Introduction

Many African countries do not have adequate food security, resulting in a situation where at least 60% of the food supply is imported to supplement local production. Guaranteeing the safety of both imported and locally produced food begins on the farm and follows through the entire food chain until meals are on the table. This important task of assuring food safety requires a multidisciplinary approach including agricultural production, food science and technology, public health, toxicology, microbiology, chemistry and food law, among others. The pressure of growing human populations has also resulted in the globalization of food trade, which is associated with a substantial increase in food production and movement of food through international trade. This massive movement of food and the threat of its widespread contamination make individual interventions in food safety ineffective. It is therefore imperative that governments, the private sector consumers and other stakeholders work in a concerted manner in this shared responsibility of assuring food safety from farm-to-fork. Cooperation at the national, sub-regional, regional and international levels provides opportunities for synergy and maximized benefits for improved human health and economic development.

This paper discusses the modalities for bettering cooperation in food safety assurance by describing the coordination between the multiple agencies involved in food control systems in selected countries. It further discusses good practices in cooperation and collaboration in food safety at national, regional and international levels and provides recommendations for consideration by Member States.

Food control systems in Africa

In 2002, WHO conducted an assessment of the status of food safety programmes in the African Region and collected data on the availability of food safety legislation and their coverage, food inspection systems, mechanisms for monitoring of food exports and imports, surveillance systems for food-borne diseases and microbiological monitoring, human resource development and public education. The findings from 28 responding countries in the WHO African Region showed significant gaps in national food legislation and inadequate linkages between strategies to ensure food safety. The study further showed that existing laws were often outdated, overly prescriptive and fail to adequately address the whole range of food safety concerns. Studies by other international organizations identified similar problems associated with food legislation, regulations, laboratory, inspection and monitoring services, administration of food
control, manpower development as well as funding of food safety programmes. The following examples describe food control systems in selected African countries that have several institutions working towards achieving the common goal of protecting the health of the consumer. These systems are associated with duplication of functions due to the absence of clear guidelines on responsibilities and mandates.

In Mozambique, the Food Safety Unit is under the Department of Environmental Health within the Ministry of Health and is responsible for regulation, standards, etc. The main partners of the Ministry of Health in the area of food control are the Ministries of Agriculture, Commerce, Fisheries and the National Institute of Normalization and Quality. In Malawi, the Ministry of Health and Population, Ministry of Local Government, Malawi Bureau of Standards and Consumer Association of Malawi are all responsible for the implementation of Food Laws. The Food Control Unit in Botswana is under the Community Health Services Division in the Ministry of Health, while in the Comoros, the Ministry of Environment and the Ministry of Agriculture are responsible for the implementation of food policy. In the Democratic Republic of Congo, through several decrees, the Ministry of Agriculture is responsible for animal health, the Ministry of Health for food safety and hygiene at the borders, the Ministry of External Trade for export and import inspection and the Ministry of Justice for food regulation.

The Ghana Food and Drugs Law (PNDC Law 305 B) and Amendment Act 523 seek to ensure that only safe and wholesome food, drugs and other substances are made available for public consumption. The production and sale of food is governed by food standards established and promulgated by the Ghana Food and Drugs Board of the Ministry of Health. There are regulations and by-laws to control food hygiene and the Metropolitan Medical Officer has the vested authority for their enforcement. The Ghana Standards Board and the Ministries of Agriculture and Trade, as well as Customs and Excise are all involved in food safety. Identical systems are in operation in Benin, Central African Republic, Liberia, Nigeria, Tanzania and Zimbabwe.

Activities for food safety and control in Uganda, as in many other countries, are uncoordinated and scattered in ministries and are implemented by different agencies and authorities whose mandates are provided for under various laws and regulations. The Ministry of Health is the custodian of food legislation and has two agencies with food safety functions. The Department of Environmental Health coordinates food safety matters and supervises the semi-autonomous Local Government Units, which employ health and food inspectors. The National Drugs Board controls the use and sale of medical and veterinary drugs and importation of food supplements. Other agencies, such as the Ministry of Agriculture, handle control of seeds, phytosanitary issues, marketing of food products etc. Other agencies are responsible for WTO matters such as the SPS and TBT Agreements, as well as promotion of food exports and certification. Inspection of food premises and their licensing, as well as meat inspection in abattoirs, are under the jurisdiction of the local governments.

