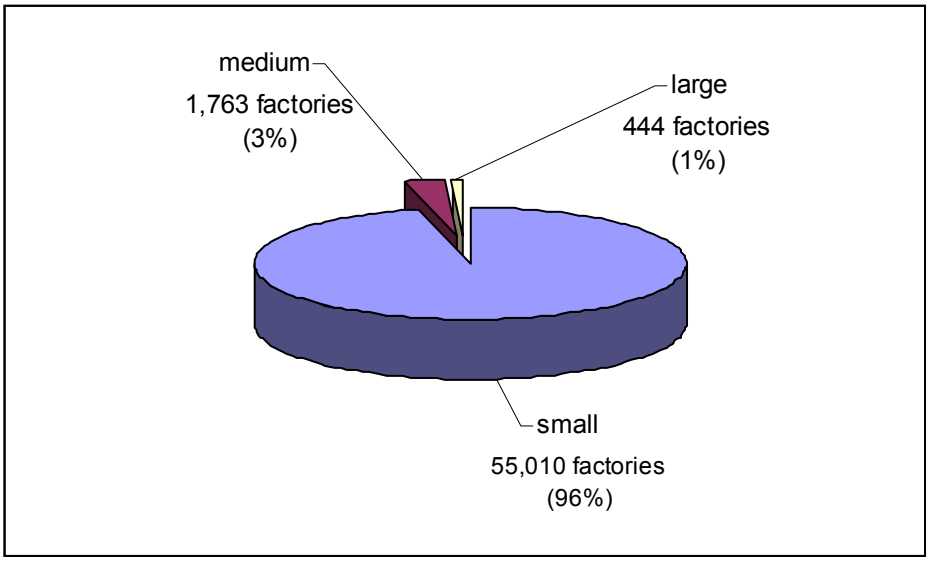
Factory Size	Capital Investment	Workforce
Small	Less than 10 million baht	Less than 50 persons
Medium	10-100 million baht	50-200 persons
Large	Over 100 million baht	Over 200 persons

Source: Department of Industrial Works, Ministry of Industry

Table 2. Number of Food Factories in Thailand

Type of Factory	Small	Medium	Large	Total
Meat & Poultry Products	443	81	34	558
Dairy Products	38	34	16	88
Fishery Products	277	131	54	462
Vegetables Oils & Animal Oils	140	55	27	222
Fruits & Vegetables Products	293	160	30	483
Cereal Products	1,209	147	31	1,387
Syrup & Sugar	57	13	60	130
Tea, Coffee, Cocoa, Chocolate & Confectionery	415	71	18	504
Seasonings	342	57	17	416
Ice	988	290	2	1,280
Alcoholic Beverages	5	13	29	47
Bottled Water & Non-alcoholic Beverages	193	47	29	269
Starch, Grind & Pound Grain	309	96	30	435
Ricemill, Pellet & Chip Tapioca and Others	49,940	376	29	50,345
Animal Feed	361	192	38	591
Grand Total	55,010	1,763	444	57,217

Source: Department of Industrial Works, Ministry of Industry (updated March 14, 2000)



Proportion of Factories Categorized by Size

IMPLEMENTATION OF FOOD CERTIFICATION SYSTEMS

Food certification systems currently implemented in food industry in Thailand are GMP, HACCP, ISO 9000, and ISO 14000.

While development of GMP and HACCP food safety management systems in food factories for export depend upon the laws and regulations of the importing countries pressure from customer requirements, especially from European countries has a significant effect on the implementation of ISO 9000, ISO 14000.

Thai Industrial Standard Institute (TISI) under the Ministry of Industry is the focal organization for implementation of ISO standards such as ISO 9000, ISO14000. As mentioned earlier, food companies which export products to the European countries seek ISO 9000 and ISO 14000 certification. Since ISO standards are not mandatory, only few food companies have implemented ISO 9000 and ISO 14000.

Food safety management system i.e., GMP&HACCP system is nowadays a big issue in Thailand. The Agreement on the Application of Sanitary and Phytosanitary Measures (SPS) of WTO, which refers the Codex standard of FAO/WHO, has greatly influenced regulations in many countries including Thailand. Approval of the Guidelines on the Application of HACCP to be the Annexure of the General Principles of Food Hygiene; CAC/RCP1-1969, Rev. 3 by Codex Alimentarius Commission in June 1997 further pressured various countries to promote HACCP system among their food producers with the concept of introducing food safety from farm to table through laws and regulations.

Japan is the largest importer of Thai food products importing almost all types of products including seafood, meat products, vegetable and fruit. The government of Japan requires the use of HACCP system, which was introduced in the Food Sanitation Law amended in May 24, 1996, only on a voluntary basis. However, Japanese consumers are exceptionally concerned with food safety, especially after the *E. coli* O157:H7 outbreak in 1995 and the food poisoning incidents in milk products in 2000. This consequently compelled many Japanese retailers to accept food products only from manufacturers with HACCP or equivalent system certified.

