

Food Handlers' Training Manual for Food Processing Units



Bhutan Agriculture and Food Regulatory Authority (BAFRA)

Ministry of Agriculture and Forests

Foreword

Sections 32 to 41 of the Food Rules and Regulations of Bhutan (2007) requires all people who supervise and/or handle food or food contact surfaces have the knowledge and skills of basic food safety and food hygiene. This training manual has been designed to provide basic knowledge and skills required by food handlers as per the provisions of the above cited legislation.

A food handler is anyone who works in a food business and who either handles food or surfaces that are likely to come in contact with food (e.g. tables, fridges or chopping boards, cutlery, plates). It covers staff who manufacture, process, prepare, serve, deliver, transport or package food in food establishments.

Food safety means making sure that food is safe to eat while food hygiene means keeping the food premises and equipment clean. Ensuring that the food handlers have the right food safety skills and knowledge will not only fulfill the legal requirements, but will also ensure consumer confidence and make food business secure and profitable.

This training manual will also ensure that all food handlers across the country have acquired the required basic skills and knowledge in basic food safety and hygiene. Upon completion of this training, a food handler will be able to understand the requirements of personal health, good hygiene practices, and potential sources of food contamination, temperature control, safe storage practices and sanitation requirements of food premises.

This training manual has been developed by the Bhutan Agriculture and Food Regulatory Authority (BAFRA), Ministry of Agriculture and Forests, Royal Government of Bhutan with technical and financial support from the Food and Agriculture Organization (FAO) of the United Nations.


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1. Introduction

Sections 32 to 41 of the Food Rules and Regulations of Bhutan (2007) requires all people who supervise and/or handle food or food contact surfaces have the knowledge and skills of basic food safety and food hygiene. This training manual has been designed to provide basic knowledge and skills required by food handlers as per the provisions of the above cited legislation. A food handler is anyone who works in a food business and who either handles food or surfaces that are likely to come in contact with food (e.g. tables, fridges or chopping boards, cutlery, plates). It covers staff who manufacture, process, prepare, serve, deliver, transport or package food in food establishments.

Food safety means making sure that food is safe to eat while food hygiene means keeping the food premises and equipment clean. Ensuring food handlers have the right food safety skills and knowledge will not only fulfil the legal requirements, but will ensure consumer confidence and make food business secure and profitable. This training manual will also ensure that all food handlers across the country have the required uniform skills and knowledge in basic food safety and hygiene. Upon completion of this training, a food handler will be able to understand the requirements of personal health, hygiene and practices, sources of food contamination, temperature control, safe storage practices and sanitation requirements of food premises.

Over the past two decades, consumers have been exposed to a series of food safety scares including major outbreaks of Food Borne Diseases (FBDs), food security issues, tainted food and feed supplies and widespread prevalence of Bioterrorism. Under these uncertainties, there is a growing need to address these issues in a scientific and transparent manner and make the Food Business Operators (FBOs) aware of the mandate to ensure food safety in their areas of activities.

The urgent goal of food safety can be achieved only through the following:

- Strong regulations
- Inspection and monitoring activities
- Laboratory testing
- Education, training and competence

The National Food Testing Laboratory under the Bhutan Agriculture and Food Regulatory Authority caters to the routine testing needs of the country. However, it is true that testing cannot eliminate the problem. It is the

commitment of all the stake holders in the food chain to see that such food safety issues are not introduced into the food chain at any stage of the food handling, storage or distribution. This preventive approach only can ensure clean and safe food for the consumers and transform the country to a destination for safe food.

The development of knowledge and skill of all involved in the food safety sector is not limited to the regulators, but all from farm to table. Need based training to cater to the different sectors in food handling ensures that each one can be made aware of the importance of the activity he is performing and the responsible person shall be accountable for the food safety concerns in the products released by him.

2. Scope

The manual specifies requirements for establishing, implementing and monitoring the Good Hygiene Practices (GHPs), Good Manufacturing Practices (GMPs) and the need for documenting the same for compliance with the Criteria for Good Hygienic and Manufacturing Practices. Food business is diverse and food production and service differs in requirements. However, safety requirements can never be compromised and accordingly, this manual has been developed to train and communicate to the food handlers whether they are micro, small, medium or large, the basic hygiene and other control measures to be applied in their facility to prevent a hazard from being introduced into the products manufactured, packed and/or sold by them.

All food handlers employed in food service must obtain a food handler license within 30 days from the date of hire. All food handlers are required to keep their food handler license current by renewing it every three years as per the provision of section 39, Chapter VII - Food and Food Business of the Food Rules and Regulations of Bhutan 2007. An original or a copy of the license issued by BAFRA should be kept at the facility to show the BAFRA inspector upon request. A food handler can also undergo self training using this manual and upon successful interview or written test by the designated BAFRA officials is eligible to obtain food handler license.

Any exclusions or alternative measures adopted should not affect the capability of the food business operation to comply with these requirements. The exclusions or alternative methods developed and applied need to be justified to ensure that food safety and other legal compliances are not diluted.

Examples of such exclusions can be in;

- Construction, layout of buildings and associated utilities eg. street vendors
- Layout of premises, including work place and employees facilities
- Supply of air, water, energy and other utilities
- Supporting services including waste and sewage disposal
- Suitability of equipments and the accessibility for cleaning, maintenance and preventive maintenance.

A small or medium establishment or a meat shop may have to alter many of the points but it shall not affect the safety of the products they serve to the consumer

3. Food Safety

What is safe food? Is it clean food which is safe?

- A clean, tasty and well packed food need not be safe.
- Codex defines safe food as “food that will not cause any harm to the consumer when it is prepared and/or eaten according to its intended use.”
- In other words, safe food is food which is free of contaminants and will not cause harm, injury or illness.

Contamination

- Contamination is the presence or introduction of a contaminant in the food or food environment (EC Regulation No.852/2004).

Contaminant

- Contaminant is any biological or chemical agent, foreign matter or other substances not intentionally added to food which may compromise food safety or suitability.

Cross contamination

- Cross contamination is the transfer of contaminant particularly bacteria from contaminated foods, generally raw to ready-to-eat foods by direct contact, drip or indirect contact using a vehicle such as hand, clothes, knife, thermometers, etc.

How to prevent cross contamination?

- Through ensuring Good Food Hygiene and Manufacturing Practices (GHPs and GMPs).

Hygiene

All measures and conditions necessary to control hazards to ensure safety of the food and its fitness for consumption, taking into account its intended use (EC Regulation No. 852/2004). This involves preventing objectionable foreign matter getting into the food.

Application of food hygiene includes but not limited to;

- Rejecting contaminated food from suspected sources.
- Protecting food from contamination such as pathogens, poisons, toxic chemicals, allergens, and foreign bodies.

