



ISSN Print: 2394-7500
ISSN Online: 2394-5869
Impact Factor: 8.4
IJAR 2021; 7(3): 189-196
www.allresearchjournal.com
Received: 20-12-2020
Accepted: 08-02-2021

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Codex: An approach to food safety

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Abstract

The Codex Alimentarius is a collection of international food standards, codes of practice, guidelines, and recommendations developed by the Codex Alimentarius Commission (CAC) to protect the consumers' health and ensure fair practices in the food trade. The CAC was established by the Food and Agriculture Organization (FAO) of the United Nations and the World Health Organization (WHO) in 1963. The main purpose of codex is; a) to promote consumer protection, b) to facilitate world trade through development of food standards. Codes of practice and guidelines, c) to ensure fair trade practices of food d) to co-ordinate all food standards works. The paper gives a brief description of the role and work of the CAC and the efforts deployed by the Commission to respond to the challenges posed by new approaches to government regulation, harmonization of national requirements based on international standards and the role of civil society.

Keywords: Food standards, food trade, FAO, WHO

Introduction

The Codex Alimentarius, or "Food Code", is a collection of standards, guidelines and codes of practice that governments may opt to use to ensure food safety, quality and fair trade. When the standards are followed, consumers can trust the safety and quality of the products they buy and importers can trust that the food they ordered will meet their specifications.

The standards are adopted by the Codex Alimentarius Commission, which currently comprises 188 Member Countries and 1 Member Organization (EU) and 229 Observers of which 57 are intergovernmental organizations, 156 non-governmental organizations and 16 United Nations agencies. The Commission, also known as CAC, was established in 1963 by the Food and Agriculture Organization of the United Nations (FAO) and the World Health Organization (WHO) to protect consumer health and promote fair practices in the food trade and today, it has more than 180 member countries and more than 200 intergovernmental and international nongovernmental organizations as observers. The Codex Alimentarius has become the global reference point for consumers, food producers, national food control agencies, and the international food trade.

The Codex Alimentarius Commission (CAC) was established by FAO in 1961. Since 1962 it has been responsible for implementing the Joint FAO/WHO Food Standards Programme, whose primary aims are to protect the health of consumers and to ensure fair practices in the food trade. CAC is an intergovernmental body, with 158 Member Governments as at 31 August 1997. The *Codex Alimentarius* (meaning "Food Code" or "Food Law" in Latin) is a collection of food standards, codes of practice and other recommendations presented in a uniform way. Codex standards, guidelines and other recommendations ensure that food products are not harmful to the consumer and can be traded safely between countries.

Food safety standards are defined in the Agreement on the Application of Sanitary and Phytosanitary Measures as those relating to food additives, veterinary drug and pesticide residues, contaminants, methods of analysis and sampling, and codes and guidelines of hygienic practice. Codex food safety standards are to be used as the reference point for the World Trade Organization in this area.

There are more than 300 Codex standards, guidelines and other recommendations relating to food quality composition and safety. The *Codex Alimentarius* has resulted in evaluations of the safety of over 760 food additives and contaminants and the setting of more than 2 500 maximum limits for pesticide residues and more than 150 for veterinary drug residues.

In addition, CAC has established guideline levels for a number of environmental and industrial contaminants (including radionuclides) in foods.