In order to develop food safety systems both for domestic and export establishments, Ministry of Public Health is designated as the principal regulatory organization with the Department of Health and the Food and Drug Administration (Thai FDA) as the supporting departments in charge of the food service sector and food industry respectively.

In brief, the primary role of the Department of Health is to develop and upgrade sanitary conditions in food services, such as restaurants, street foods, school canteen, fresh markets, supermarkets, and household kitchen. It is also responsible for keeping consumers well informed about the risks and hazards associated with unsanitary and unsafe food consumption and promoting food sanitation information, knowledge and technology.

On the other hand, the main tasks of the Thai FDA are to control and monitor the safety of food products manufactured in Thailand as specified in the Food Act of B.E. 2522. The Thai FDA also has the responsibility to ensure that the development of such control measures corresponds with international standards, so that Thailand would be recognized internationally as a safe and competitive food market. The regulations laid down would have to be consistent with the Agreement on the Application of Sanitary and Phytosanitary Measures (SPS) of the World Trade Organization (WTO), which recognizes the international standards work of Codex (standard of FAO/WHO).

Therefore, in 1985, the Umbrella GMP (also known as the Good Hygiene Practices: GHP) standard was issued on a voluntary basis and was subsequently made mandatory from July 24, 2001. New domestic and export food plants seeking registration would have to comply with the GMP/GHP regulation while factories registered prior to July 24, 2001 are allowed 2 years for implementation.

Thai FDA has been encouraging HACCP and its practice since 1997 by arranging seminars and training programs along with various organizations including Technology Promotion Association (Thailand-Japan), the Food Technologist Forum under the Food Group of the Federation of Thai Industries, and universities. Moreover, since November 1997, the Thai FDA in collaboration with the Thai Industrial Standard Institute (TISI) have been training teams of HACCP auditors according to the ISO Guide 62 as well as providing HACCP certifications to food factories. At present, due to insufficient workforce, the Thai FDA has discontinued its auditing services while the TISI still audits HACCP system to further facilitate food exports. The HACCP standard, which is voluntary, directly refers the Codex standard and has been translated into Thai by the TISI.

Because of the country's export-oriented policy and the large number of food processing plants, the Ministry of Public Health's duty as the principal regulatory agency has become increasingly overwhelming. The limited number of experts not only has to monitor food producers to ensure that laws and regulations are not broken, but at the same time, has to provide manufacturers throughout the country with guidance on implementing the GMP system to meet the July 24, 2003 deadline. Therefore, concerned agencies became involved in assisting food companies, especially those that export, in the implementation of food safety systems.

There are several supporting departments, which also assist food manufacturers in implementing food safety systems but do not hold the legal control as in the case of the Thai FDA. These organizations include the Department of Fisheries and the Department of Livestock Development under the Ministry of Agriculture and Cooperatives, the Department of Medical Science under the Ministry of Public Health and the Thai Industrial Standard Institute under the Ministry of Industry.

Despite the number of government agencies involved in guiding and certifying GMP and HACCP systems as mentioned above, the food safety system implementation still cannot be made fast enough since these agencies also have to perform their normal duties. Therefore, the National Food Institute (NFI) was established in 1996 to facilitate food industry in various aspects of production and export and to act as a coordinator between the industry and government. As for HACCP implementation, the NFI is also associated with the internationally accredited Campden and Chorleywood Food Research Associations (CCFRA) of UK and Technical Food Information Spectrum (TFiS) Inc. of USA to provide additional consultation and training on HACCP system to the food industry as well as university professors and government officials. Number of food companies have participated in these HACCP implementation programs with 80% of the expenses paid by the government.

Nevertheless, NFI, which has limited financial support and personnel trained and experienced in food safety, is still unable to meet the industry's heavy demand. Therefore, there are still many more food manufacturers that lack the knowledge and understanding about GMP and HACCP system. Thus, Thailand Productivity Institute (TPI) as well as many associations, such as Food Science and Technology Association of Thailand (FoSTAT), Technology Promotion Association (Thailand-Japan), and various universities, have begun offering short public training courses (2-3 days). Technology Promotion Association (Thailand-Japan) has also organized distant learning program particularly for companies far away from Bangkok. Thailand Productivity Institute also provides consulting services on implementation of GMP and HACCP. Many local and international private companies provide consultation to manufacturers on the implementation of GMP and HACCP with services ranging from public training and in-house training to auditing.