Food Poisoning

- Acute illness usually with diarrhoea and/or vomiting caused by the consumption of contaminated or poisonous foods (multiplication of microorganisms and toxin production occurs within the food).

Food Borne Disease (FBD)

- An illness caused by consumption of food contaminated by pathogens, characterized by having a low infectious dose and no requirement for the multiplication of the pathogens within the food to cause illness.
- All hygiene practices are based on the risk factors associated with foods.

Risk

- Risk is the probability of occurring the problem.
- Based on the nature of the foods, identify how best they support the growth, multiplication and survival of pathogen and leads to FBD.

How are foods categorized based on the risk?

a) High Risk Foods (HRFs)

- HRFs are identified as vehicle for food poisoning and FBDs outbreak.
- RTE foods support rapid growth of food poisoning bacteria.
- Intended use of RTE is without further heating to destroy bacteria.
- Usually high protein and high moisture content favours the growth.
- Highly perishable foods require refrigerated storage (raw meat, fish, poultry etc.)
- Keep separate from raw foods eg. cooked meat and poultry, dairy products, cooked fish, shell fish, cook-chill meals, baby foods, etc.
- Raw foods are often contaminated with large no of bacteria including pathogens and it shall be kept separate from RTE foods even if frozen.

b) Low Risk Foods (LRFs)

- Normally kept under ambient temperature as they cannot promote multiplication of bacteria (dry products).
- Rarely implicated poisoning.
- Foods with high sugar content, acid or acidified foods, fried or dried foods with low water activity (A_w less than 0.85), baked foods, canned foods, powdered foods, etc are examples of Low Risk Foods but once the powder is reconstituted, the same becomes High Risk Foods.

c) Ready to Eat Raw Foods

- These are always risky and should be protected from contamination, subjected to washing and disinfection prior to consumption. Raw vegetables, salads, cooked meat mixed with raw vegetables are few examples.
- Always a risk from low dose pathogens such as Salmonella, *E.coli* 0157 and so on.
- Good handling practices, good storage practices and overall hygiene is the most important to prevent contamination and multiplication and to avoid food poisoning.

What are the risk factors associated with foods and FBDs?

Understanding these risks is necessary to control them as we know it is the risk that is to be prevented, eliminated or reduced to acceptable level through the hygiene and prerequisite programs and hazard controls.

The probable risk factors are;

- Cross contamination
- Raw materials from unsafe sources
- Inadequate heat treatment without proper validation
- Improper holding temperature and lack of good storage practices
- Contaminated equipments
- Poor personal hygiene
- Health status of the food handlers
- Poor water quality
- Lack of pest management
- Lack of training

- Lack of TCS system (Time, Temperature, Humidity Control System to contain pathogens)
- The issue of Mycotoxins

The concept of safe food can be easily achieved if the *Codex General Principles of Food Hygiene and Application of HACCP in Food Handling Establishments* is adequately applied. This document describes the minimum requirements to produce safe and clean foods.

The areas where the GHPs and GMPs are to be designed, applied, complied with and maintained are described separately in this manual.

Hazards and Controls

The objective of this Chapter is to make the trainees aware of the types, sources and routes of contamination hazards including microbiological, chemical, physical and allergens and understand their role in food safety.

Hazard

An agent in foods which causes disease/illness or injury to the consumers. For example, pathogens in foods (present in raw materials or introduced at some time from delivery to service).

Categorization of Hazards

a) Microbiological hazards

- Food poisoning bacteria or pathogens or their toxins in foods
- Spoilage bacteria
- Yeast and mold
- Viruses

b) Physical hazards

- Building materials
- Glass pieces
- Loose metals
- Plastic pieces
- Stones

c) Chemical hazards

- Acute or chronic carcinogens
- Industrial chemicals (PCBs)
- Pesticide residues
- Drug residues
- Toxic metals (lead, arsenic, cadmium, mercury, etc)
- Cleaning chemicals

d) Allergic hazards

- Peanut, nuts (walnut, Brazil nut, almonds)
- Milk (lactose)
- Eggs
- Shell fish
- Soya
- Cereals
- Sesame seeds
- Mustard
- Celery

An allergen causes the body's immune system to react, often within minutes. In serious cases, a person may face life threatening anaphylactic shock.

All these hazards need to be prevented, eliminated or reduced to acceptable level as specified in the regulations.

Control of bacterial hazards

- Remove sources
- Purchase from reputable suppliers
- Check delivery vehicles
- Inspect food on arrival
- Immediate storage
- Integrated pest management
- High standards of personal hygiene
- Visitors' policy
- Control of cross contamination
- Prevention of multiplication of pathogens
- Destroying pathogens through processing
- Segregate fit and unfit materials

Remember 5 Cs - Clean, Cook, Cover, Chill, Cross contamination.

Control of physical hazards

- Control of raw material
- Control of packaging materials
- Control of structure, equipments and machineries through maintenance
- Personal hygiene
- Pest control
- General control measures during processing by the use of sieves, filters, magnets, color sorters, X-ray machines, metal detectors, magnifying glass, etc.

Control of chemical hazards and allergens

- Reputable suppliers with declaration of all ingredients used (Labeling)
- Segregation of materials with contamination
- Segregation of serving utensils with allergens in catering
- Prevention of cross contamination or carry over
- Labeling of the products
- Cleaning schedule and program
- Training of the personnel in handling of allergens
- Supervision
- Designated storage for controlled use of allergen-containing product
- Communication

In all food processing activities, micro, small or large, a documented system shall be developed to identify hazards in all areas and evaluate them based on risk and severity to determine which hazards are significant in a specific food product so that the same can be prevented or eliminated to produce safe product.

Hazards are specific to the products, process, the facility and the location. Both Government and the industry shall work as a team to have a successful food safety program which requires commitment from all stake holders in the food chain.

4. GMPs in design and facilities for any food processing establishment

4.1 General requirements

Building shall be designed, constructed and maintained in a manner appropriate to the nature of the processing operations to be carried out, the food safety hazards associated with such operations and the potential sources of contamination from the plant environment.

Building can be of durable construction which presents no hazard to the foods produced. This is applicable even to the mobile or street vending operations. For example, self draining, roofing without stagnant water and leakage.

4.2 Environment

Consideration shall be given to potential sources of contamination from the local environment.

The effectiveness of measures taken to protect the product against potential contaminants shall be reviewed regularly.

4.3 Location of establishment

Site boundaries shall be clearly identified and access to site to be under control (exceptions shall be justified).

The site shall be well maintained and fruit trees shall not touch the buildings, roads shall be well maintained and the yards too.

Drainage facilities to be in good order and no stagnant water in the compound near the facility.

