



Food Control: A Primer

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Abstract How to control food quality and safety has increasingly become an important field in food industry. Effective food control systems are vital in establishing laws and regulations for public health and consumer protection. Food control involves the regulatory activity of enforcement by local, state or national authorities to ensure that all foods during production, handling, processing, and distribution are safe for human consumption. This paper provides a primer on food control.

Keywords food control, food quality, food safety

Introduction

Quality control in food industry is a scientific discipline describing handling, preparation, and storage of food in ways that prevent food-borne illness. Food control is established to various extents in both developed and developing countries. Most countries enact laws and regulations and establish official agencies to administer food control. Nations are now obligated under the new global food trade regime to strengthen their food control system. The major goal of food control is to assure food safety covering the food chain from farm to fork. It seeks to make food safer by harmonizing the quality of methods used for food control.

Food control systems should cover all food produced and processed, including imported food. To prevent food safety problems, modern food control system should have mandatory and enforceable food laws and regulations. It must also have updated food standards and allow food authorities to build preventive approaches into the system. Since food control laws differ from country to country, barriers to trade inhibit the formation of a free market and thus restrict competition, better prices, and value for consumers [1].

Concept of Food Control

Preventing food-borne outbreaks requires effective food control management throughout the food supply chain, from farm to table. This implies that food control covers food process, food safety, food quality, etc. Effective food control means safe, honest, and unadulterated foods. The main responsibility of food safety lies with the food business operators (FBOs). An FBO produces meat, eggs, fish, milk plants, etc. Enforcement measures are used by the food control authorities to make FBOs comply with food safety regulations [2].

Food control is based on regulations at all stages of food chain. The primary functions of food control include [3]:

- Administer food legislation
- Inform, educate, and communicate about food safety to industry, consumers, government departments and other stakeholders
- Evaluate risk assessments related to agricultural chemicals and food produced
- Convene or serve on national and international bodies that deal with food control matters.



National Food Control System

Effective national food control systems are important essential to protect the health and safety of domestic consumers and to ensure that imported foods conform to national requirements. They require policy and coordination at the national level. The UN Food and Agriculture Organization (FAO) and the World Health Organization (WHO) are keenly interested in promoting national food control systems. In an effort to improve effectiveness and efficiency, many governments today have centralized all activities related to their food control systems. A typical national food control system is shown in Figure 1 [4].

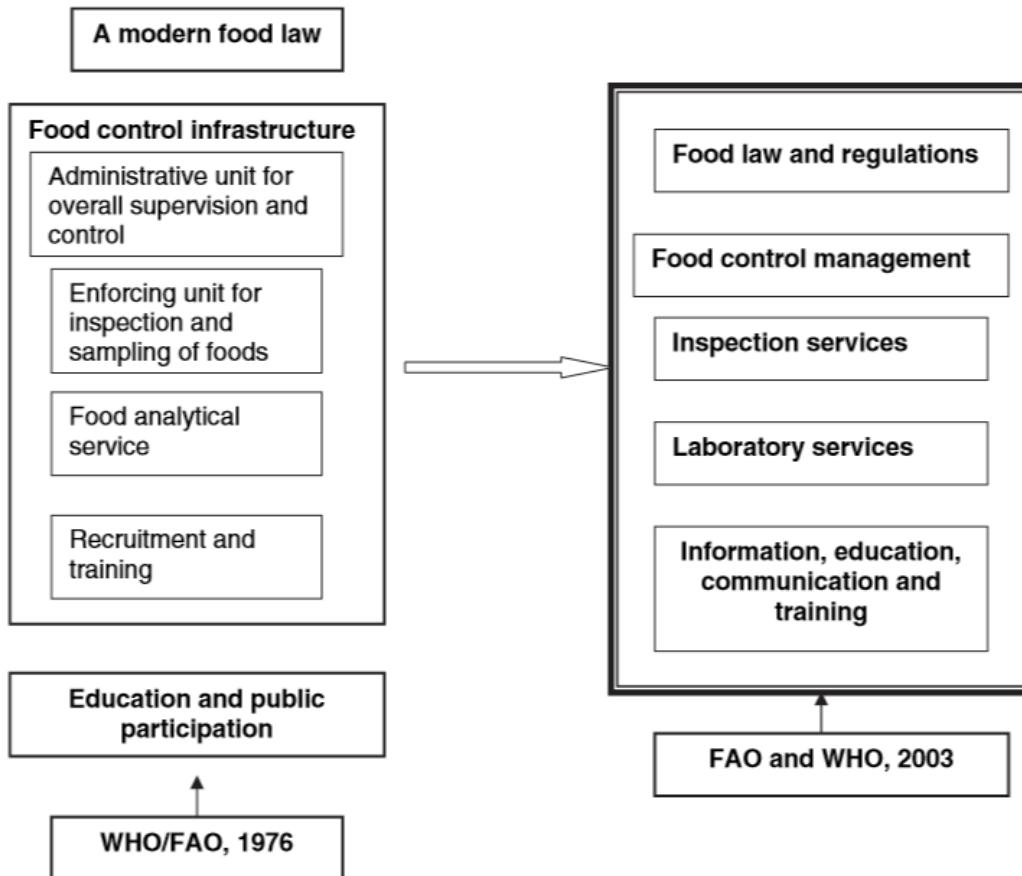


Figure 1: A typical national food control system [4].