In addition to the aforementioned government organizations, there are many international companies recognized by the importing nations that are also authorized to provide GMP and HACCP certification in Thailand.

The followings are the Thai government units that provide GMP and HACCP auditing service and issue certification:

1. Department of Fisheries, Ministry of Agriculture and Co-operatives
2. Department of Livestock Development, Ministry of Agriculture and Co-operatives
3. Department of Medical Science, Ministry of Public Health
4. Food and Drug Administration (FDA), Ministry of Public Health
5. Thai Industrial Standard Institute (TISI)

In addition, there is a non-profit organization under the Ministry of Industry, namely the Management System Certification Institute (Thailand) or MASCI, which also provides GMP and HACCP auditing and certification.

Private companies, which are predominantly international firms, also provide GMP&HACCP audit services and are listed as follows.

1. SGS (Thailand) Ltd.
2. RWTUV (Thailand) Ltd.
3. TUV Rheinland (Thailand) Ltd.
4. BM Trada (Thailand) Ltd.
5. AJA Registrars Ltd.
6. AFAQ/Best CERT (Thailand) Co., Ltd.
7. Campden and Chorleywood Food Research Association (affiliated with National Food Institute)
8. AIB International (U.S.A.)
9. Food Industry Consultant (auditing and certification services under Technical Food Information Spectrum or TFiS of the United States) etc.

From a preliminary survey of the Thai food industry conducted in October 11, 2001, it was found that a total of 332 factories had received HACCP certification (Table 3), out of which over 80% were large and medium-size companies.

Table 3. Number of HACCP-certified Factories in each Food Industry Sector

Food industry sector	Number of HACCP-certified factories	% of total number of factories
Fishery	195	58.73 %
Livestock	34	10.24 %
Vegetable and fruit	39	11.75 %
Rice/Flour products	19	5.72 %
Milk and milk products	12	3.61 %
Seasoning, coffee, and others	33	9.93 %
Total	332	100 %

Source: National Food Institute

PROBLEMS ENCOUNTERED DURING FOOD SAFETY IMPLEMENTATION AND CERTIFICATION

Government's Lack of Management of GMP and HACCP System Implementation at National Level

Managing the implementation of GMP and HACCP system in a country should be done in a systematic way with a single framework. In Thailand, there are large number of government and private organizations with the responsibility for various aspects of strengthening GMP & HACCP system such as provision of information, development of food safety system, auditing etc. These organizations do not always work in a coordinated way and sometimes lack communication, resulting in an unclear policy for the food industry. Although, the food industry is responsible for the implementation of GMP & HACCP systems, the government policy should be supportive so that the factories encounter the least number of problems or obstacles in implementing GMP&HACCP systems.

Lack of Management Commitment

Implementation of GMP & HACCP system is usually costly. Therefore, most companies, especially the small and medium- size factories, which produce food for domestic consumption, are reluctant to implement GMP and HACCP systems.

Lack of Qualified Personnel

There are not enough food scientists/technologists in Thailand to meet the heavy demand of food factories. Further, to hire a food scientist or technologist is costly for the small- and medium-scale companies.

Although many factories have employees with education in food science and technology, they still lack the experience and information regarding food safety. This prevents them from effectively implementing GMP and HACCP systems.

Therefore, the government has provided large amount of funding in employing consultants to develop GMP and HACCP systems for small and medium scale factories with the NFI as the facilitator. However, there're still not enough qualified consultants who really understand food safety since it requires a person with management system skills and technical knowledge as well as experience related to food hazards and their controls.

Although theoretically, GMP&HACCP was developed for factories to have a self-control system, third party audit is still needed to build confidence. Auditing is therefore necessary for a complete GMP&HACCP system implementation. Hence, it is necessary for Thailand to build up qualified auditors to meet the demands of food factories since auditing service is continuing.

According to the information obtained from various sources, at present, there are altogether less than 200 food safety consultants with different consulting agencies in Thailand. In addition, there are about 100 HACCP auditors who are registered with both government and private certifying agencies. When compared with the number of food processing plants throughout Thailand, which is over 55,000 factories, it is obvious that the country is in short supply of consultants and auditors.

Lack of Coordination Between the Industry, Government, and Certifying Agencies

In the development of GMP&HACCP system, which often ends with system audit, the certifying agencies have a significant impact on the implemented system, especially in regards to document development, which is influenced considerably by the documentation system of the ISO 9000 standard. Although ISO 9000 documentation is a good system, the number of documents that need to be prepared can be tremendous and may make things more complex for the factories. In addition, because the *General Principles of Food Hygiene* and the *Guidelines on the Application of HACCP* of Codex did not mention about the amount of documents that need to be prepared, particularly documents related to the Prerequisite Programs, each certifying agent is free to specify the number of documents required. This causes variation between the certification bodies as well as the individual auditors. Presently, large and medium-scale factories have gradually become more familiar with the documentation system through training while small plants still require more time.