The Department of Health, the Department of Agriculture and the South African Bureau of Standards are the key stakeholders in food control in South Africa. For day-to-day implementation, the food control system operates at the national, provincial and local levels. An evaluation of the system in 1995 revealed that it was impossible to determine which department represented the country in food control policy. The evaluation recommended the creation of a new modern, effective and internationally-recognized food control system. There is general consensus on the way forward, but high level acceptance and approval for its implementation is still awaited.

In order to overcome the problems associated with fragmentation of food control systems and the lack of collaboration between sectors, some countries have established modern and effective single Food Control Agencies that are internationally recognized or national food control authorities with inter-ministerial and interdepartmental representation. The Kingdom of Morocco has established and transferred all food control functions to a single government department called l’Agence du contrôle de la qualité de la
sécurité sanitaire des aliments (ACQSA). The establishment of ACQSA yielded several benefits including the modernization of the food control system, improvements in the efficacy of risk analysis, efficient use of material and financial resources, as well as increased visibility and credibility.

Certain countries, for example Ethiopia, Senegal and the Gambia are in the process of establishing national food control authorities. In Ethiopia, the lead government institutions responsible for food safety include the Ministry of Health, Ministry of Agriculture and Rural Development, Quality and Standards Authority of Ethiopia, Ministry of Trade and Industry and the Ethiopian Manufacturing Industries Association. These institutions work together in organizing training workshops, standard setting and drafting regulations. Since 2002, these bodies have established a Technical Committee that implements food safety assurance systems in accordance with the international market requirements, supported by the United Nations Industrial Development Organization (UNIDO). However, coordination of activities at the lower level of the hierarchy remains to be established and strengthened. Responsibilities and mandates are not clearly defined, demarcated or streamlined, resulting in insufficient coordination of activities, duplication of efforts, misuse of human resources and wastage of meagre financial resources allocated to the sectors. In order to overcome these problems, the existing Ethiopian Technical Committee has established the National Food Safety Council whose members are drawn from regulatory bodies, research institutes, industry, consumers and higher learning institutes involved in food safety. Similarly in the Gambia, a Council on Nutrition was formed that embraces all the agencies involved in food safety and is directly under the Office of the President. In Sierra Leone, the Bureau of Standards in the Ministry of Health is the National Codex Contact Point and works collaboratively with all food safety stakeholders through a number of technical committees, namely, Animal and Animal Products, Plant and Plant Products, General Purpose and Special Committees. All the agencies involved in food safety work collaboratively with the police on a nation-wide campaign on expired products.

Cooperation at local and national levels

Collaboration and coordination between food safety related laboratories

Laboratories are the backbone of all food control systems. In order to meet the requirements prescribed by international standards, laboratories should have state-of-the-art equipment as well as qualified and well-trained human resources to operate such equipment. Laboratories used for food control, especially those for export inspection and certification services, require accreditation as per international standards. Sufficient numbers of qualified personnel in food science, technology, biochemistry microbiology, chemistry and related fields are also required.

Upgrading laboratories and other systems also requires high resource outlays, which many African economies cannot afford on their own. DFID evaluated the cost of surveillance and food monitoring activities for aflatoxins for one laboratory at US$125,000 per year. Cato (1998)\(^1\) quantified the cost of compliance with sanitary and phytosanitary measures by developing countries and showed that upgrading sanitary conditions in Bangladesh required about US$17.6 million, with US$2.2 million per annum to maintain the system. Such costs would have been contained if different specialized laboratories sought synergies through coordination and collaboration. Unfortunately, such collaboration and coordination hardly exist. To facilitate the sharing of facilities, existing facilities could be assessed in order to determine their capabilities. These may be further strengthened to allow sharing of facilities both at national and regional levels. For example, the Tobacco Research Board in Zimbabwe, which offers services in food and water analysis, has the capacity to detect genetic modifications in foods. Member states of the region could share such a facility to ensure the identity of foods that are available to African consumers.