There are two types of food control systems: Import food control systems and Export food control systems. The main objectives of national food control systems are [5]:

- Protecting public health by reducing the risk of foodborne illness
- Protecting consumers from unsanitary, unwholesome, adulterated food
- Contributing to economic development by maintaining consumer confidence in the food system
- Providing a sound regulatory foundation for domestic and international trade in food

The main components of a national food control system are food law and legislation, food standards, food inspectors, laboratories, and administration [6]:

- *Food Law and Regulations:* If foods are supposed to be “safe,” the food safety must be ensured by food law. Food law consists of laws and regulations that govern food production, processing, distribution, marketing, and consumption. There are federal, state, and local food laws. They also govern topics like packaging, distribution, adulteration, and fraud in the food industry [7]. The nature of laws for the operation of food control systems varies from country to country. The effective implementation of the laws is generally done by way of detailed regulations. Legislation is only useful if it implemented and enforced.



- *Food Standards:* In addition to law and legislation, national governments need updated food standards. Standards are usually created by bringing together experience and expertise of stakeholders on food issues. Standards protect public health and safety, improve product quality, help to advance the growth of new technologies, and foster international trade [8]. Standards should be based on science in order to have weight and evidence behind them, and to be implemented by governments and food inspectors. National food standards varies from country to country, resulting in barriers to trade.
- *Food Inspectors:* Inspection is one way of enforcing food laws. The role of the food inspector is crucial for the food system to be effective. To deal with modern complex food system, the food inspector must be trained in food science and technology. The inspectors must be thoroughly familiar with food laws and regulations so that they can effectively evaluate and inspect food operations. Food inspector can enforce laws and regulations at different points in the food supply chain.
- *Laboratories:* Food analysis laboratories are a vital component of a food control system. The laboratories should have adequate modern facilities for physical, microbiological, and chemical analyses. Registered export agencies should be equipped with their own laboratory, where they assess microbiological and chemical compounds in food. Food law should cover accreditation of food control laboratories.
- *Administration:* A single independent body is ideal for administering a food control system. The main responsibilities of food control management function should be to establish regulatory measures, monitor the system performance, provide overall policy guidance, coordinate all food control, issue permits, licenses, register premises, and train personnel [4]. The administration ensures that food control is uniform across the local, states, and national levels.

International Food Control

The global food trade is complex and fragmented. It has grown significantly over the last two decades. Some countries take advantage of the global food demand and earn valuable foreign exchange from exports. Imported food should be as safe as domestic food. For example, imported foods in India are illustrated in Figure 2 [9]. It is needless to say that exporting countries should expect the importing countries to consider as their right to be supplied with only safe, sound, and wholesome food. International regulations should require that the products are sound and comply with the requirements of importing countries. Food exporting countries are obligated to establish food export quality control and inspection agencies to avoid rejection and severe financial losses. In food exporting countries, food regulations for export are usually different from food regulations for domestic consumption. International cooperation appears to be beneficial for all nations.

HOW TO IMPORT FOOD PRODUCTS INTO INDIA



Figure 2: Import food products in India [9].

A growing number of guidelines regulating food imports and exports have been developed by the Codex Alimentations Commission (CAC). CAC is uniquely suited to establish food standards for international trade purposes, provide uniform adoption on a global basis, and harmonize international trade in food. This is the only



international organization in the food sector that has brought together government regulators, scientists, technical experts, and industry representatives develop international standards [10].

Challenges

Effective food control ensures supplies of safe food and promotes international trade, human welfare, and comfort. The challenges facing food control systems and authorities include [11]:

- Rapidly changing technologies in food production, processing, and marketing
- International food trade and need for harmonization of food safety and quality standards
- Changes in lifestyles, including rapid urbanization
- Growing consumer awareness of food safety and increasing demand for better information
- Inability to cope with the introduction of rapidly emerging agricultural practices
- Today, food control is based on risks
- Lack of the requisite resources

Due to the current complex global food market, it has been recognized that meeting the main requirements of a fully effective food control system is a difficult task for any country. Developing countries may not have an effective food control system due to lack of infrastructure, insufficient food inspectors, inadequate food laws and regulations, and fragmented enforcement.

Conclusion

Government intervention to protect the agricultural sector is common in most industrial countries. Food control in any country is established to protect consumer health. It is often regarded as the attempts of the “bureaucratic developmental state” to manage the agricultural sector within the context of the industrial economy [12]. Through proper management of the food supply chain, it is possible to fundamentally change the way food control is managed. More information on food control can be found in the books [10,13] and the following journals that are exclusively devoted to it:

- Foods
- Food Control
- Journal of Food
- International Journal of Food Studies
- Food Research International

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