Food hygiene has been a major area of activity of CAC since the commission's establishment. The Codex Committee on Food Hygiene, hosted by the Government of the United States, was founded in 1963. Because food hygiene is best regulated at the production and processing stage in the exporting country, the committee's main outputs have been codes of hygienic practice rather than end-product microbiological standards. Taking this philosophy a step further, CAC has adopted the *Guidelines for the application of the Hazard Analysis Critical Control Point (HACCP) system* through its Committee on Food Hygiene. In doing this, it has recognized HACCP as a tool to assess hazards and establish control systems that focus on preventive measures instead of relying primarily on end-product testing. CAC has been actively revising much of its work in recent years to stress the so-called horizontal aspects of food regulation, including food hygiene. New considerations such as risk analysis and the determination of equivalence in different food control systems have an impact on the new approach to international food hygiene regulations. People are entitled to expect that the food they eat is wholesome and safe for consumption, Foodborne disease is at best unpleasant; at worst it can be fatal. Consequences of foodborne illness include adverse effects on trade and tourism, loss of earnings and productivity, unemployment and litigation. Food spoilage is wasteful and costly and can adversely affect the economy and erode consumer confidence. All countries need adequate food control programmes to ensure that national food supplies are safe, of good quality and available in adequate amounts at affordable prices to ensure an acceptable nutritional and health status for all population groups. Food control includes all activities to ensure the quality, safety and honest presentation of the food, from primary production, through processing and storage, to marketing and consumption, The term has been used to describe a total national effort involving an integrated approach between governments and all segments and sectors of the food industry, Food control is linked to improvement of the health of the population, the potential for a country's economic development and the reduction of spoilage and food losses. The Codex Alimentarius General Principles of Food Hygiene (Codex Alimentarius Commission, 1995a) lays a firm foundation for ensuring food hygiene. This document highlights the key hygiene controls at each stage along the food chain from primary production through to the final consumer, and recommends a Hazard Analysis Critical Control Point (HACCP) approach wherever possible to enhance food safety, However, food safety must be viewed as only one important aspect of overall food quality, and HACCP, as a mechanism to control food safety, is one component of overall food quality control programmes, The HACCP approach is internationally recognized as essential to ensuring the safety and suitability of food for human consumption, and it enhances the potential for international trade.

Purpose of the Codex Alimentarius

The Codex Alimentarius is a collection of internationally adopted food standards and related texts³ presented in a uniform manner. These food standards and related texts aim

at protecting consumers' health and ensuring fair practices in the food trade. The publication of the Codex Alimentarius is intended to guide and promote the elaboration and establishment of definitions and requirements for foods to assist in their harmonization and in doing so to facilitate international trade. The purpose of codex are:

- a. Protecting the health of the consumers and ensuring fair practices in the food trade;
- b. Promoting coordination of all food standards work undertaken by international governmental and nongovernmental organizations;
- c. Determining priorities and initiating and guiding the preparation of draft standards through and with the aid of appropriate organizations;
- d. Finalizing standards elaborated under (c) above and publishing them in a Codex Alimentarius either as regional or worldwide standards, together with international standards already finalized by other bodies under (b) above, wherever this is practicable;
- e. Amending published standards, as appropriate, in the light of developments

Scope of the Codex Alimentarius

The Codex Alimentarius includes standards for all the principle foods, whether processed, semi-processed or raw, for distribution to the consumer. Materials for further processing into foods should be included to the extent necessary to achieve the purposes of the Codex Alimentarius as defined. The Codex Alimentarius includes provisions in respect of food hygiene, food additives, residues of pesticides and veterinary drugs, contaminants, labeling and presentation, methods of analysis and sampling, and import and export inspection and certification.

Nature of Codex Standards

Codex standards and related texts are not a substitute for, or alternative to national legislation. Every country's laws and administrative procedures contain provisions with which it is essential to comply. Codex standards and related texts contain requirements for food aimed at ensuring for the consumer a safe, wholesome food product free from adulteration, correctly labeled and presented. A Codex standard for any food or foods should be drawn up in accordance with the Format for Codex Commodity Standards and contain, as appropriate, the sections listed therein

Structure of CAC

The Codex Alimentarius Commission consists of the following main organizational elements: Commission, Executive Committee & subsidiary bodies

Commission: Meets every year alternatively in Rome & Geneva, is the Supreme decision making body. It provides platform for discussion, debate on all major food Standards/Safety issues.

Codex Secretariat: It is a unit within FAO's Food Quality & Standards Service in Food and Nutrition Division, located in FAO Headquarter office in Rome, Italy. It assists the Codex Alimentarius Commission in the implementation of the Joint FAO/WHO Food Standards Programme, reporting to the Director-Generals of FAO and WHO. It is also link

between National Codex Contact Point(NCCP), designated by each member, & their National Codex Coordinating Committees (NCCC). The Codex Secretariat is run by staff designated by FAO and WHO, which consist of one senior officer and five food standards officers. The WHO focal point for codex activities is currently the Food safety Unit, WHO Headquarter Geneva, Switzerland

Executive Committee: The Executive Committee of the Commission (CCEXEC) acts as the executive organ of the Commission. It is the body responsible for managing the standards development process, developing the draft strategic plan, reviewing applications for observer status and making other recommendations about the general direction of the Commission's work. The Executive Committee meets between Commission sessions. The Executive Committee is chaired by the Chairperson of the Codex Alimentarius Commission. The total membership of the Codex Executive Committee is 17. It is comprised of: Chairperson, Three Vice Chairpersons, one member country

elected from each of the seven geographic regions (Africa, Asia, Europe, Latin America and the Caribbean, Near East, North America & The Southwest Pacific). The Regional Coordinators for the six regions.