5. Layout of Premises and Workplace

5.1 General requirements

Internal layout shall be designed, constructed and maintained to facilitate GHPs and GMPs. The traffic inside the plant, of the materials, products and people and the layout of the equipment shall be designed to protect against product contamination sources.

5.2 Internal design, layout and traffic pattern

The building shall provide adequate space with a unidirectional flow of the materials, products and personnel and physical separation of the raw from the processing areas. Example of separation include barriers, physical separation or sufficient distance to minimize the risk of cross contamination.

Openings or chute doors for transfer of materials shall be designed to minimize entry of foreign matter or pests.

5.3 Internal structures and fittings

Process area walls and floors shall be washable or cleanable as appropriate for the process or product hazard. Materials of construction shall be resistant to the cleaning system applied.

Floor wall junctions shall be rounded off to facilitate cleaning and prevent pest infestation.

Proper slope for the floor to facilitate drainage and to prevent stagnant water. All drains shall be sealed or screened to protect the entry of rodents and vermins.

Sealing and overhead structures shall be designed to protect from condensation drippings and dust accumulation. All external openings and exhaust vents shall be screened. Exit doors and all external doors shall be self-closing, and tight fitting and be ensured that they are in closed condition. Otherwise, screen or net doors can be provided in addition to prevent pest entry.

5.4 Location of equipments

Equipment shall be designed and located so as to facilitate good hygiene practices and monitoring.

Equipment shall be located to permit access for operation, cleaning and maintenance.

5.5 Laboratory facility

In-line or on-line sampling and testing facilities shall be controlled to prevent product contamination.

It is strongly recommended that chemical and microbiological laboratories shall be separated from the processing area.

5.6 Temporary or mobile premises and vending machines

Temporary or mobile facilities shall be designed, constructed and located to prevent pest harborage, and potential contamination of the products.

Additional hazards and controls can be assessed in the case of temporary facilities depending on the product and services rendered.

5.7 Storage of food, packaging materials, ingredients and non food items.

Facilities used to store ingredients; packaging and products shall provide protection from dust, condensation, drains, waste, pests and other sources of contamination.

Storage area shall be dry and well ventilated. Monitoring of temperature and humidity shall be applied where specified.

Storage area shall be specially designated to allow segregation of raw materials, work in progress and finished goods.

All materials shall be stored off the floor on palettes, away from the wall and from ceilings to facilitate cleaning, inspection and pest control activity.

6. Utilities - Air, Water, Energy

6.1 General requirements

Provision and distribution routes of utilities shall be controlled and monitored to prevent cross contamination of the product or environment.

6.2 Water supply

Potable water shall be available in adequate quantity and the potability shall be ensured through a well designed water quality management program.

Water used for processing shall be well protected. Facilities for storage, distribution and where needed temperature control of the water shall be designed to meet the WHO Guidelines on Drinking Water Quality.

Water used as an ingredient shall meet the WHO Guidelines on Drinking Water Quality. Water potability shall be ensured through sampling and testing for chemical as well as microbiological parameters for compliance at regular intervals.

Water for cleaning of food contact surfaces where there is potential for indirect product contamination shall also be potable.

If non potable water is used, the same shall be identified and care shall be taken to prevent the possibility of refluxing the same into the potable water system.

A program shall be designed for cleaning of the water tank and disinfection including the pipeline.

6.3 Boiler chemicals and other water purifying chemicals

Boiler chemicals if used shall be either approved additive, or approved by the regulators in case of water for drinking.

6.4 Air quality and ventilation

In case, air comes in contact with the foods at any stage, the same shall be checked for quality particularly for microbiological parameters and recorded. If temperature and humidity are critical for the product safety and shelf life,

control system shall be put in place. Ventilation shall be provided to remove excess steam, odor, or dust and to facilitate drying after cleaning.

Protocols for air quality monitoring shall be in practice to minimize contamination, if identified as a need.

Air flow shall not be from dirty to the clean area. And air supply ports shall be examined for physical integrity.

6.5 Compressed air and other gases

Compressed air, if used in the manufacturing or packing, the quality shall be ensured. It should be free from dust, oil and water.

Where oil is used in compressors, measures to be identified and monitored to prevent contamination with organic residues or grease.

Air filtration shall be close to the point of use.

6.6 Lighting

Lighting should allow the operators to perform their job hygienically. The intensity of light should be appropriate to the nature of the work done. However, in the processing and inspection areas, it is recommended to have 500 lux. Light fittings shall be protected to ensure materials, products or equipments are not contaminated in case of breakages.

7. Waste disposal

7.1 General requirements

Waste materials shall be identified, collected, removed and disposed off in a manner which prevents contamination of product or production areas.

7.2 Containers for waste and inedible or hazardous substances

Containers for waste and inedible materials shall be;

- Clearly identified for the intended purpose
- Located in a designated area
- Constructed of impervious material which can be easily cleaned and disinfected
- Closed when not in immediate use
- Stored locked where waste may pose problem to the product.

7.3 Waste collection, management and removal

Provision shall be made for collection, segregation of wastes and storage and removal.

Accumulation of waste shall not be allowed in food handling areas. Removal of waste shall be in sufficient frequencies to avoid cross contamination. This frequency shall be a minimum of once in a day.

Labelled materials, products, printed packages and labels shall be disfigured or destroyed so that misuse of the same can be avoided.

Records for destruction as well as the responsibilities for ensuring timely disposal shall be kept for verification.

7.4 Drains and drainages

Drains shall be designed, constructed and located so that the risk of contamination of material or products is avoided.

Drains shall have capacity to remove the flow loads. Drains shall not pass over process lines.

Drainage direction shall not be from contaminated area to the clean area.

8. Equipment suitability, maintenance, cleaning and sanitation

8.1 General requirement

Food contact equipments and surfaces shall be designed and constructed to facilitate cleaning, disinfection and maintenance. Contact surfaces shall not affect or be affected by the intended product or cleaning system.

Food contact equipments shall be constructed of durable materials, able to resist repeated cleaning.

8.2 Hygienic design

Equipment shall be able to meet the established principles of hygienic design including;

- Smooth accessible cleanable surfaces, self draining in wet process areas
- Use of materials compatible with intended products and cleaning or flushing agents
- Framework not penetrated by holes or nuts and bolts
- Piping and duct work shall be cleanable, drainable and with no dead ends
- Equipments shall be designed to minimize contact between the operator's hands and the products

8.3 Product contact surfaces

Product contact surfaces shall be constructed from materials designed for food. They shall be impermeable and rust or corrosion free.

8.4 Temperature control and monitoring equipment

Temperature control equipments used for thermal processing shall be able to meet the temperature gradient and holding conditions given in the relevant product specifications.

Equipment shall provide for the monitoring and control of temperature.