\(^1\) Cato, JC. 1998. Economic issues associated with seafood and implementation of seafood HACCP programmes. Rome, FAO
In Sierra Leone, as in many member states, some private laboratories, such as the Chemistry and Biological Sciences Laboratories of the University of Sierra Leone carry out laboratory analyses for the Ministry of Health. These laboratories and their technical staff could be internationally accredited in order to enable them carry out this important function. In Zimbabwe, cooperation between the Veterinary, Home Affairs and Environmental Health Departments ensures that cattle movement is restricted when outbreaks of anthrax or other zoonotic diseases occur. Cholera alert messages are also quickly transmitted to other provinces during outbreaks.

Communication between food control laboratories, government ministries, industry, NGOs, consumers and consumer groups

Food control laboratories are required to communicate effectively with all stakeholders along the food chain, including government bodies, research and academic institutions, the food production and processing sector and consumers. An informed and active public and knowledgeable industry are cornerstones to effective risk management. Communication and knowledge are the only ways to deal effectively with consumer concerns and fears. Transparent systems and procedures are required to ensure that consumers and other stakeholders are properly informed on both sporadic cases of food-borne illness and food safety emergencies. The procedures for managing such risks should involve all stakeholders. This also applies to routine food safety matters that will require easy-to-understand summaries of current food safety issues for public distribution.

An especially important role of the food industry is communication with consumers. The industry widely uses integrated communication programmes including advertising, marketing and product promotion. Product labelling is another means of communication that allows the consumer to make informed decisions on products. Labels must therefore avoid making false and misleading health claims. Advertising and labelling must not only be used as one-way communication systems but must allow informed consumer feedback to food producers and distributors.

Cooperation at regional and subregional levels

Collaboration and coordination between food control and public health laboratories

In addition to the importance of cooperation in food control laboratories at national and local levels, cooperation at regional and subregional levels could lead to the identification of centers of excellence to encourage the sharing of facilities and expertise.

There is good cooperation in the area of food contamination emergencies between the members of the Southern African Development Community (SADC). A case in point is the adulteration of food with the carcinogen Sudan Red, where information came in from Botswana to request all the member countries to remove the affected food from the shelves. The SADC Consultative Forum on SPS/Food Safety Issues, Windhoek, November 2002, noting that laboratory capacity amongst member states was unevenly distributed, recommended the upgrading of existing facilities into regional centers of excellence. These facilities could be shared among several states as a more cost effective and sustainable arrangement to deal with the problem of poor laboratory facilities in some countries.

A WHO Expert Group meeting on aflatoxins and health (2005) recommended the strengthening of health sector laboratories to include aflatoxin detection capability for human and food samples through collaboration with agriculture and other sectors. Indeed, an assessment of laboratories involved in food safety work could be carried out in order to identify the strengths and weaknesses of existing laboratories in the region. This information could be made available to member states indicating where to seek assistance
for laboratory support. Additionally, such information could be used to prepare action plans for strengthening of laboratories in the region.

This could function effectively through the establishment of WHO Collaborating Centres for food safety in the region. These centres have clearly defined functions, which collectively include (i) collection, collation and dissemination of information (ii) training, including research training and (iii) the coordination of activities carried out by several institutions.

**Collaboration in international standard setting**

The aim of the Codex Alimentarius Commission is to protect the health of consumers and to ensure fair practices in the food trade. This is achieved through the standard-setting work of the Commission. The WTO SPS Agreement recognizes Codex standards as benchmarks for international trade and the TBT Agreement also refers to the use of international standards. Participation by individual African countries in the work of Codex had proved difficult due to cost and capacity constraints. This greater acceptance of Codex standards, as well as the establishment of the FAO/WHO Trust for Enhanced Participation in Codex, has increased the interest of countries in the activities of the Codex Alimentarius Commission. Preparation and presentation of country positions on issues often require a great deal of effort; therefore, FAO and WHO have developed a training package on the work and procedures of Codex to assist member states. Countries in the region do not only need to be physically present in Codex meetings, but they also need assistance to provide relevant data to the Codex system and to take an active part in the standard setting process. Strengthening of regional capacity and collaboration efforts in order to foster regional cohesiveness that will allow all countries of the region to have a common and more effective voice is of paramount importance. In view of the fact that standards applied to exports from the region are often dictated by international trading partners and are generally more stringent than Codex, member states could consider the development and enforcement of regional standards for food products, based on Codex texts.