Codex subsidiary bodies: There are four kinds of Codex subsidiary bodies:

1. **General Subject Committees** (sometimes referred to as horizontal), which establish standards and guidelines applicable to all foods;
2. **Commodity Committees** (sometimes known as vertical), which prepare standards for specific commodities;
3. **FAO/WHO Coordinating Committees**, through which regions or groups of countries coordinate food standards activities in the region, including the development of regional standards;
4. **Ad hoc Intergovernmental Task Forces**, which are time-limited and prepare standards and guidelines on specific issues.

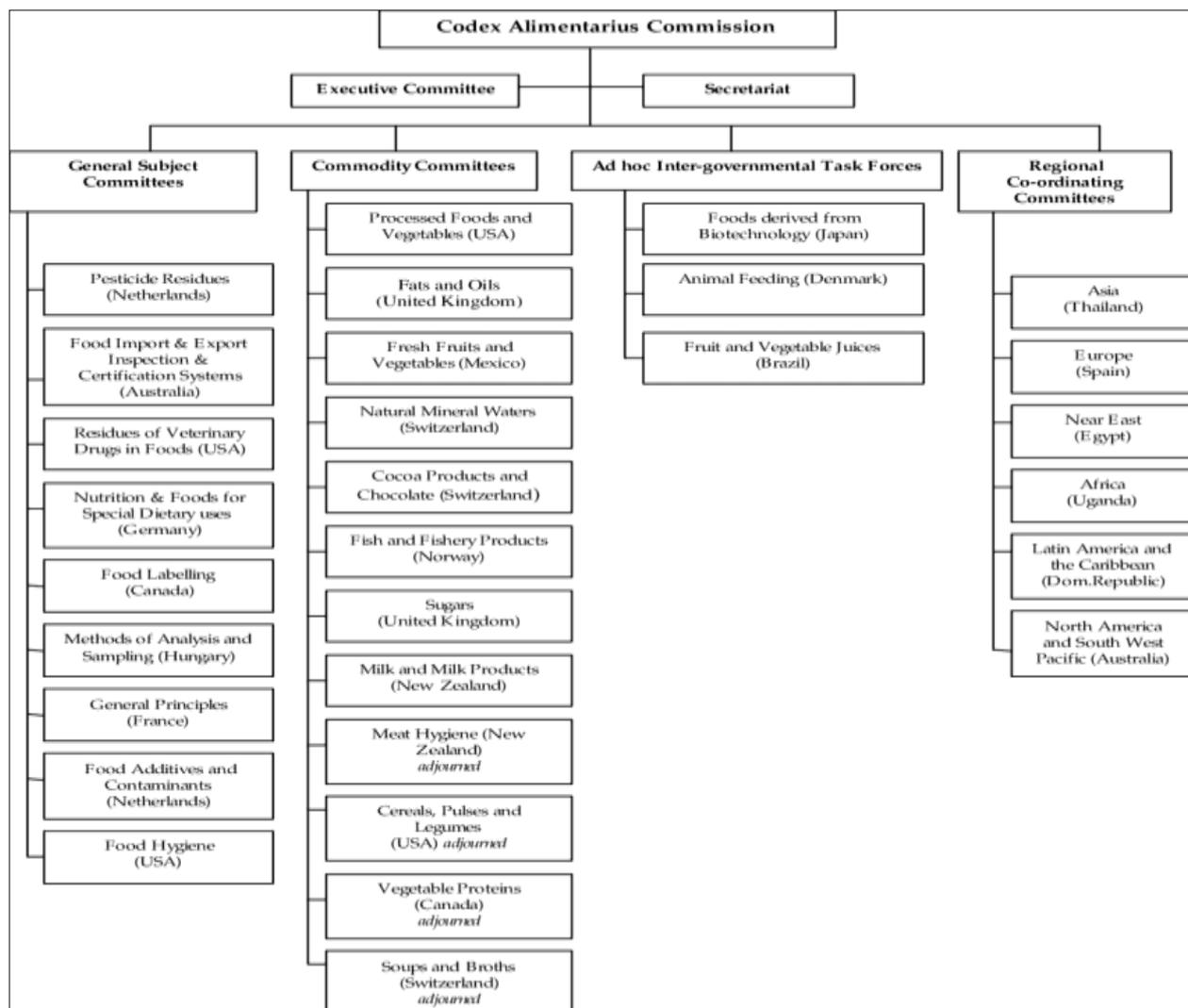


Fig 1: Structure of CAC

HACCP: An Approach to Food Safety

Food safety is used as a scientific discipline describing handling, preparation, and storage of food in ways that prevent food-borne illness. In 1963, the WHO and FAO published the Codex Alimentarius which serves as a guideline to food safety. Food safety does not happen by

accident. To prepare safe food, you must follow certain steps and procedures throughout the entire food preparation process. You have to think, and you have to pay attention to how you prepare food to make sure it is safe. You do this by developing a food safety plan. A good food safety plan will make sure that anything that might make someone sick is

under control. A basic food safety plan uses the HACCP method. HACCP stands for hazard analysis critical control points. HACCP was originally developed by NASA to make sure the food on their space flights was safe to eat. HACCP is not a complicated process; it just means that you have to first identify the various steps you must take when you prepare your menu items, then look for possible sources of contamination, and then find ways to control these sources. The HACCP system as applied for food safety management uses the approach of controlling critical points in food handling to prevent food safety problems. It is a system for identifying specific hazards and preventive measures for their control, the system comprises seven principles:

