UNIT 2 QUALITY STANDARDIZATION

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2.0 OBJECTIVES

After reading this unit, you should be able to:

• state the importance of food control;
• describe various national food legislations; and
• international food regulations.

2.1 INTRODUCTION

Effective national food control systems are essential to protect health and safety of the domestic consumers. They are also critical in enabling countries to assure the safety and quality of their foods entering international trade.

Especially to facilitate international trade in food and food products, international agencies have laid down regulations. The national food regulations of most countries are being harmonized with these international regulations.
2.2 NATIONAL FOOD CONTROL SYSTEMS

Some of the objectives of the National Food Control Systems are:

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

The scope of Food Control Systems should cover all food produced, processed and marketed within the country, including imported food. Such systems should have a statutory basis and be mandatory in nature.

2.3 NATIONAL FOOD LEGISLATIONS

The laws regulating the safety and quality of food in India date back to 1899. Before 1954, states or provinces in India had their own food laws. The variations in food standards created conflicts in inter-state trade.

2.3.1 PFA Act, 1954

In 1943, Central Advisory Board was appointed which recommended for Central Legislation. Consequently in 1954, Central Legislation called “Prevention of Food Adulteration Act (PFA Act)” was enacted in the parliament, which came into effect from 1st June 1955.

Ministry of Health and Family Welfare is responsible for ensuring safe food to the consumers. The objective of the Act is to ensure supply of pure and wholesome food to the consumers and also to prevent fraud or deception. Major amendments in 1964, 1976 and 1986 have been effective in making the punishments more severe and also empowering consumers and voluntary organizations to play effective role in food safety.

Some of the salient features of the legislation include:

a) Definition of term - adulteration.

b) Powers to consumer organizations to draw legal samples and initiate legal proceedings.

c) Regulation on quality of imported foodstuff.

d) Provision of a warranty by a manufacturer, distributor or dealer to vendor.

e) Provisions for seizure and disposal of perishable foods, unfit for human consumption by local authority.

f) Appointment of an Advisory Committee called Central Committee for Food Standards (CCFS) and its sub-committees.

Adulteration

Under the PFA the food is said to be adulterated:

a) If it does not meet the specifications prescribed in Appendix - B of PFA,

b) If it contains injurious substances,
c) If any inferior or cheaper substance has been added,

d) If any constituent is abstracted from the food,

e) If article had been prepared, packed or kept under unsanitary conditions whereby it became contaminated,

f) If an article of food consists wholly or in part of any filthy, putrid, rotten, decomposed or diseased substance or otherwise is unfit for human consumption.

The PFA Rules, 1955, are divided into XVII parts. Some of the parts, which are of direct consequence to the food preservation and processing industry, are discussed.

Part VI - deals the colouring matters. It lays down the list of permitted, natural and artificial colours, as well as the maximum limit of synthetic dyes which can be used and the list of food products where the colours can be used (Rule 23 to 31).

Part VII - deals with the packing and labelling of food. It lays down the labelling provisions, the details of the label, procedure for claiming nutritional status of the product and certain restrictions on the misleading statements. It also lays down the form of labels which is to be declared on different food products. The important rule under this part is Rule 37A which deals with the proprietary food which is the major commodity available in the market now-a-days. The important provisions under this part have been incorporated recently for declaring “Best Before Date”, Non-Vegetarian & Vegetarian, Irradiation and also prohibiting misleading claims. (Rule 32 to 43).

Part VIII - provides for prohibition and regulations of sales. It prohibits the sale of certain admixtures and various products regarding their labelling and other things. It also lays down the certification of various food colours as well as food additives under ISI Certification Mark Scheme of Bureau of Indian Standards (Rule 44 to 48C).

Part IX - deals with the condition for sale and licence. Under this Part, condition for sale and condition of licence, duration- of licence and procedure for issue of licence have been provided. Manufacturing premises, manufacturing products, Requirements for Fruit & Vegetable Products, Meat and Meat Products, Vanaspati, Solvent Extracted Edible Oils (Rule 49 to 51).

Part X - deals with the preservatives. It classifies the preservatives, lays down the quantity of various preservatives which can be used and certain restrictions on the use of some of the preservatives (Rule 52 to 55B).

Part XI - deals with the crop contaminants and naturally occurring toxic substances such as Aflatoxin, Agaric Acid, Hydrocynic Acid, and Saffrole (Rule 57A and 57B).