**Sharing experiences in food control**

There is no mechanism in the region for the exchange of technical information on SPS and food safety issues on a regular basis. The situation is no better within countries, where information available within one agency is often not shared with or accessed by others. It is more cost-effective to have such information available at the regional level. Such a process could begin at the national and subregional level and feed into a system at the regional level. It is therefore important to develop a regional information exchange network which will include a website, regular publications and other existing modes of communication that will be available to member states.

**Public/private partnerships for regional and subregional capacity building in food safety**

Assuring food safety along the entire food chain requires partnerships and education at all levels, especially private sector and consumer education. Training and coordination is an essential element of the implementation of HACCP and all other activities involved in producing safe food. In order to produce safe food, all those employed in food production must be thoroughly trained in their responsibilities. In particular, the management should be conscious of the risks associated with the food business and must take adequate steps to mitigate such risks. Government officials should encourage private industries to apply Good Hygienic Practices (GHPs) using the Codex Code of Principles of Food Hygiene as well as other Codex specific guidelines for certain foods as one way to mitigate these risks. The Ministry of Agriculture or extension workers could also provide training to the private sector in the application of GHPs, Codex texts, and the safe use of pesticides, herbicides, antibiotics etc.
Education is also essential for the informal sector of the food trade. The street food sector requires special attention as it provides employment for more than 20% of the population who would otherwise be unemployed. In a study in Accra, Ghana, the street food sector had 15,000 vendors and employed 60,000 people. This resulted in a sector turnover of US$114 million and a sector profit of US$24 million (Obeng-Asiedu 2000)\(^2\). Educating street food vendors in safe food handling and personal hygiene can improve the safety of street foods, protect this important sector of the economies of poor countries and heighten consumer protection. Training these private sector vendors through outreach programmes that are organized by the public sector and NGOs could facilitate this process.

Private companies in developing countries could also implement outreach programmes as a valuable public service by providing effective messages to consumers, educators, health workers etc. Such support through dissemination of brochures and other promotional materials would complement efforts of Governments. Media campaigns and interaction with local government officials and schools could be used to educate the consumer about food safety. Such activities could be undertaken collaboratively by governments, professional groups and consumer organizations. The food industry could also assist governments to carry out training in proper food handling using the WHO Five Keys for Safer Foods and other tools from FAO, WHO and other agencies.

Non-governmental organizations, especially consumer protection NGOs should be interested in activities for food safety assurance as these ultimately seek to protect consumers from the adverse effects of contaminated food. They could therefore serve on national governmental food safety committees to discuss emerging food safety issues, make inputs in establishing national research agendas and act as a source of independent advice to food safety authorities. They could also participate in food safety-related consultations in order to direct the process based on consumer concerns. They would thus assure that necessary data and information are available to consumers in a transparent manner. The consumer would thus be educated on safe food handling and management of food-borne illness using easy to understand messages.

**Cooperation between FAO, WHO, other agencies and member states**

*Activities in capacity building*

There are many international organizations involved in food safety activities at the national level. Notable amongst these are FAO, WHO, UNEP, UNIDO, UNESCO and several non-governmental organizations. The mandates of these organizations differ in most cases. Given the complexity of the food chain and the problems encountered at each level, working in isolation may provide piecemeal solutions. It is imperative, therefore, that close collaboration occurs between all stakeholders at the national level in order to avoid fragmentation of efforts. At the national level, FAO, WHO, UNIDO and UNEP have carried out some joint projects on food safety assurance and environmental monitoring and have organized joint seminars and training courses. Representatives of these international organizations could further strengthen their relationships through the signing of joint protocols to provide a platform for the establishment of rapid alert systems to approach the issues linked to food safety and in mobilizing funds from the donor countries and financial associations.