8.5 Cleaning plant, utensils and equipment

Wet and dry cleaning program shall be documented to ensure that all plant, utensils and equipments are cleaned at defined frequencies.

Program shall specify what is to be cleaned including the drains, the responsibility, the method of cleaning (COP or CIP), the use of dedicated cleaning tools, removal and disassembly requirements and method for verifying the effectiveness of cleaning.

8.6 Preventive and break down maintenance

A preventive maintenance as well as breakdown maintenance program shall be designed and shall include the devices used to monitor and/or control food safety hazards. For example, screens, filters, magnets, metal detectors, X-ray detectors, etc.

Corrective or breakdown maintenance shall be done in such a way that production area, nearby areas or equipments used are not at risk of contamination.

Maintenance request which have an impact on food safety shall be given priority.

Temporary fixes shall not contaminate the products. A request for permanent repairs or replacing the temporary one shall be included in the maintenance program requirements.

The procedure for releasing the maintained equipment back to production shall include clean up, sanitizing, where specified in the process sanitation procedures and pre use inspections.

Local area PRP requirements shall be applied to maintenance areas and maintenance activities in process area. Maintenance personnel shall be trained in the product hazards associated with their activities.

9. Control of operations - management of purchased materials

9.1 General requirements

Purchasing of materials which has an impact on food safety shall be controlled to ensure that supplier used has the capability to meet the specified requirements. The conformance of incoming materials to the specified purchase requirements shall be verified.

9.2 Selection and management of supplies and suppliers

There shall be a defined process for the selection, approval and monitoring of suppliers. The process used shall be justified by hazard assessment, including the potential risk to final product and shall include;

- Assessment of the supplier's ability to meet quality and food safety requirements and specifications.
- Description of how suppliers are assessed i.e supplier auditing or third party certifications, CoA availability, etc.
- Monitoring of the supplier's performance to assure continued approval status (monitoring includes conformity with material or product specifications, fulfilment of CoA requirements, satisfactory audit outcome, etc.)

9.3 Incoming material requirements or purchase specification

Incoming material requirements (raw ingredients, packaging)

Delivery vehicle shall be checked prior to and during unloading of materials to verify that the quality and safety of the material has been maintained during transit (eg integrity of seals, freedom from infestation, existence of temperature record).

Material should be checked or inspected, tested or covered by CoA to verify conformity with the specified requirements prior to acceptance or use. The method of verification shall be documented.

The frequency of inspection is based on the non compliances noted, hazards involved in the material and the risk assessment of the specific suppliers.

Materials which do not conform to the relevant specifications shall be handled under a documented procedure which ensures that they are prevented from unintended use.

Access point to bulk material receiving line shall be identified, capped, and locked. Discharge to the system shall take place only after approval and verification of the material to be received.

10. Prevention of cross contamination

10.1 General requirements

Program shall be in place to detect and control contamination. Measures to prevent physical, allergen and microbiological contamination shall be included.

10.2 Microbiological cross contamination

Areas where potential for microbiological cross contamination exists (airborne or from traffic patterns) shall be identified and a segregation (zoning) plan implemented.

A hazard assessment shall be carried out to determine potential contamination sources, susceptibility of the products and control measures suitable for these areas shall be practiced.

Separation of raw from finished or ready to eat (RTE) products.

Structural segregation - physical barriers, walls or separate building.

Access control with requirements to change into the relevant attire codes for that place.

Traffic patterns or equipment segregation-people, materials, equipments.

Tools including the use of dedicated tools.

Establishing controlled environment.

10.3 Allergen management

Allergens present in the product, either by formulation of the product or by potential manufacturing cross-contact shall be declared. Many allergens are already declared under the regulations.

Declaration shall be on the label for packed products in consumer pack or the accompanying documents for products intended for further processing.

Products shall be protected from intended allergen cross-contact by cleaning and line change over practices and/or product sequencing.

Cross contamination can arise during manufacturing either from;
Traces of products from the previous production line which cannot be adequately cleaned from the product line due to technical limitations or;
When contact is likely to occur in the normal manufacturing process with products or ingredients that are produced on separate lines or in the same or adjacent processing areas.

Rework of products containing allergens shall be used only in products containing the same allergen or through a process which demonstrate that the allergen can be completely removed.

Employees handling food should receive specific training in allergen awareness and control measures to be taken during the manufacturing and handling process.

10.4 Physical contamination

When brittle materials are used, periodic inspection requirements and defined procedures in case of breakages shall be developed and personnel are to be trained well to practice.

Where possible, brittle materials such as glass and plastics shall be avoided.

Glass breakage records shall be in place. Based on hazard assessment procedures, measures shall be put in place to prevent, control or detect potential contamination.

Control measures include adequate covering of the products, always or even for the exposed materials.

Use of screens, filters, magnets or sieves.

Use of detection/ rejection devices such as metal detectors or x – rays.

Sources of potential physical contamination includes wooden pallets, tools, rubber seals, caps, cello tapes, packaging materials, personal utilities, and equipments.

11. Cleaning and Sanitation

11.1 General requirements

Cleaning and sanitizing program shall be established to ensure that food processing or handling facility and equipments are maintained in a hygienic condition. The program shall be monitored for its continuing suitability and effectiveness.

11.2 Cleaning and sanitizing agents and tools

Facilities and equipments shall be maintained in a condition which facilitates wet or dry cleaning and sanitation easily. Only a well maintained facility and equipments can be cleaned and sanitized effectively.

Cleaning and sanitizing agents shall be clearly identified with proper labelling. They shall be stored away from food areas and be used only according to the label instructions.

The use of the same shall be under supervision and control by the responsible personnel.

Tools and equipments shall be of hygienic design and maintained in a condition which does not present a potential source of extraneous matter contamination.

11.3 Cleaning and sanitizing programs

Cleaning and sanitizing programs shall be established and validated by the organization to ensure that all parts of establishment and equipments are

cleaned and/or sanitized as per a defined schedule including the cleaning of equipments.

A minimum cleaning and sanitizing program shall specify;
Areas, items of equipments and utensils to be cleaned and/or sanitized
Responsibility for the task specified
Cleaning and sanitizing method and frequency
Monitoring and verification arrangements
Post clean inspections
Pre start up inspections
Training details and requirements

11.4 CIP system

CIP system shall be separated from the active product lines.

Parameters for CIP shall be defined and monitored (including type, concentration, contact time and temperature of any chemical used).

11.5 Monitoring sanitation effectiveness

Cleaning and sanitation shall be monitored at frequencies specified by the organization in their SSOPs to ensure their continuing suitability and effectiveness.

Monitoring program includes;

- Visual observation, lab analysis of swabs drawn aseptically from the cleaned surface immediately for microbial pathogen or even contamination at a higher level, use of rapid test kits and so on.
- In case failures are noticed, immediate corrective action or preventive action shall be taken.