Principle 1: Identify the potential hazards associated with food production at all stages, from growth, processing, manufacture and distribution to the point of consumption. Assess the likelihood of occurrence of the hazards (risk assessment) and identify preventive measures for their control (risk management).

Principle 2: Determine the points, procedures and operational steps that can be controlled to eliminate the hazards or minimize their likelihood of occurrence; these are the critical control points (CCPs), A "step" means any stage in food production and/or manufacture including receipt and/or production of raw materials, harvesting, transport, formulation, processing, storage, etc.

Principle 3: Establish critical limits which must be met to ensure that the CCPs are under control.

Principle 4: Establish a system to monitor control of CCPs by scheduled testing or observations.

Principle 5: Establish the corrective action to be taken when monitoring indicates that a particular CCP is not under control.

Principle 6: Establish procedures for verification which include supplementary tests and procedures to confirm that the HACCP system is working effectively.

Principle 7: Establish documentation concerning all procedures and records appropriate to these principles and their application.

Recognizing the importance of HACCP to food control, the twentieth session of the Codex Alimentarius Commission, held in Geneva, Switzerland from 28 June to 7 July 1993, adopted Guidelines for the Application of the Hazard Analysis Critical Control Point (HACCP) System (Codex Alimentarius Commission, 1995b). The commission was also informed that a draft revised General Principles of Food Hygiene would incorporate the HACCP approach,

Procedures for the elaboration of codex standards and related texts

The full procedure for the elaboration of Codex standards is as follows:

1. The Commission shall implement a unified approach in the area of standards development by taking its decisions, based on a strategic planning process ("standards management").
2. An on-going critical review shall ensure that proposals for new work and draft standards submitted to the Commission for adoption continue to meet the strategic

priorities of the Commission and can be developed within a reasonable period of time, taking into account the requirements and availability of scientific expert advice.