Part XII - deals with the use of anti-oxidants, emulsifying/ stabilizing and anti-caking agents. Under this chapter, the definition of anti-oxidants, emulsifying and stabilizing agents along with maximum limit of these additives, which can be used in food products, have been prescribed. (Rule 58 to 62B).

Part XIII - deals with the flavouring agents and related substances.

Part XIV - deals with the use of insecticides and pesticides in food products. Direct use of pesticides on food is prohibited. This part also lays down the tolerance limit of various pesticides in different food products. (Rule 65).

Part XV - Solvent extracted oil and edible flour: deals with the products which are manufactured by Solvent Extraction Process. Only n-Hexane (food grade) shall be used as solvent. The limits of n-Hexane in food has been prescribed.

Part XVI - Sequestering and Buffering Agents: deals with sequestering and buffering agents and lays down the definitions of these agents. Under this part, a list of these
agents has been given with the maximum level, which can be used in different food products (Rule 70 to 72).

Part XVII - deals with the Irradiation of food. Under this part, around 13 category of food products have been permitted for irradiation.

Appendix 'A': Different forms used by Food Inspectors, Public Analysts, Central Food Laboratories, have been informed. (Form I to VIII).

Appendix ‘B’: Under PFA Rules, specifications of various food products have been laid down which are in Appendix ‘B’ to the Rules. The food products which have been standardized are Carbonated Water (A.01), Baking Powder (A.02), Starchy foods (A.03), Spices & Condiments (A.05) Bean (A.06), Sweetening Agents (A.07), Coffee (A.08), Edible Fat (A.10), Milk & Milk products (A.11), Margarine (A.12), Tea (A.14), salt (A.15), Fruits and Vegetable products (A.16), Edible Oils (A.17), Cereals & Cereal products (A.18), Vanaspati (A.19), Vinegar (A.20), Catechu (A.21), Gelatin (A.22), Sweets and Confectionary (A.25), Food colours (A.26), Silver leaf(A.27), Groundnut Kernel (A.28), Alcoholic Beverages (A.29), Pan Masala (A.30), fat Spread (A.31), Mineral Water (A.32), Packaged Drinking Water (A.33) and Packed Meat and Meat products (A.34).

Under Appendix ‘B’ most of the foods, which are in market generally, are covered, but still there are large number of foods, which are not standardized. Such products are treated as proprietary food under Rule 37A.

From the foregoing, it is proved that the Food Laws in India are comprehensive covering all aspects.

Check Your Progress Exercise 1

Note: a) Use the space below for your answer.
   b) Compare your answers with those given at the end of the unit.

1. Why national food legislation is required?

2. List the common food hazards.
3. List the salient features of the PFA Act.


4. What is an adulterated food under the PFA Act?


2.3.2 Fruit Product Order, 1955

The Fruit Product Control Order was issued in 1946. Subsequently, this Order was brought under Essential Commodities Act, 1955 and thereafter this Order is known as Fruit Products Order, 1955.

The Ministry of Food Processing Industries, Govt. of India, administers this Order. The Order provides for compulsory licensing for manufacturing fruit and vegetable products.

To ensure hygienic conditions of the manufacturing unit and its workers, the Order lays down the hygienic and sanitary requirements for setting up factories for the manufacture of fruit and vegetable products. It is also essential to have a laboratory in the manufacturing unit to test the quality and specification of the products.

Under this Order, specifications of various fruit and vegetable products have been laid down. These specifications are at least equal to the specifications laid down under PFA Act if not higher.

2.3.3 Vegetable Oil Products (Regulation) Order, 1998

The Vegetable Oil Products (Regulation) Order has been issued in 1998 in super session of Vegetable Oil Product Control Order, 1947 which was issued under Section 3 of Essential Supplies Act, 1946, in super session of Vegetable Oil Products Control Order, 1946 which was in existence at that time. Later on, after passing the Essential Commodities Act, 1955, the Vegetable Oil Product Order was adopted under Essential Commodities Act. This Order is implemented by Directorate of Vanaspati, Vegetable Oils & Fats, Ministry of Food & Civil Supplies, Govt. of India. Products covered under this Order are Vegetable Oils, Vanaspati, Margarine and Bakery & Shortening. The Order provides for compulsory licensing for manufacturing units. The specifications of the products, namely, Vanaspati, Margarine and Bakery & Shortening have been laid down under this Order.