An important element in implementing GMP&HACCP system is that the GMP&HACCP team should have knowledge, experience, and food safety information. When the industry, the consultants, and the certifying bodies have different knowledge, experience, and information, there are often conflicts in the implementation of GMP&HACCP system, especially in the case of government auditors, who lack hands-on experience and are excessively cautious.

Although various organizations have conducted courses including those for developing GMP&HACCP auditors and consultants, these courses do not cover food safety problems specific to each of the food sector in detail. As a result, the development and auditing of GMP&HACCP system, in most cases, is basically the development and auditing of documentation system rather than a true GMP&HACCP system, which focuses on eliminating food safety hazards associated with a particular food product.

Lack of Early Development of Human Resources Starting at the Primary School Level as well as Research Data to Support GMP&HACCP System Implementation

The development of food safety awareness in employees requires considerable amount of time, and there are many methods of teaching to create this sense of awareness. Teaching through training courses for just a few days apparently cannot create this awareness. Food safety awareness will have be fostered through integrating this topic in the curricula from primary school and up through the education system. In addition, the food industry requires, scientific support from government organizations, institutes and universities in implementing GMP&HACCP system. This could include the establishment and validation of critical limits, for a particular food hazard.

SUCCESSFUL CASES IN THE IMPLEMENTATION OF FOOD QUALITY ASSURANCE IN THE FOOD PRODUCTION CHAIN

Thailand is one of the major exporters of processed chicken meat and shrimp products to Japan and the countries in the European Union.

Thai Chicken Export and Producer Association incorporated with the Department of Livestock Development forced the member companies, which produce chicken products and feed to implement GMP, HACCP and ISO 9000. Moreover, the Department of Livestock Development has implemented the Code of Practice related to antibiotics, which can be used in feed for raising chicken as mandatory from 1 November, 1999. This code of practice enables the control of drug residues in chicken products which facilitate the implementation of HACCP system in the factories producing chicken products. To comply with the EU white paper, the Department of Livestock Development has also issued a regulation regarding the standard of farms for chicken rearing in 1999. Farms for chicken rearing therefore need to get registration within the year 2000. In addition, the department of Livestock Development has provided manuals regarding animal welfare for farms, transportation and slaughterhouse. Till date, most of the member companies have got GMP&HACCP certification while 50% of the member companies received ISO 9000 certification.

In regards to shrimp products industry, Thai Frozen Foods Association and Shrimp Processors Association incorporated with the Department of Fishery conducted a Code of Practice for Cultivation of Shrimps in Farms. Therefore, the problems encountered with antibiotic residues in shrimp products reduced remarkably and effective HACCP system could be implemented. Seventy percent of the member companies got HACCP certification and some ISO 9000. Some of the member companies are now under the process of preparing for ISO14000 certification.

RECOMMENDATIONS

- Food safety could be strengthened by strengthening the links along the food chain and building in demands by the next person in the chain - this would copy in some way the customer-led approach to applying HACCP as we have seen by demands of the customer in the importing country.
- Thailand needs a national policy to facilitate the development of the food safety system through the entire food chain.
- It is recommended that government policy should aim at providing knowledge, training, consultation and financial support (for modifying building structure and equipments) while ensuring that there are sufficient resources for auditing these factories.
- It is recommended that Thailand designate a separate organization that is responsible, for GMP&HACCP implementation for the whole country with a clear objective, strategy and plan.
- It is recommended that the small factories receive greater inputs from the government such as financial assistance and training appropriate to their needs, level of development etc.
- The quality and quantity of private consultants must be assured through a government program to manage development of human resources under a single standard. The aim is to assure good practices, maintain fair prices and protect the food industry against poor work of consultants.
- A national policy on facilitating food safety through the application of GMP and HACCP should include clear procedures for the auditing/certification of factories to ensure a uniform approach. The emphasis of food safety audits should be on the effectiveness of the HACCP system and not solely on the documentation.
- A central government database could be set up to collect information confirming the condition or status of the food safety systems at each factory.
- Food safety awareness should be integrated into curricula from the primary school level in order to create an effective workforce. In addition universities should have strong programs on food science, quality assurance, research to support the food industry in establishing critical limits, validation exercises etc. Therefore, the government should promote the development of academic curricula, textbooks, and research projects related to food safety awareness as early as the primary school level in order to create effective workforce and research data that aids HACCP system implementation.