3. The Commission decides, taking into account the outcome of the ongoing critical review conducted by the Executive Committee, that a standard should be elaborated and also which subsidiary body or other body should undertake the work. Decisions to elaborate standards may also be taken by subsidiary bodies of the Commission in accordance with the abovementioned outcome subject to subsequent approval by the Commission at the earliest possible opportunity. The Secretariat arranges for the preparation of a "proposed draft standard" which is circulated to governments for comments and is then considered in the light of these by the subsidiary body concerned which may present the text to the Commission as a "draft standard". If the Commission adopts the "draft standard" it is sent to governments for further comments and in the light of these and after further consideration by the subsidiary body concerned, the Commission reconsiders the draft and may adopt it as a "Codex standard".
4. The Commission or any subsidiary body, subject to the confirmation of the Commission may decide that the urgency of elaborating a Codex standard is such that an accelerated elaboration procedure should be followed. While taking this decision, all appropriate matters shall be taken into consideration, including the likelihood of new scientific information becoming available in the immediate future.
5. The Commission or the subsidiary body or other body concerned may decide that the draft be returned for further work at any appropriate previous Section II: Elaboration of Codex texts 27 Step in the Procedure. The Commission may also decide that the draft be held at Step 8.
6. The Commission may authorize, on the basis of two-thirds majority of votes cast, the omission of Steps 6 and 7, where such an omission is recommended by the Codex Committee entrusted with the elaboration of the draft. Recommendations to omit steps shall be notified to Members and interested international organizations as soon as possible after the session of the Codex Committee concerned. When formulating recommendations to omit Steps 6 and 7, Codex Committees shall take all appropriate matters into consideration, including the need for urgency, and the likelihood of new scientific information becoming available in the immediate future.
7. The Commission may at any stage in the elaboration of a standard entrust any of the remaining Steps to a Codex Committee or other body different from that to which it was previously entrusted.
8. It will be for the Commission itself to keep under review the revision of "Codex standards". The procedure for revision should, mutatis mutandis, be that laid down for the elaboration of Codex standards, except that the Commission may decide to omit any other step or steps of that Procedure where, in its opinion, an amendment proposed by a Codex Committee is either of an editorial nature or of a substantive nature but consequential to provisions in similar standards adopted by the Commission at Step 8.
9. Codex standards and related texts are published and are sent to governments as well as to international

organizations to which competence in the matter has been transferred by their Member States.

Guidelines on the elaboration and/or revision of codes of hygienic practice for specific commodities

The establishment of additional food hygiene requirements for specific food items or food groups should be limited to the extent necessary to meet the defined objectives of individual codes. Codes of Hygienic Practice should serve the primary purpose of providing advice to governments on the application of food hygiene provisions within the framework of national and international requirements. The General Principles of Food Hygiene (including the Guidelines for the Application of the Hazard Analysis Critical Control Point (HACCP) System) and the Principles and Guidelines for the Establishment and Application of Microbiological Criteria Related to Foods are the base documents in the field of food hygiene. All Codes of

Hygienic Practice applicable to specific food items or food groups shall refer to the General Principles of Food Hygiene and shall only contain material additional to the General Principles which is necessary to take into account the particular requirements of the specific food item or food group. Provisions in Codes of Hygienic Practice should be drafted in a sufficiently clear and transparent manner such that extended explanatory material is not required for their interpretation. The above considerations should also apply to Codes of Practice which contain provisions relating to food hygiene.

The General Principles of Food Hygiene provide the basis for food hygiene and lay a firm foundation for the development of an effective HACCP or equivalent system. The application of the general principles and of good manufacturing practices (GMPs) allows the producer to operate within environmental conditions favourable to the production of safe food.