The corrective action includes;

Change of detergents and sanitizer, method of cleaning, increase the frequency, training, demonstration and so on.

The results of implementation and corrective action and its verification for effectiveness shall be documented and be available for regulators for their verification on demand.

Employees training details also shall be documented and recorded.

12. Pest Control

12.1 General requirements

Hygiene, cleaning, incoming material inspection and monitoring procedures shall be implemented to avoid creating an environment conducive to pest activity.

It should be understood by everyone in food handling that it is not pest control, it is pest management; how effectively each facility is in managing the pests without getting entry into their facility and infesting or contaminating the food.

12.2 Pest control program

Establishment shall have a responsible person to manage all the pest control activities, including dealing with the outsourced expert pest control contractors.

Pest management program shall be documented and shall identify target pests and address plans, methods, schedules, control procedures and where necessary training requirements.

The program shall include a list of chemicals which are approved to be used in the specified areas of the establishment.

12.3 Preventing access

In pest control, remember three principles.

1. Prevent access to pest inside, don't be hospitable to pests.
2. Deny food for them or keep clean.
3. Deny shelter to prevent pest harbourage.

Buildings shall be maintained in good repair. Holes, drains, gaps and other potential pest access points shall be sealed.

External openings, doors, ventilations, etc shall be designed in such a way to minimize the entry of pests. Doors can be self closing and tight fitting.

All openings can be screened. Insect electrocutes can be fitted at the external entry doors as a part of prevention.

Positioning of the insect killers is to be decided so that the entry is prevented.

Do not fix the insect killers over the processing table.

12.4 Harboursing and infestation

Storage activities shall be designed to minimize the availability of food to the pests.

Materials already infested shall be handled in such a way that they should not contaminate other materials, products or establishment.

Incoming inspections shall be strong and pest affected material shall not be taken in.

All holes or broken or damaged areas in the processing facility can harbourage pest, if not repaired.

If storage outside is in ware houses, the area shall be protected from the entry of birds to prevent contamination with bird droppings, feathers, etc.

Waste collection and timely disposal if done can reduce the pest access, and harbourage to a great extent.

12.5 Monitoring and detection

Pest monitoring program shall include the placing of detectors, traps, glues, in key locations to identify pest activity. A map of detectors can be kept. The detector shall be kept and monitored in such a way that no potential contamination to the products can happen.

Detectors and traps shall be robust, tamper resistant and shall be appropriate for the target pest.

The person responsible for pest control shall monitor the bait and keep record of the same. In case, pests are detected inside the processing facility, immediate corrective and/or preventive action shall be taken and effectiveness of the same verified and recorded.

12.6 Eradication

Eradication measures shall be put in place immediately after evidence of pest infestation is reported.

Pesticide use and application shall be restricted to trained personnel and shall be controlled to avoid product safety hazards.

Records of use of pesticides shall be maintained to show the type, quantity, concentration used, where, when, and how applied and the target pests.

13. Personal hygiene and employee facilities

13.1 General requirements

Requirements for personal hygiene and behaviour proportional to the hazard posed to the process area or products shall be established and documented.

All personnel, visitors and contractors shall be required to comply with the documented protocols.

13.2 Personal hygiene facilities and toilets

Personal hygiene facilities shall be available to ensure that the degree of personal hygiene required by the organization can be maintained. The facilities shall be located close to the points where hygiene requirements apply and shall be clearly designated.

Establishment shall;

- Provide adequate numbers, locations and means of hygienically washing, drying and where required sanitizing hands (include wash basins, supply of hot and cold water, soap and/or sanitizer).
- Have sinks designated for hand washing which can be non hand operable to have the hygiene conditions and prevent cross contamination.
- Food or equipment washing sinks shall not be used for the purpose.
- Provide adequate no of toilets of sanitary design, each with hand washing and sanitizing facility.
- These facilities shall not open directly to the process areas.

- Have adequate changing facilities for the personnel equipped with lockers for valuables and separate hangers for uniforms, aprons and street clothes, and racks for foot wears provided.
- Have changing facilities well equipped to ensure that the risk of cross contamination from personnel are minimized in the facility while handling foods.

13.3 Staff canteens and designated eating areas

Staff canteens and designated areas for food storage and consumption shall be situated in an area to minimize the potential for cross contamination with food waste and pests.

Staff canteen shall be managed to ensure hygienic storage, preparation of food and storage and serving of the prepared foods, storage and storage conditions, cooking and holding temperatures, time limitations for holding of the prepared foods shall be specified.

Employees' own food shall be stored and consumed in designated area only. No food shall be stored in the change room or in the processing areas.

13.4 Work wear and protective clothing

Personnel who work in or enter into the facility where exposed food or food materials are handled shall wear work clothing that is clean and fit for the purpose.

Clothing mandated for food or hygiene purpose shall not be used for other purposes.

Work wear shall not have buttons, outside pockets, zips or pressed studs; well crew is advisable.

Work wear shall be laundered based on the required frequency and intended use of the dress.

Work wear shall provide adequate protection to ensure that hair, perspiration, etc shall not contaminate the product.

Hair, beards, moustaches shall be covered by restraints.

Where gloves are used as product contact surface, they shall be cleaned and sanitized at regular intervals and procedures and practices shall be in place and monitored. Otherwise, use of gloves will provide a false sense of security.

Otherwise, hands can be sanitized frequently while handling foods. If disposable gloves are used, the same shall also be changed frequently to avoid contamination. Use of latex gloves shall be avoided.

Shoes used shall be fully enclosed and shall be made from non absorbent materials.

Personal protective equipment shall be designed to prevent product contamination and shall be well maintained.

13.5 Health status

Subject to the legal restrictions, all employees prior to appointment in a food handling operation shall undergo a medical examination and a valid medical fitness certificate shall be retained to ensure that he/she is free from any contagious diseases and therefore, fit to work in a food industry. This examination shall be repeated once in a year.

13.6 Illness and injuries

Exclusion Policy

The facility has to document its policy on exclusion in case of personnel with illness or injuries. The employees shall be required to report the following conditions to the management for possible exclusions from food handling areas - jaundice, diarrhoea, vomiting, fever, sore throat, visible infections on skin, lesions, boils, cuts or sores, discharges from eye, ear or nose.

People known or suspected to be infected or carrying a disease transmissible through food shall be prevented from food handling.

Personnel with cuts or wounds shall cover and protect them with designated coverings or dressings.

Any lost dressing shall be reported to the supervisor.

Dressings shall be brightly colored for easy detection or metal detectable in a metal detector.

13.7 Personal cleanliness

Personnel working in food production area shall wash hands before start and sanitize if required.

- Before starting any food handling activity.
- Immediately after using toilets.
- Blowing nose, sneezing.
- Scratching head or body parts.