FAO and WHO have historically worked towards improving food safety along the entire food chain. A report on activities in capacity building and in the provision of scientific advice was presented as Agenda items 3 and 4 during the 16th Session of the Codex Coordinating Committee for Africa in January 2005. Capacity building, including the provision of technical assistance has been achieved through collaboration between international organizations, national governments, international and regional

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economic institutions and NGOs. Activities conducted include evaluation of institutional structures for food control, formulation of recommendations for improvement and training of food control officials, food inspectors and food analysts in seminars, workshops and study tours. FAO and WHO also prepare joint training manuals and guidelines, provide support for the establishment and strengthening of National Codex Committees and provide policy advice and assistance in the development of regulatory frameworks. FAO/WHO have also been working together to provide technical assistance to member states in the preparation of applications to the Codex Trust Fund.

FAO and WHO work to complement each other in order to ensure effective utilization of resources. They successfully organized the two Global Fora for Food Safety Regulators, the first in Marrakesh, Morocco in 2002 and the second in Bangkok, Thailand in 2004. In June 2005, FAO/WHO facilitated a meeting of consumer non-governmental organizations at which the Guidelines for Consumer Organizations to Promote National Food Safety Systems was developed. Many other joint activities have been implemented as described in CAC/28 INF.5, an informational paper distributed at CAC28\(^3\). This Conference on Food Safety for Africa is another collaborative effort between the two sister organizations.

The two organizations are working towards continuously improving their coordination and communication mechanisms, especially at headquarters, regional and national levels. This need has never been more urgent, particularly for the nomination of participants to attend international meetings. Accurate information is not always communicated in a timely manner to the relevant parties, resulting in countries not being properly represented at FAO/WHO events. Experiences with countries applying for support from the Codex Trust Fund further underscore this need.

**International food standards**

FAO and WHO work together through the Codex Alimentarius Commission to establish international food standards and related texts; and provide scientific advice to Codex member countries through expert bodies such as the Joint FAO/WHO Expert Committee on Food Additives and Contaminants (JECFA), the Joint FAO/WHO Meeting on Pesticide Residues (JMPR), the Joint Expert Meetings on Microbiological Risk Assessment (JEMRA). In order to facilitate effective participation of member states in the international standard setting activities of the Codex Alimentarius Commission, FAO and WHO provide some funding for participation and training from the Joint FAO/WHO Codex Trust Fund.

**Food contamination monitoring and food-borne disease surveillance**

The WHO Global Environmental Monitoring System/Food Contamination Monitoring and Assessment Programme (GEMS/Food) started in 1976. The programme collects and provides information on chemical contaminants in food and their intake via food with a view to evaluate their significance to public health and trade. The programme has been collecting data on the levels of some priority contaminants such as organochlorine and organophosphate pesticides, toxic metals and aflatoxins in selected foods and in total diets. These data can be used to estimate the dietary intake of contaminants that can be applied in risk assessment and in establishing limits for these contaminants in foods in the international and national standard setting processes. The programme maintains and utilizes a network of WHO Collaborating Centers, national focal points and participating institutions. In Africa, Benin, Burkina Faso, Cameroon, Djibouti, Egypt, Kenya, Madagascar, Senegal, South Africa and Tunisia have planned total diet studies. GEMS/Food maintains links with a number of international organizations such as FAO, the International Atomic Agency (IAEA) the United Nations Environmental Programme (UNEP) and non-governmental organizations such as the International Union of Food Technology (IUFoST) and the

\(^3\) Available from ftp://ftp.fao.org/codex/cac/cac28/if28_05e.pdf
WHO Global Salm-Surv is a collaborative effort between WHO, the Danish Institute for Food and Veterinary Research, the United States Centres for Disease Control and Prevention, Réseau international des Instituts Pasteur, Health Canada, the Animal Sciences Group- Netherlands, the United States Food and Drugs Administration, Enter-net-human enteric pathogen surveillance network- Europe and OzFoodNet – Enhanced Food-borne Disease Surveillance Network- Australia. The programme aims to reduce food-borne diseases worldwide through capacity building for enhanced laboratory-based surveillance and outbreak detection and response. The activities of the programme facilitate collaboration and communication between epidemiologists and microbiologists at national and international levels. In the African Region, courses have been conducted for ten Francophone countries. Regional and national projects are used to foster collaboration and to promote continued development and application of skills as well as concepts. In the African Region, the *Salmonella hadar* project currently being carried out by participating countries and the Institut Pasteur has detected multiple antibiotic resistant strains in isolates. For food-borne disease surveillance data to be effective, it must be integrated with food monitoring data along the entire food chain. This will improve the ability to link pathogens in food to etiological agents of disease in humans.