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18. VIETNAM

Nguyen Quang Dung
Lead Auditor (QMS, Product and HACCAP)
Vietnam Certification Services
(QUACERT)
Hanoi

INTRODUCTION

At present, there are about 5,000 state owned, around 80,000 non-state ones and over 2.1 million private production, trading and service establishments throughout Vietnam. In the process of converting from centrally planned economy to market, Vietnam is now involved in international economic integration. As a member of ASEAN, APEC and in near future of WTO, Vietnamese enterprises are looking forward to great opportunities and the challenges that accompany them.

In the food sector, nowadays, as required by customers, food must be safe. Food safety is the first quality standard, which many quality organizations or countries require of food suppliers or exporters.

Vietnam is exporter of many food items, including seafood (US $ 2.24 billion). Agriculture products (US$3.27 billion) constitute 26 % of total export (US$19.8 billion), and country occupies a leading position in export of some items (e.g. rice, pepper).

Domestic food production accounts for 23% of GDP and greatly contributes to Poverty Reduction Programs and is gradually changing its focus from “food security” to “food safety”.

CURRENT STATUS OF FOOD CERTIFICATION SYSTEMS

System Certification (ISO9000/14000/GMP/HACCP/OHSAS/SA8000)

Since the first Vietnam Quality Conference in 1995, more than 1200 enterprises and organizations have been verified and found to be conforming to international standards in quality, environment, safety and social welfare systems. Food sector accounts for about 10% of the total ISO 9000 /ISO 14000 certificates. Especially, ISO 9000 has been developed and well known as a symbol of quality and the realization of “quality culture” is perceptible in organizations, consumers and society. The benefits of successfully applying quality system standards are bringing feeling of confidence to customers, improving the image of businesses, increase the profit of enterprises by optimally using resources and improving their process control as well as increase ability to fulfill customer’s requirements. However, number of certificates is still very few compared to 90,000 enterprises registered to do business across the country.

Together with more than 50 consulting organizations such as Vietnam Productivity Centre (VPC), Quatest 3, SMEDEC, APAVE, there are about 15 certification bodies having activities in Vietnam, with pressing requirements of the market mechanism for certification.

However, in practice, application of ISO 9000 and other systems do not fully ensure supply of safe food due to their ineffectiveness in preventing cross-contamination in the food production chain. For ensuring safe foods, food manufacturers should apply GMP/HACCP system or HACCP based system like SQF 2000.

- GMP focuses on cleanliness, control all factors that affect safety in food such as primary production, designing, building, and installing equipment and processing tools, service conditions, production processes, preservation and distribution etc. to ensure against risk and harmful effects to customers.
- HACCP concentrates on control points of processes in order not to exceed limits. Application of HACCP shall ensure high quality and safe foods and customer’s confidence. HACCP requires GMP (or SSOP, GHP) as pre-requisite program.

In Vietnam, the first food safety system based on GMP was implemented in 1993 (GMP/HACCP from 1998) under EU listing program as a condition to entering EU market. Recently 62 production units have been listed for third party certification. There are about 41 food production units certified with HACCP, majority of them from seafood exporters where HACCP is mandatory for entering importing markets.

Product Certification

There are two types of product certification schemes under operation:

Quality Mark: QUACERT (Vietnam Certification Services) is a certification body providing third party product certification. It's certification activities are a result of the decision number 49 of the General Directorate for Standard and Quality (STAMEQ). Manufacturers or companies can apply to QUACERT to have product certified to recognized standard under the Product Certification Scheme. The product can be certified to Vietnamese standard (TCVN), International or foreign standard(s), and the product certified to Vietnamese standard can bear Quality Mark. The scheme is based on the ISO certification system No5 and the applicant is awarded certificate only if the product(s) complies to standard and the factory has effective quality assurance system in place to ensure continuous compliance with the standard.

To certify a product that complies with the standard, QUACERT'S audit team shall conduct a factory audit and collect samples from the factory and the market. Follow up actions include the verification of audit report and analyses of the test results; if both are satisfactory, the company will be awarded a certificate which is valid for 3 years. During this period, surveillance audits shall be conducted every 6 months to ensure continuous compliance. Till Dec 2003; 145 companies (10 of them are food companies) and 233 products have been certified under this voluntary scheme .

Safety Mark: Mandatory Certification is applied for those products attached with safety requirements of compulsory standards. The manufacturer should self-declare that their product is in compliance with the requirements and samples are tested to prove compliance.