Whenever you feel the hands are contaminated.

Immediately after handling any contaminated or spoiled material or waste or cleaning materials.

Personnel shall refrain from sneezing over the product or materials. They shall cover nose and wash hands and sanitize after sneezing.

No spitting in and around the processing and area premises.

Smoking shall be prohibited in food handling area.

Finger nails can be kept clean and trimmed.

13.8 Personal behaviour

A documented policy shall be to describe the behaviours of the personnel in the processing, packing and storage areas. The policy shall cover minimum;

- Permission to smoke, eat, chew in the designated areas only.
- Control measures to minimize hazards presented by permitted jewellery due to reasons related to religion, culture or other ethnic issues.
- Permission to carry and use medicines in the designated areas only.
- Prohibition of use of nail polish, false nails, eyelashes, etc
- Maintenance of lockers to ensure they are free from rubbish and soiled linen and other items.
- Storage of maintenance tools in personal boxes. The same shall be in the tool box designated or in the designated areas.

- Sign boards shall be displayed in prominent places in simple language for easy understanding of the Dos and Don'ts.

14. Reuse or rework

14.1 A system shall be established and procedures need to be developed with specific responsibilities assigned to designated personnel to take decisions on reuse or rework.

14.2 Dealing with non conformances

In case of non conformances due to quality issues, if it can be rectified without compromising food safety, the same can be done and verified by a competent or supervisory person.

However, till the non conformity is corrected, the product shall be identified clearly as defective and segregated without being serviced to the customer. All relevant records of corrective actions shall be maintained for verification by the authorized personnel.

14.3 Dealing with food safety issues

In case of suspicion of any contaminant being introduced into the products which may have the potential to cause harm to the consumer, the same shall be withdrawn from the line and isolated with clear identification. If on further investigation, it is found satisfactory by a competent person, the same can be released. Otherwise, the same shall be rejected and disposed as per the norms.

Any reprocessing of unsafe food shall be carried out only with the knowledge of the regulators and following the legal requirements.

Action shall be re initiated to ensure that such incidences are not repeated.

All the relevant records shall be maintained for verification in future.

Big manufacturers shall develop a system for traceability and recall through proper labeling and control and shall practice the same.

15. Recommended records for GHPs and GMPs

Responsibility or organization chart for establishments with authority and responsibility.

- Competence, training and awareness.
- Water quality records.
- Raw material specification and purchase receipt and control.
- Perishable goods storage temperature log.
- Cleaning schedule and daily cleaning and monitoring record.
- Personal hygiene monitoring record.
- Pest control record.
- Lab test reports for samples of foods.
- Sampling and inspection and release record.
- Cooking or other temperature control record.
- Calibration record.
- Maintenance; both preventive and breakdown.
- Hot holding temperature and time record.
- Cold holding temperature and time record.
- Production log in case of manufacturers.
- Waste disposal log.
- Inventory control and storage control of toxic chemicals.
- Document - Sanitation Standard Operating Procedures (SSOPs) stating who, what, when and how for application, verification and record keeping for compliance with GMPs for the specific situation. A street vendor and a small caterer also has to keep few relevant records of sanitation, checking of water quality, personal hygiene practices and time of holding of high risk foods. A simple SSOP can be used to comply with GMPs as given below.

16. Standard Sanitation Operating Procedures (SSOPs)

“Sanitation is a way of life”. This statement by the National Sanitation Foundation tells the story of the contents of this chapter in just a few words. This describes how we meet certain key sanitation conditions and practices and also describes how the operations will be monitored to ensure Good Hygiene and Manufacturing Practices. The monitoring frequency has been described depending on the requirement and the level of risk.

The hygiene/sanitation policy has to be formulated in accordance with the GMP regulations in the country. The eight key areas of sanitation controls

designated as in Codex is taken into account while preparing the SSOPs. Each organization has to tailor this procedure to suit to its needs.

Water

Water is the single largest ingredient or substance used in the preparation of foods, washing, cleaning and for many other purposes, and hence, the safety of water used is a priority in the food business whether small or big. The caterers as well as street vendors shall take care of the water quality they use in order to ensure safety and suitability.

Water used for washing shall be protected from external contamination. The source of water supply must be identified and potability ensured. If suspected not safe, chlorination to a level of less than 1ppm (residual chlorine) can be a method to have safe water. Chlorine tablets and rapid test methods to verify the level of residual chlorine are all available.

In case Government certifies water drainage line and potable water line are made in such a way that cross contamination is avoided and the need for testing by individual is rarely needed, provided the water is stored and consumed hygienically. If collected in jars or pots, the same shall be covered and used hygienically. If water taps are provided, ensure the cleanliness and see no leaking taps. If hoses are connected, the same shall not be on floor to avoid back flow and hoses shall be on hose resters.

The underground tank and overhead tanks if installed are to be covered properly to avoid contamination due to wind, dust, insects, etc. These tanks are cleaned and sanitized once in six months.

Procedure

Initial stage of tank cleaning begins with thorough cleaning of manhole of tank by pressure jet spraying to remove dirt and algae that are impossible to remove by conventional method.

Drain out dirty sludge and clean manually by brushing with bleach and rinse off all bleach,

Check water and ensure chlorine free. Rinse several times.

Monitoring

What	How	Frequency	Who	Verification	Record
Condition of water tank	Visual observation	Weekly	Person responsible	Weekly	Daily/weekly sanitation form
Chlorine test in water	Using chlori-test paper	Daily	Do	Weekly verification of records	Chlorine conc. record
Water tank cleaning	Visual observation	Once in 3 months	Do		Water tank cleaning record
Bacteriological standards	Lab analysis	Once in a month	Quality Controller		Microbiological analysis report
Water potability	Lab analysis	Once in a year			Potability certificate

Ice

In case ice is used, the same shall be from safe source and shall be handled hygienically. The ice manufacturing unit shall have approval from the regulators and shall operate with GHPs.

Waste Disposal

Separate garbage bags can be used for collection of solid waste, cans and glass bottles. The solid waste collected is disposed to the garbage disposal area and ensure that the waste shall not contaminate the food or food contact surface. Waste shall not be thrown on the floor or open elsewhere.

Monitoring

What	How	Frequency	Who	Verification	Record
Waste collection and disposal	Visual observation	Once in a day	DP		Waste Disposal Log
Cleaning of containers and waste room					

Every day before the start and end of the work, the area in and around the operating unit shall be ensured clean. No rubbish or offal is allowed to be piled up in the premises, which can harbour pests.

Prevention of cross contamination

All measures are being taken in the facility to avoid cross contamination of the product through restricting traffic and avoiding even the slightest back tracking. The structure and layout of the processing facility is such that the movement of the people, product and utensils are from clean area to the dirty area as the process moves forward and not vice versa.