**Cooperation in information sharing**

The rapid globalization of food production and trade has increased the likelihood of international incidences involving microbial and/or chemical contaminants in foods. What happens in one part of the world is likely to spread rapidly to other parts through air travel. Exchange of routine information on food safety and rapid access to information in case of emergencies is imperative. Establishment of mechanisms to promote the exchange of food safety information and improve collaboration among food safety authorities both at national and international levels will facilitate appropriate and timely management of food risks. Several rapid alert systems exist and systems that allow rapid exchange of information to member states have proved useful. One such system is the Food Safety Authorities Network (INFOSAN) through which information on *Salmonella agona* associated with infant formula, among others, was communicated to member states. There were some successes in tracking down the product in the African region. The network has INFOSAN and INFOSAN EMERGENCY Contact Points in Member States who receive and disseminate information as appropriate. Further details on this project, funded by the governments of the Australia, Ireland, Spain, United Kingdom and United States of America, are available at the WHO website: http://www.who.int/foodsafety/fs_management/infosan/en/. Such communication systems may not be effective without the strengthening of food-borne disease surveillance and food monitoring systems as well as systems that will rapidly trace and withdraw contaminated food.

The International Portal on Food Safety, Animal and Plant Health (www.ipfsaph.org) - a joint initiative of FAO, Codex, IPPC, OIE, WHO and WTO - provides access to international standards and other official information from partner international agencies. The Portal also provides a view on national legislation and related texts from the EU, USA, and smaller data sets from a pilot, but expanding, group of developing countries (21,000 records in May 2005). The latest version of the portal includes up-to-date information on the Codex-established maximum residue limits (MRLs) for veterinary drugs and pesticides, as well as the JECFA and JMPR evaluations of these substances; navigation in English, French, and Spanish; and a "help desk" for questions users may have regarding the portal. With funding from the Standards and Trade Development Facility, work is proceeding with partners in developing countries to exploit the work undertaken on the Portal project so far. This includes activities with in-country data owners looking at information management and metadata standards, and with national users of portal information. The first regional demonstration workshops will be held in the near future.
Conclusions

Assuring food safety is a shared responsibility between all stakeholders, especially governments, civil society, consumers and industry, and requires a common vision in order to succeed. In Africa, guaranteeing food safety involves activities conducted by several agencies and institutions whose mandates are often not clearly defined. This has resulted in fragmentation of the food control system and inefficient use of resources. Cooperation and coordination at national, sub-regional, regional and international levels is required to improve the effectiveness of food safety systems, and thus the protection of the health of the consumer, both domestically and in countries where foods are exported.

Recommendations

The following are for consideration by the conference when formulating recommendations for member governments and FAO/WHO on this important subject.

Member states are urged to:

- Establish permanent national, sub-regional and regional technical food safety frameworks and scientific committees to provide data for and to perform relevant risk analysis;
- Seek synergies between different specialized laboratories through coordination and collaboration;
- Establish regional networks of accredited food safety laboratories and for accreditation of food inspection schemes;
- Establish a framework for cooperation and collaboration in the control of informal food imports across the porous borders of countries;
- Consider the establishment of modern and effective single national food control agencies that are internationally recognized or alternatively, national food control authorities with inter-ministerial and interdepartmental representation;
- Develop transparent systems and procedures for sharing all types of information to ensure that consumers and other stakeholders are properly informed on both sporadic cases of food-borne illness and food safety emergencies;
- Identify centres of excellence to encourage the sharing of facilities and expertise related to food safety;
- Work towards strengthening regional capacity building and cooperation efforts in order to foster regional cohesiveness for all countries of the region to have a common view in the international standard-setting processes;
- Develop a regional information-sharing network including components such as a website, regular publications and other existing modes of communication;
- Engage all stakeholders involved in food safety assurance, including the public and private sectors, consumers and NGOs.

WHO/FAO should:

- Continue to support member states in their efforts to improve food safety;
- Strengthen their joint efforts in capacity building, international standard setting, food contamination monitoring, information sharing etc.
- Continue to engage international partners and NGOs involved in food safety work.