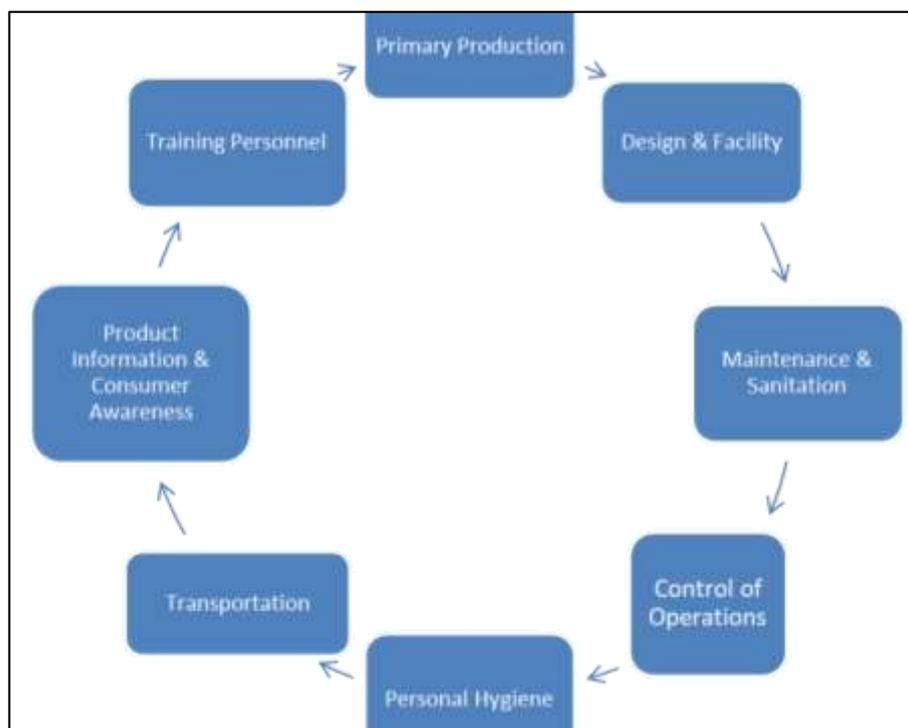


Fig 2: Principles of Food Hygiene

The Recommended International Code of Practice - General Principles of Food Hygiene was originally adopted by the Codex Alimentarius Commission at its sixth session in 1969. Since then it has been revised three times, by the thirteenth session (1979), the sixteenth session (1985) and the twenty-second session (1997). The last revision [CAC/RCP 1-1969, Rev. 3 (1997)] constitutes the basis of this training package and the modules included therein. As the general principles have been developed and adopted through the Codex process, they have the input and agreement of all Codex member countries (158 countries as at 31 August 1997).

The General Principles of Food Hygiene follow the food chain from primary production through to final consumption, highlighting the key controls at each stage. In brief, they give guidance on the design and facilities of premises, in-process control, required support programmes of sanitation and personal hygiene and consideration of hygiene controls once the product has left the production

premises. Codex General Principles of Food Hygiene recommend an HACCP-based approach wherever possible to enhance food safety, as described in the Hazard Analysis and Critical Control Point (HACCP) system and guidelines for its application. The importance of programmes based on the general principles and GMPs cannot be overstated, as they are the foundation of the HACCP plan. Inadequate programmes may lead to additional critical control points that would have to be identified, monitored and maintained under the HACCP plan.

Codex General Principles of Food Hygiene contains an annex on the application of HACCP systems, Emphasises need to apply 7 HACCP principles in any HACCP system, Explains the 12 logical steps, Acknowledges the need for flexibility in applying HACCP systems in small and less developed businesses, Codex General Principles of Food Hygiene recommends a HACCP-based approach as a means to enhance food safety. Provides models for record keeping.