ISSUES AND PROBLEMS

There is a growing demand for food safety in many importing markets and of late food poisoning has frequently occurred in many areas in Vietnam causing alarm. For food sector, application of GMP/ HACCP (CAC/RCP 1 - 1969, rev 3 -1997 / TCVN 5603:1998) system is a consistent and serious solution for food hygiene and safety. It contributes greatly to Vietnam exports especially seafood. Second choice is the product certification with a requirement to comply with safety specifications within applied standard. As mentioned earlier, there are only 41 companies certified with HACCP, which is much below the potential market and majority of them are exporters. Some difficulties IN implementing the Food Certification Systems are as follows:

1) There are GMP and HACCP standards concerning procedures and process control to prevent risks of poisoning in the use of food. However, these standards are not allowed to be recommended on packs, causing great difficulties for customers in buying food and reduce the marketing effort of FCS. Furthermore, there is no internationally accepted guidelines for certification of GMP and HACCP causing difficulties for the agencies involved in GMP/HACCP certification.
2) There is no effective third party GMP certification scheme for food introduced and marketed As a result, no GMP certificate is granted to any food company in Vietnam so far.
3) Vietnamese food manufactures mostly belong to small / medium scale and lack funds to invest on infrastructure (establishment, equipment, etc.), pay for certification expenses. Further mores some enterprises still have a misconception that the implementation of food safety system needs high investment and GMP/HACCP is suitable only for bigger food processors and for seafood sector alone.
4) Docile domestic consumers and low level of industry's recognition of the importance of food sanitation and therefore the importance of food safety certification.
5) Technical constraints faced by the certification bodies and support organizations (consultancy, test laboratory, administration, etc.).
6) Recently, about 250 of 600 Vietnamese food standards have been harmonized with international standards (ISO/Codex Stan). However, application of national food standards in food enterprises is still low. Furthermore, in some cases, there is still difference between national standards and l requirements.

GOVERNMENT EFFORT TO IMPROVE FCS

Government encourages Vietnamese and foreign organizations, entities, families having food production and trading activities in Vietnam to apply model management systems in order to ensure sanitation and safe foods. *(Clause 5.2 of Food Art)*

"Vietnamese and foreign organizations, entities, families having food production and food trading activities in Vietnam have to declare the application of national standard (TCVN) or sector standard (TCVN) following the relevant regulatory requirements and procedures; In case of declaration of factory standard, that standard shall not below corresponding Vietnamese standard or sector standard." *(Food Art Chapter 6 - The Declaration of Food Safety standard - Clause 33)*

Food legislation:

Food quality is of great importance due to the impact of food in hearth of people and community. Vietnam Government has developed and enacted laws and regulations to protect people from harmful foods. These include:

1. The People's Health Protection Law (enacted on 7/11/1989);
2. The Quality of Commodities Act (enacted on 4/01/2000);
3. The Veterinary Act (enacted on 15/2/1993);
4. The Food Act (enacted 26/7/2003) and effective from Nov 2003.

Standardization:

Categories of standards in Vietnam:

1) National standard (TCVN) issued by Ministry of Science and Technology
2) Sectoral standard (TCN) issued by concerned Ministry
3) Factory standard (TC) issued by business entity itself

For the food industry, Vietnam is adopting international standards in food (ISO, Codex Stan..). Recently, Vietnam has accepted and harmonized about 250 international standards into Vietnamese standards (44% of total national food standards) including guidelines of Codex GMP/HACCP:(CAC/RCP 1 - 1969, rev 3 -1997). Almost ALL national standards / sectoral standards are mandatory and the producer must self-declare their products conforming to concerned standard by following 3 steps:

1. Self-declare their food standard and submit declaration to concerned authority
2. Prove that product certified to declared standard by internal or third party external certification including attachment of test report from the accredited laboratory
3. Accept hygiene inspection from concerned authority

Regulation on food labeling and advertising:

Advertisements on foods, additives, processing aids, preservatives, pesticides, high-risk foods must be accurate, clear and truthful and meet consumer information needs. The advertiser must bear all responsibilities about content of their advertisement under laws.

Labeling on food package must at least includes information follows:

1. Name of food and trademark
2. Address and name of the manufacturer
3. Content
4. Ingredients
5. Nutrition facts
6. Preservation condition and usage instruction
7. Production data and expiry data
8. Country of Origin

Enforcement of legislation:

According Food Act, the Department of Health is responsible for dealing with general regulatory matters related to food and responsible for food sanitation and safety of food in the market and protecting the consumer and community, from harmful effects of food. Other ministries shall co-operate with Ministry of Health in food regulation. Government agencies involved in the management in food safety are as follows:

The Ministry of Agriculture and Rural Development

- Ensure the safe use of Fertilizers, Veterinary Antibiotics, pesticides and other chemicals used in agricultural production
- Ensure the safe use of Generic products, Feeds and appropriate technology for farming, harvesting in agricultural production
- Ensure the safe use of seeds, livestock and generically diversified farm products
- In charge of Fresh Food products
- Veterinary related issues

The Ministry of Fisheries
- Fishery and Seafood products

The Ministry of Industry
- Regulate the Food Processing within the factory
- Ensure adequate use and development of Food Processing Technology