2.3.4 Solvent Extracted Oil, De-Oiled Meal and Edible Flour (Control) Order, 1967

This Order issued under Section 3 of Essential Commodities Act, 1955, for controlling the production and distribution of Oils, De-oiled Meal and Edible Flour, which are obtained
by the methods of solvent extraction. This Order provides for compulsory licensing of manufacturing units. The licence to such units under Rule 50 of the PFA Rules is exempted. The specifications of the edible oils produced by solvent extraction method have been laid down under the said Order. The packing & labelling conditions of such oils are also laid down but these oils shall conform to the specifications laid down under item A.17 of Appendix ‘A’ of the PFA Rules.

2.3.5 **Meat Product Control Order, 1973 (Ministry of Rural Areas and Employment)**

This order has been issued under the essential commodity act, 1955. Licensing under PFA Rules, 1955 are exempted for those industries which manufacture meat and meat products. Quality and safety parameters have been prescribed for meat and meat products under this order. The quality and safety parameters have now been provided under PFA Rule, 1955 for these products also. However, under this order, requirement of Heavy metals and Pesticide Residues have been prescribed. Additionally, the list of preservatives, sequestering and buffering agents for use in these products have also been provided. This order emphasizes for the hygienic conditions of the plant machinery and personnel. Agricultural Marketing Advisor to Government of India is implementing this order.

2.3.6 **Edible Oil Packaging (Development and Regulation) Order, 1998**

Ministry of Consumer Affairs has issued this order in 1998 during the period of dropsy in India. In 1998, some mustard oils were found to be adulterated with argemone oil. To control the quality of edible vegetable oils the above order was issued. The main provision of this order are as follows:

- All edible vegetable oils shall be sold only in packed conditions.
- All the edible vegetable oils shall be packed only after testing by the manufacturers.
- All the edible oils shall meet the requirement prescribed under PFA Rules, 1955 for such oils.
- The methods of analysis to be used are the same, which have been prescribed in the manual prescribed by Directorate General of Health Services.
- All the manufacturers will have to register themselves with the local civil supply departments and shall file the returns as prescribed under that order.

2.3.7 **Milk and Milk Product Order, 1992, Ministry of Agriculture**

This order was issued under the essential commodities act, 1955. The Ministry of Agriculture, Department of Animal Husbandry and Dairying, Government of India are implementing this order. Under this order, conditions for registration and its renewal have been prescribed. The concerned inspector assesses the hygienic conditions of the premises and the quantity of such product being processed. Quality and safety parameters for milk and milk products have not been prescribed under this order meaning thereby that all the milk and milk products shall meet the Standards prescribed under PFA Rule, 1955. The main aim of this order is to control the collection of milk and production of milk products in addition to hygienic requirement of the plant, machinery and personnel.

2.3.8 **Standard of Weights and Measures Act, 1976**

The Standard of Weights and Measures Act, 1976 was enacted to establish standards of weights and measures, to regulate inter-state trade or commerce in weights, measures and other goods which are sold or distributed by weight, measure or number, and to provide for matters connected therewith or incidental thereto. The Act extends to the whole of India.
When commodities are sold or distributed in packaged form in the course of inter-State trade or commerce, it is essential that every package must have:

- Plain and conspicuous declaration thereon showing the identity of the commodity in the package,
- The net quantity in terms of the standard units of weights and measures and if in nos., the accurate number therein,
- The unit sale price of the commodity and the sale price of that particular package of that commodity.
- The names of the manufacturer, and also of the packer or distributor, should also be mentioned on the package.

In this regard the Packaged Commodities Rules were framed in 1977. These Rules extend to the whole of India and apply to commodities in the packaged form which are, or are intended or likely to be sold, distributed or delivered or offered or displayed for sale, distribution or delivery or which are stored for sale, or for distribution or delivery in the course of inter-state trade and commerce.

2.3.9 Export (Quality Control and Inspection) Act, 1963

The Export Inspection Council (EIC) was set up by the Government of India Export (Quality Control and Inspection) Act, 1963 (22 of 1963), in order to ensure sound development of export trade of India through Quality Control and Inspection and for matters connected thereof. The Council, constituted by the Central Government, is the apex body and has powers to constitute specialist committees to assist it in discharge of its functions. Accordingly, the Council has constituted Administrative Committee to advise it on administrative matters and a Technical Committee to advise it on technical matters.