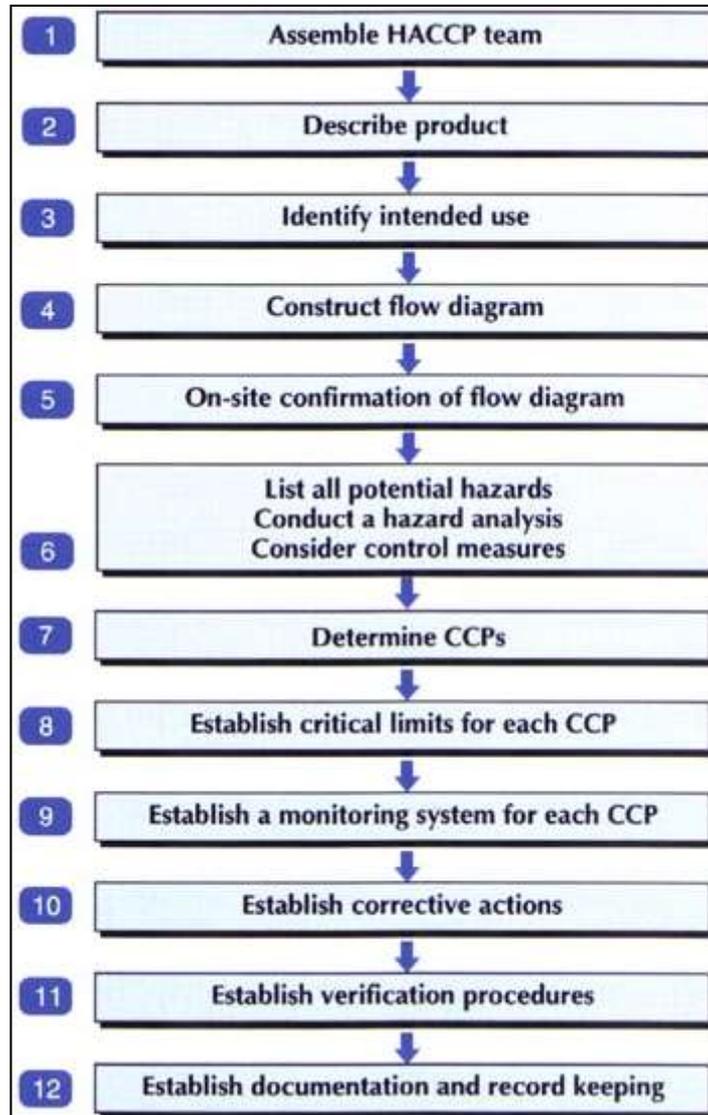


Fig 3: HACCP Model

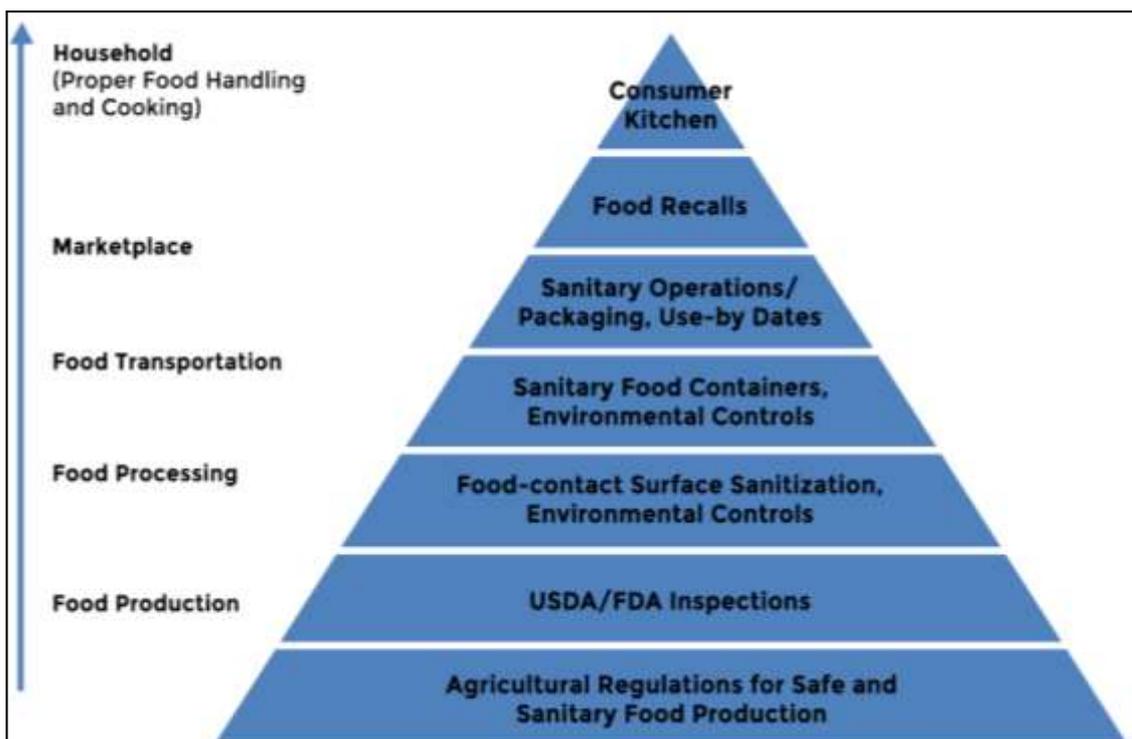


Fig 4: Food Safety

National codex contact point (NCCP)

The Food Safety and Standards Authority of India, (Ministry of Health and Family Welfare) has been designated as the nodal point for liaison with the Codex Alimentarius Commission. The National Codex Contact Point (NCCP) has been constituted by the Food Safety and Standards Authority of India for keeping liaison with the CAC and to coordinate Codex activities in India.