The product movement and personal movement are unidirectional. No personnel are allowed to move in and out of the processing hall without adequate protective gear. The construction of the facility is such that it provides adequate space to prevent overcrowding of personnel and equipment and maintains hygiene and sanitation. The facility is protected well against the entry of pests, insects and vermin. The material used for construction permits easy and adequate cleaning. The area in which the raw material is received is separated from the process area.

There is clear separation between the pre processing area and the finished products area. All chances of cross contamination are prevented. The walls and floors are easily washable and light coloured. The floor is smooth to keep the area clean and sanitized. All the processing areas are well lighted and lights are of protective type to avoid contamination. The entire process facility is maintained as new as possible.

Monitoring

What	How	Frequency	Who	Verification	Record
The above practices	Visual observation	Daily	Responsible person	Weekly verification	Daily sanitation form

Glass / Metal Policy

All possible precautions must be taken to see that the products are not contaminated with glass and metal pieces. No glass vessels are taken inside the production area. In case of an accidental breakage, the broken glass pieces are removed using brooms exclusively used for this purpose. If mops are used, they shall not be used in other areas. The food handlers are not allowed to take ornaments or other personal belongings (like hair pins, watches, equipment parts, etc.) to the processing area.

Protection from Adulterants

All foods, food contact surfaces and serving dishes are protected from adulteration with lubricants, fuels, pesticides, cleaning compounds, sanitizing agents and other physical and chemical hazards. Only necessary chemicals are stored in the premises. Chemicals are stored in a separate area away from the preparation area, such that they can't contaminate food, food contact surfaces, serving dishes, etc. All chemicals are labeled properly. Insecticides and rodenticides are not used inside the area. Detergents and chlorine disinfectant solutions are thoroughly washed out after cleaning. The used soaps and other cleaning chemicals shall be used only by authorized personnel.

Monitoring

What	How	Frequency	Who	Verification	Record
Proper labeling and storing of chemicals	Visual observation	Daily	Responsible personnel	Weekly verification	Daily sanitation form
Presence of cleaning compounds on food contact surfaces	Visual observation & chlori-test paper				

Rodent / pest control

Integrated pest management is practiced especially in relation to cockroaches, mice and insects by denial of access incorporated in design, maintenance and proofing of building.

Pest control is primarily managed by outside agency on contract basis and relevant records are monitored and documented by the concerned supervisor and verified by designated personnel. Doors and windows are kept closed and if left open, they shall be air screened with fine mesh. Doorways are protected with automatic door closers. Fly catchers are installed at various locations to control flies and other insects. Access holes are sealed by metal sheets or mesh.

Drainage channels are suitably covered to prevent entry to rodents to the processing hall.

Food spillage and debris are cleared promptly, waste are not allowed to accumulate.

Food is stored off floors and away from walls.

Food is stored in pest proof containers and lids are always replaced.

Regular inspections are made and actions are taken on sighting/notice of pests or pest damage or droppings.

Deliveries - Food serving is checked and corrective action is taken to ensure that it is pest free.

Control

Pests are controlled by chemical methods by an authorized private agency. Different chemicals are used in interiors and exterior areas. It is ensured that the chemicals used inside are an approved one. Spraying is not done when work is going on in the area. All foods are kept well covered or sealed.

Baiting

Rat traps are kept at different areas for pest and check every day. Areas where traps are kept are indicated in the rodent map.

Related records are documented and maintained by the designated personnel. If any rodent has been identified in any area, preventive action is taken immediately.

What	How	Frequency	Who	Verification	Record
Presence of flies	Visual observation	Twice daily	Supervisor		Pest Control Form
Rodent Trap	Visual observation	Every day	Supervisor		Rodent trapping chart

Cleaning and disinfection

The cleaning is well planned, organized and implemented in all areas of food premises. Cleaning schedules are monitored and documented and kept filed.

All chemicals and disinfectants are stored separately from food. Cleaning equipments are kept clean, dried; brushes and mops are hung off the floor in well-designated cleaning equipment area.

Food contact surfaces, equipments, food containers, cutting boards, preparation surfaces, slicing machines, utensils, etc are cleaned and disinfected in chlorinated water (100 ppm) after every usage for a suitable contact time to destroy bacteria. At least within 2 hours of time, all the food contact surfaces shall be disinfected, if in use. If other sanitizers are available, the same can be also be used.

Monitoring:

What	How	Frequency	Who	Verificati on	Recor d
Cleaning and sanitation	Visual observatio n	Daily	DP	Weekly verificatio n of records by	Clean ing Sched ule recor d
Sanitizing solution concentra tion	Using chlori-test paper	Daily	Hygiene Officer	Weekly verificatio n of records by	Daily Chlor ine Chec k list
Cleanline ss of food contact surfaces	Swab analysis	Once in 3 months	Quality Controller		

Maintenance

All the facilities including building, equipment, machinery, utensils, etc are maintained in good condition on a regular basis. Even in case of street vendors, proper maintenance of the utilities shall be done.

Procedure

A regular maintenance program is established for different sections. Building is maintained periodically to prevent leaks that may contaminate the product.

All cracks, holes on the floor, walls, and ceiling shall be repaired as soon as detected. All product contact surfaces are kept in good repair. Equipment or parts thereof which are not in proper condition will be removed or repaired or replaced in a timely manner.

Monitoring

What	How	Frequency	Who	Verification	Record
Condition of building and equipment	Visual observatio n	Weekly once	DP	Weekly verification of records	Maint enance record
Maintenan ce work	Visual observatio n	At the time of maintenance			

Procedures for cleaning

The cleaning consists of various stages;

1. Pre cleans –removing waste by wiping with a wiper and pre rinsing.
2. The dishes are loaded into a plastic crate and then on to the dishwasher.
3. The dishes are washed in a three-cycle process with automatic dosage cleaning liquids with properties of destroying micro organisms. The automatic dosage pump is checked and monitored by the supervisor for every batch.

Work area

The work area including tables, racks, storage area and surrounding floors are cleaned before actual assembly work begins. Periodic cleaning of these areas is made necessary and, cleaning is done at least once during each operating shift.

The concerned area is rinsed with water and detergent, scrubbed with brush and washed and disinfected with chlorine water (100 ppm) and mopped dry. In the final rinse, it is ensured that all the particulate matter and detergent are removed effectively. In case of heavy soiling, the utensils are soaked for some time, scrubbed, rinsed and washed.

Thermometer disinfection

The calibrated thermometers are disinfected with chlorinated water (50 ppm) before and after every use.

Personal hygiene

Personal hygiene is the key area where adequate concentration is given to ensure safety of the product.