Besides its advisory role, the Export Inspection Council, also exercises technical and administrative control over the five Export Inspection Agencies (EIAs) at Chennai, Delhi, Kochi, Kolkata and Mumbai. EIA's were established by the Ministry of Commerce, Government of India, under for the purpose of implementing the various measures and policies formulated by the Export Inspection Council of India.

Further, under the Export (Quality Control and Inspection) Act, 1963 following units have been set-up by the Ministry of Commerce for ensuring promotion and quality control of export of food item:

- Export inspection Council. (E.I.C.);
- Agricultural and Processed Food Export Development Authority (APEDA);
- Spices Board;
- Coffee Board;
- Tea Board;
- Marine Products Export Development Authority (MPEDA).

Pre-shipment inspection and analysis is carried out in order to ensure that exported items conform to the quality prescribed by the importing countries and do not pose any health hazard.

In case of some of the food article like spices and condiments, fruit products, and meat products, the system of compulsory certification has been introduced.

In addition to the above legislations, there are a few voluntary based product certification agencies in the country viz. BIS, and Agmark.
Check Your Progress Exercise 2

Note:  
a) Use the space below for your answer.
b) Compare your answers with those given at the end of the unit.

1. Describe briefly the provisions of Fruit Products Order, 1955.

2. Which are the important provisions of ‘Solvent extracted oil, De-oiled Meal & Edible Flour (Control) Order, 1967 and ‘Standard Weights & Measures Act, 1976?

2.3.10 Bureau of Indian Standards Act, 1986

Bureau of Indian Standards has been constituted under an act of Parliament i.e. BIS Act, 1986, which deals with standardization of various consumer goods including food products.

The organization also runs a voluntary certification scheme known as “ISI Mark for certification of processed food items”. The authorities after inspection and ensuring that the manufacturers have got the necessary technical know-how, hygienic conditions and other facilities available, grant them a certificate to use ISI mark on their products. Under the provisions of PFA Act, it has been made compulsory that commonly used food additives permitted for use in specified items of food, condensed milk, different categories of Milk Powder, Infant milk substitute, Infant food, packaged drinking water and mineral water and some food additives will be sold only under ISI Certification Mark.

2.3.11 Agmark Grading and Marking Act and Rules, 1937

Under the Grading and Marking Act the Directorate of Marketing and Inspection was constituted in the Ministry of Rural areas and Employment, which operates a voluntary scheme of certification of agricultural products (raw and processed) for safeguarding the health of consumers under ‘Agmark’. An approved chemist tests each batch of consignment before certification is granted. The PFA Rules, 1955 provide compulsory Agmark certification of Blended Oils, Carbia calliosa and Honey dew; Kangra tea; Ghee moving from one state to another; Til Oil produced in Tripura, Assam and West Bengal. Further, certain food items meant for export have been brought under compulsory Agmark certification viz. walnuts, black pepper, cardamom, chillies, ginger and turmeric etc.
The Directorate of Marketing and Inspection has 21 laboratories and 50 sub offices spread all over the country. The Central Agmark Laboratory at Nagpur carries out research and development work in this field.

Check Your Progress Exercise 3

Note: a) Use the space below for your answer.
   b) Compare your answers with those given at the end of the unit.

1. Name two voluntary certification agencies.
   
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2. Explain ‘ISI mark and ‘Agmark’.
   
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2.4 FOOD REGULATIONS FOR INTERNATIONAL ORGANIZATIONS

Since ancient times authorities all over the world made attempts to codify the tools to protect the consumers from dishonest practices in sale of foods. With development in food science, food chemistry and consumer awareness, national governments and international organizations stepped into food and health area, to protect consumers from fraud and to provide clean, wholesome, nutritious and safe food to all.

2.4.1 Codex Alimentarius Commission (CAC)

An UN resolution passed in 1963 to establish Joint FAO / WHO programme paved way for CAC’s Food Standard Programme.

During the past 4 decades, all aspects of foods - processing, labelling, packaging, nutrition, consumer health and fair practices in trade have come under the commission’s scrutiny.

So far Codex has:

- Formulated standards for 237 food commodities.
- Formulated 41 codes of hygienic practices.
- Evaluated 185 pesticides.
- Prescribed limits for contaminants.
Quality

- Developed guidelines for 25 contaminants.
- Evaluated 1005 food additives.
- Evaluated 54 veterinary drugs.