Core Functions of NCCP-India

The NCCP shall perform the following core functions:

- Act as a link between the Codex Secretariat, National Codex Committee and Shadow Committee;
- Coordinate all relevant Codex activities within India;
- Receive all Codex final texts (standards, codes of practice, guidelines and other advisory texts) and working documents of Codex Sessions and ensure that these are circulated to those concerned;
- Send comments on Codex documents or proposals to the CAC or its subsidiary bodies and /or the Codex Secretariat within the time frame;
- Work in close cooperation with the National Codex Committee and its Shadow Committees;
- Act as a channel for the exchange of information and coordination of activities with other Codex Members;
- Receive invitations to Codex Sessions and inform the relevant Chairpersons and the Codex Secretariat of the names of participants representing India;
- Maintain a library of Codex standards, Code of Practice, Guidelines and any other documents and publications on or related to Codex; and
- Promote Codex Activities throughout India
- Build capacity in country to effectively take up Codex work.

Responsibilities of NCCP -India

In order to be able to discharge its core functions, the NCCP shall have the following responsibilities:

- Undertake secretariat responsibilities to the National Codex Committee;
- Act as the contact point for the country for maintaining liaison with the Codex Secretariat in elaborating international food standards;
- Collect, procure and analyze data for elaborating international food standards;
- Keep track of international food standards work and give comments and data to ensure that international food standards elaborated are practicable for local manufactures and do not hinder exports of food;
- Undertake study and research work to solve any problem resulting from the elaboration of international food standards;
- Encourage food manufacturers to improve quality and hygiene management to meet requirements of international food standards; and
- Disseminate information of food standards and food laws to relevant government agencies, primary producers, manufacturers, exporters, consumers and concerned organizations.

National codex committee**Core Functions**

- To advise government on the implications of various food standardization, food quality and safety issues

which have arisen and related to the work undertaken by the CAC so that national economic interest is taken into account, or considered, when international standards are discussed.

- To provide important inputs to the government so as to assist in ensuring quality and safety of food to the consumers, while at the same time maximizing the opportunities for development of industry and expansion of international trade.
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- To meet as and when necessary to formulate national position.

Responsibilities

- To cooperate with the Joint FAO/WHO Food Standards Programme and to nominate delegates to attend Codex meetings.
- To formulate national position in consultation with the members of NCC in the matters of Codex and recommend action to government.
- To study Codex documents, collect and review all relevant information relating to technology, economics, health and control systems, so as to give supporting reasons to the government for the acceptance of Codex Standards or otherwise.
- To identify organizations to take action and where necessary commission studies for generation of data base or preparation of base papers projecting the country's interest and for interacting with the CAC.
- To cooperate with other local/regional or foreign organizations dealing with activities relating to food standardization.

Shadow committees of national codex committee**Terms of Reference of Shadow Committees**

- To review and advise on the agenda documents including the Code of Hygienic Practices and Codex Guidelines for the respective Codex Committees.
- To advise on the composition of the Indian Delegation.
- To coordinate with the other Shadow committees and concerned Departments for seeking comments and finalize the India's view point on different agenda items under consideration of the respective Codex Committees.
- To advise the concerned Government Department on all matters relating to Codex procedure and working process for elaboration of Codex Standards, Codex Code of Practices and Codex Guidelines.
- To advise on Capacity Building, food safety, food regulations and technical assistance.
- Any other work assigned by the National Codex Committee and the Chairman, National Codex Committee, from time to time.

Functions of Shadow Committees

- To advise the NCCP / NCC on the implications of various food standardization, food quality and safety issues which have arisen and related to the work undertaken by the relevant Subsidiary Body/Task Force so that national economic interest is taken into account

or considered when international standards are deliberated by the relevant committee.

- To follow the Codex agenda of the relevant Subsidiary Body and provide inputs to the government so as to assist in ensuring quality and safety of food to the consumers while at the same time safeguard national interests and maximize the opportunities for development of industry and expansion of international trade

Responsibilities of Shadow Committees

- To study Codex documents, collect and revise all relevant information relating to technology, economics, health and control systems so as to give supporting reasons to the government in the acceptance of Codex Standards or otherwise
- To formulate national position in consultation with the members of the Shadow Committee with respect to the agenda for the forthcoming session / meeting of the Subsidiary Body of the CAC and forward the same to NCCP for sending it to Codex Secretariat after approval by government.
- To finalize the delegation for the meeting of the Codex in consultation with the NCC / NCCP and transmit the names to the host secretariat through the NCCP.
- To recommend to the NCCP the position to be taken during the Sessions of the Commission with respect to agenda items relevant to the terms of reference of the Shadow Committees.

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