The Ministry of Science and Technology
- Development of National Standards for food
- Provide List of products to be mandatory for self-declaration and inspection
- Serve as ISO and Codex contact point

Ministry of Health
- Ensure safety of finished foods, hygiene control of food in the market
- Ensure the safety of Drinks, Beverages, Alcohols and Tobacco
- Co-operation with other agencies to protect the consumers against fraud and dishonest traders
- Protect consumers and community from food poisoning or unsafe foods

Ministry of Trade
- Food Import/Export
- Ensure food labeling meeting requirements

SUGGESTIONS FOR ENHANCING NATIONAL FCS FOR BETTER MARKETING

Development of Food Act in July, 2003, has created important opportunities for FCS and reflect the change in government management mode, from relying on regulation/ inspection of end product to preventive measures like implementing quality management system (GMP/GHP/HACCP) and emphasis on self-regulation of the food enterprises and voluntary certification. Some suggestions which could be considered to enhance for better FCS are:

1) Improving technical capacity of human resources and infrastructure through training of inspectors and increasing the capabilities of laboratories;
2) Develop and introduce uniform guidelines for application of food safety system like GMP and HACCP;
3) Promote GMP certification in food sector;
4) Increase the harmonization Vietnamese standards with Codex Standards in line with the abilities of local food industries;
5) Consider the introduction and promotion of application and certification of ISO 22000, the combination of ISO 9000 and HACCP;
6) Develop technical expertise and training programs to help the enterprise implementing HACCP in conducting risk analysis and develop HACCP plan; and
7) Provide financial assistance to help food producers especially the SMEs in application and certification of food such as tax reduction, low interest loans, etc.

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1. LIST OF PARTICIPANTS, RESOURCE SPEAKERS AND SECRETARIAT

A. PARTICIPANTS

Country	*Name/Official Address*
Bangladesh	Mr. Abdur Rouf Director, Movement, Storage & Silos Directorate General of Food 16 Abdul Gani Road Dhaka - 1000
Rep. Of China	Ms. Guey-Pyng Lin Associate Researcher Food Industry Research and Development Institute No. 331, Shi-Ping Rd. Hsin-Chu City, Taiwan
Fiji	Dr. Riteshni Tarak Acting Senior Veterinary Officer Ministry of Agriculture, Animal Health & Production Division 10 Toa St., Vatuwaqa
India	Dr. Prem Kumar Jaiswal Director of Laboratories Central Agmark Laboratory Directorate of Marketing and Inspection Ministry of Agriculture, Government of India North Ambazari Road, Nagpur 440 010
Indonesia	Ms. Ennatha Sri Haryani Head of Accreditation Division Center for Standardization and Accreditation Building E 7th Floor, Ministry of Agriculture Jl. Harsono RM No. 3, Ragunan Jakarta Selatan
Iran, Islamic Republic of	Dr. Mehrdad Tajkarimi Expert of Industrial Investigation Office Iran Dairy Industries Company (Pegah) No. 57, West Ghobadian St. Vali-e Asr Ave. Tehran
Korea, Republic of	Dr. Jeong-Weon Kim Senior Researcher Korea Health Industry Development Institute 57-1 Noryangjuin-dong, Dongjak-gu Seoul

Lao PDR	Mr. Bounta Athitang Chief of Trade Promotion Policy Division Lao Trade Promotion Center, Ministry of Commerce 104/4-5 Khounboulom Rd., Chauthabury District Vientiane
Malaysia	Ms. Norma Othman Assistant Director Department of Agriculture 5th-7th Floor, Wisma Tani, Jalan Sultan Salahuddin 50632 Kuala Lumpur
Mongolia	Ms. Altangerel Khajidsuren Member of Board of Director's of Mongolian Food Association Mongolian Food Association, POB - 633 Ulaanbaatar-44
Nepal	Ms. Sandhya Karmacharya Food Research Officer, Laboratory Incharge Public Analyst of Food/Feed Commodities Department of Food Technology & Quality Control Ministry of Agriculture and Cooperative HMG/Nepal, Babar-Mahal, Kathmandu
Pakistan	Dr. Faqir Muhammad Anjum Director Institute of Food Science and Technology University of Agriculture, Faisalabad Faisalabad
Philippines	Mr. Alberto Reyes Cariso Acting Assistant Director Food Development Center, National Food Authority FTI Complex, Taguig City Mr. Gilberto F. Layese OIC-Director Bureau of Agriculture & Fisheries Product Standards BPI Compound, Visayas Avenue, Diliman Quezon City
Sri Lanka	Dr. Dharmassree Bandara Tennehene Wijeratne Director (Research, Development & Marketing) Export Agriculture Enterprise Development Unit Ministry of Agriculture & Livestock Govi Jana Mandiraya, Raja Malwata Road Battaramulla
Thailand	Ms. Janna Sanguanroongvong GMP/HACCP/ISO 14000 Consultant Thailand Productivity Institute 15th Floor, Yakult Building, 1025 Paholyothin Road Bangkok 10400