**Codex India** is the National Codex Contact Point (NCCP) for India, it is located at the Directorate General of Health Services, Ministry of Health and Family Welfare, New Delhi. It coordinates and promotes Codex activities in India.

### 2.4.2 International Organization for Standardization (ISO)

The objective of ISO is to promote the development of standards in the world with a view to facilitate international exchange of goods and services, and to develop mutual cooperation in the sphere of intellectual, scientific, technological and economic activity. Other functions of ISO are:

- Helps in Harmonization of food standards throughout the world.
- Facilitates exchange of scientific knowledge between countries.
- Promotes economic development.
- Promotes exchange of goods.
- Promotes free and fair global trading with strategic partnership with WTO.
- Standards help to revise levels of quality, safety, reliability, efficient, compatibility and inter-exchangeability.
- Safeguards consumers and users.
- Global exchange of goods and services incorporating rationality, practical applicability, environmental protection, safeguards safety and health, and provides equal opportunities in world trade.

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**Check Your Progress Exercise 4**

**Note:**

a) Use the space below for your answer.

b) Compare your answers with those given at the end of the unit.

1. Explain the role of Codex Alimentarius Commission.

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### 2.5 LET US SUM UP

Food quality and safety are of paramount importance. Each country has evolved its own food legislations to safeguard the health and well being of its citizens and also promotes its international trade in raw and processed foods. India has enacted the food legislation called the Prevention of Food Adulteration Act (PFA). Besides PFA, few other Acts and Orders of the Government of India deal with specific food commodities. Certification of quality by BIS and Agmark also ensures food product and fresh produce quality.
International food standards like CODEX play a very important role in international trade of fresh and processed foods. National food standards are being harmonized with the international standards to further strengthen world trade in food and food products.

2.6 KEY WORDS

ISI: Indian Standards Institution.
BIS: Bureau of Indian Standards.

2.7 ANSWERS TO CHECK YOUR PROGRESS EXERCISES

Check Your Progress Exercise 1
1. Your answer should include the following points:
   - Food borne illnesses
   - Adulterated food
   - Domestic and international trade
2. Your answer should include the following points:
   - Microbial
   - Pesticide residues
   - Misuse of food additives
   - Metals, toxins
3. Your answer should include the following points:
   - Definition of adulteration
   - Public analysts and food inspectors
   - Consumer organizations, legal proceedings
   - Imported foodstuffs
   - Warranty
   - Trial and punishment
4. Your answer should include the following points:
   - Not meeting specifications
   - Containing injurious substances
   - Addition of cheaper, inferior substances
   - Food prepared under insanitary conditions
   - Unfit for human consumption
Check Your Progress Exercise 2
1. Your answer should include the following points:
   - Ministry of Food Processing Industries
   - Hygienic and sanitary conditions in factories
   - Specifications of fruits and vegetable products
   - Compulsory licensing

2. Your answer should include the following points:
   - Compulsory licensing solvent extraction units
   - Specifications of oils
   - Packaging and labelling
   - Quality and safety of meat products
   - Heavy metal and pesticide residues
   - Preservatives, sequestering and buffering agents

Check Your Progress Exercise 3
1. Your answer should include the following points:
   - FAO/WHO
   - International food standards
   - Standards for food commodities
   - Codes of hygienic practices
   - Limits for food contaminants
   - Food additives

2. Your answer should include the following points:
   - ISI mark is covered under Bureau of Indian Standards Act, 1986
   - Certification Mark of quality
   - Standardization of goods including food products
   - To ensure production of food products under hygienic conditions
   - Under PFA Act food additives, specific food and drinking water and mineral water will be sold under ISI certification Mark
   - Agmark a voluntary scheme of certification of agricultural produce
   - It is operated under Agmark Grading and Marketing Act and Rules, 1937
   - Agmark ensure for safeguarding the health of consumers
   - Blended oils, Ghee, Til oil, etc. are sold under Agmark certification

Check Your Progress Exercise 4
1. Your answer should include the following points:
   - Codex Alimentarius Commission (CAC) operates under Joint FAO/WHO Programme
• It scrutinized Food Standard Programme
• Formulate standards for food commodities, hygienic practices, pesticides residues, food additives etc.

2.8 SOME USEFUL REFERENCES