(Thailand)

Dr. Suwimon Keeratipibul
Assistant Professor
Department of Food Technology, Faculty of Science
Chulalongkorn University
Phyathai Road
Bangkok - 10330

Vietnam

Mr. Nguyen Quang Dung
Lead Auditor (QMS, Product and HACCP)
Vietnam Certification Services (QUACERT)
8 Hoang Quoc Viet, Caugiay District
Hanaoi

B. RESOURCE SPEAKERS

Dr. Saipin Maneepun
Director
Institute of Food Research and Product Development
Kasetsart University
50 Phaholyothin Road, Chatujack
Bangkok 10900, Thailand

Dr. Morton Satin
International Consultant
606 Autumn Wind Way
Rockville, MD 20850
USA

Mr. Cornelis Sonneveld
Managing Director of Alesun Food Technology
Alesun Food Technology
Ottenbackstraat 5
5721 AX Asten
The Netherlands

Dr. Yoshihisa Onishi
Director, Information Service & Technical Cooperation Department
Japan Food Industry Center
1-9-13 Akasaka, Minato-ku, Tokyo
107-0052 Japan

Ms. Atsuko Okajima
Councilor and Deputy Director-General
Food Safety and Consumer Affairs Bureau
Minister's Secretariat
Ministry of Agriculture, Forestry and Fisheries
1-2-1 Kasumigaseki, Chiyoda-ku, Tokyo
100-8950 Japan

Mr. Kazuo Onitake
Safety Policy Service
Japanese Consumers' Cooperative Union
CO-OP Plaza 3-29-8, Shibuya, Shibuya-ku, Tokyo
150-8913 Japan

Mr. Shiro Sakamoto
Food Safety Control Department
JA Zen-Noh (National Federation of Agricultural Co-operative Association)
1-8-3 Otemachi, Chiyoda-ku, Tokyo
100-0004 Japan

C. SECRETARIAT

JICAF

Ms. Akiyo Nishiyama
International Cooperation Division
Japan Association for International Cooperation of Agriculture and Forestry
19, Ichibancho
Chiyoda-ku, Tokyo 102 0082, Japan
Tel: 81-3-3245-1164
Fax: 81-3-3245-1156

APO

Mr. Kunio Tsubota
Director
Agriculture Department

Dr. Muhammad Saeed
Program Officer
Agriculture Department

Asian Productivity Organization
2-10, Hirakawacho 1-chome
Cihyoda-ku, Tokyo 102-0093, Japan

Tel: (81-3) - 5226-3924
Fax: (81-3) - 5226-3954
e-mail: agr@apo-tokyo.org
URL: www.apo-tokyo.org

2. PROGRAM OF ACTIVITIES

(21-28, January, 2004)

Date/Time	Activity
Wed. 21 January	
Forenoon	Opening Session Presentation and Discussion on Topic: "Current food certification systems in the Asia and Pacific region - Issues and strategies" By Mr. Cornelis Sonneveld
Afternoon	Presentation and Discussion on Topic: "Enhancing export capacities of developing countries through strengthening their food certification systems - Challenges and opportunities" By Dr. Saipin Maneepun
	Presentation and Discussion on Topic: "Institutional setting in Japan for better food quality assurance and safety" By Ms. Atsuko Okajima
Thu. 22 January	
Forenoon	Presentation and Discussion on Topic: "Current food certification systems in the EU - Issues for marketing and trade development" By Dr. Morton Satin
	Presentation and Discussion on Topic: "Achieving safety and reliability in food" By Dr. Yoshihisa Onishi
Afternoon	Presentation and Discussion on Topic: "Systemization of food production at the Zen-Noh Groups" By Mr. Kazuo Onitake
	Presentation of Country Reports by participants
Fri., 23 January	
Forenoon	Continuation of Presentation of Country Papers by Participants
Afternoon	Continuation of Presentation of Country Papers by Participants
Sat, 24 January	
Forenoon	Workshop
Afternoon	Workshop (continued)
Sun., 25 January	Free
Mon., 26 January	
Forenoon	Leave Tokyo for Kobe
Afternoon	Visit Japanese Consumers' Cooperative Union COOP Kobe Visit COOP Days Ashiya Shop
Tues., 27 January	
Forenoon	Visit Hyogo Prefecture Government Office
Afternoon	Return to Tokyo
Wed., 28 January	
Forenoon	Summing-up Session Closing Session