Food handlers are trained to observe high standards of personal hygiene. Repeated training classes are conducted to give awareness of these potential hazards and how good hygiene practices can control them. The food handlers adopt all good practices and procedures in order to minimize microbial and physical contamination.

Daily check of the personnel hygiene of every employee shall be done. Checks whether the nails and hairs are trimmed properly, jewellery is avoided, any cuts or wounds if present are kept covered, and for any signs of skin diseases, etc. They are also interviewed for the presence of symptoms of intestinal infection.

The food handlers are strictly instructed to report to their supervisor, if suffering from any of communicable disease or symptoms. It is ensured that no food handler known or suspected to be suffering from or to be a carrier of disease likely to be transmitted through food is allowed to work.

Monitoring

What	How	Frequency	Who	Verification	Record
Employees health, proper cutting of nails, presence of ornaments and cuts and wounds	Visual observation	Daily		Weekly verification of records	Personal Hygiene Log
Cleanliness of head cap, uniforms and aprons	Visual observation				

Hand wash

All area is provided with turn off taps, sufficient liquid soap, soft bristled nail brush, disposable paper towels and hand dips of chlorinated water (20 ppm) solutions. Food handlers are instructed to wash their hands regularly throughout working hours especially after visiting toilets and entering the food processing areas. The DP also monitors the effectiveness of hand wash.

Monitoring

What	How	Frequency	Who	Verific ation	Record
Adequate supply of detergent, nail brush, towels etc.	Visual observati on	Daily	DP	Weekly verifica tion of records	Daily sanitation form
Chlorine level in hand dip	Using chlori- test paper		do		

Change rooms for processing facility

Separate change rooms are provided for all executives, ladies and gents staff. Each employee is provided with at least two sets of uniform. Every day, they are issued with clean uniforms coming from the outside laundry by the linen keeper. Appropriate clean protective clothing is issued to necessary food handlers. Protective clothing is removed when visiting the toilets. Uniforms are not worn outside premises.

Footwear and caps

All the staff inside the unit must wear clean and hygienic footwear. The ladies wear suitable head cover, enclosing the hair inside the head caps.

All the issues of shoes, caps and uniforms are documented and recorded. Separate uniform checklists are maintained. All these are documented by the linen keeper, verified by DP.

Staff cafeteria

Separate cafeteria is provided with non-vegetarian and vegetarian food for all staff on duty. A Bain Marie in the cafeteria facilitates the food to remain hot.

Instrument calibration

All the equipments and instruments used in the measuring or testing are calibrated for accuracy. Thermometers used for checking product temperature are calibrated once in a year with thermometer traceable to national standards.

Training

A training program is implemented to ensure competency of all food handlers to produce safe food. All food handlers receive appropriate supervision, instructions, commensurate with their work activities, thus ensuring that they are aware of the hygiene hazards associated with their job to ensure safety of food produced.

Definitions

1. Establishment

Any building or area in which food is handled and the surroundings under the control of the same management.

2. Food Safety

Assurance that food will not cause harm to the consumer when it is prepared and/or eaten according to its intended use.

3. Standard

Standard is a document approved by a recognized body that provides, for common and repeated use, rules, guidelines or characteristics for products and related processes and production methods, with which compliance is not mandatory. It may also deal with terminologies, symbols, packaging, marking or labeling requirements as they apply to a product, process or production method. (WTO-TBT Annex 1).

4. Regulation

Technical regulation is a document which lays down product characteristics or their related process and production methods, including the administrative provisions with which compliance is mandatory. It may also include or deal exclusively with terminologies, symbols, packaging, marking or labeling requirements as they apply to a product, process or production methods.(WTO-TBT-Annex 1)

5. Food

Any substance, whether processed, partially processed or unprocessed, which is intended for human consumption and includes primary food to the extent defined, genetically modified or engineered food or food containing such ingredients, packaged drinking water, beverages, chewing gum, and any substance, including water used into the food during its manufacture, preparation or treatment but does not include any animal feed, live animals unless they are prepared or processed for placing on the market for human consumption.

6. Food Business Operator (FBO)

A person by whom the business is carried on or owned and is responsible for ensuring the compliance of the Act and the Rules and Regulations applicable to the business.

7. Sampling and Analysis

Taking food or any other substance (including from the environment) relevant to the production, processing and distribution of food in order to verify through analysis compliance with food law /regulations.

8. Sample

A set composed of one or several units or a portion of matter selected by different means in a population or in an important quantity of matter, which is intended to provide information on a given characteristic of the studied population or matter and to provide a basis for a decision concerning the population or matter in question or concerning the process which has produced it.

9. Food Safety Management System (FSMS)

The adoption of good hygiene practices (GHPs), good manufacturing practices (GMP), Hazard Analysis and Critical Control Points (HACCP) and such other practices as may be specified in the regulation for the food business.

10. Contaminant

Any biological or chemical agent, foreign matter, or other substances not intentionally added to food products that may compromise food safety or suitability.

11. Contamination

The introduction or occurrence of a contaminant in food or food environment.

12. Control measure

Any action and activity that can be used to prevent or eliminate a food safety hazard or reduce it to an acceptable level.

13. Corrective action

Any action taken when the results of monitoring indicate a loss of control.(Codex definition)

14. Food handler

Any person who directly handles packaged or unpackaged food, food equipment and utensils, or food contact surfaces and is therefore, expected to comply with food hygiene requirements.

15. Food hygiene

All conditions and measures necessary to ensure the safety and suitability of food at all stages of the food chain.

16. Foreign matter or extraneous matter

The presence in the sample unit of any matter, which had not been derived from food that does not pose threat to human health and is readily recognised without magnification or is present at a level determined by any method including magnification that indicates non compliance with good manufacturing and sanitation practices.

17. Good Manufacturing Practices (GMPs)

Food handlers' compliance with the structural and operational requirements of Act and the Rules and Regulations to ensure that food is not contaminated due to insanitary conditions.

18. Inspection

Evaluation for conformity by measuring, observing, testing or gauging the relevant characteristics to assess compliance with specified standards.

19. Monitoring

The act of conducting a planned sequence of observations or measurements of control parameters to assess whether a critical control parameter is under control.

20. Potable water

Water that is fit for human consumption as prescribed by the World Health Organization of the United Nations.

21. Pre requisite program (GHPs and GMPs)

Basic conditions and activities necessary to maintain a hygienic environment throughout the food chain, suitable for the production, handling and provision of safe end products to the consumers.

22. Processing

An operation affecting the wholesomeness or any other physical or chemical characteristics (heating, salting, dehydration, canning, bottling, pulverising, blending or extraction) of the food.

23. Sanitize

Adequate treatment of surfaces by a process that is effective in destroying vegetative cells of micro-organisms to a safe level.

24. Standard Sanitation Operation Procedure (SSOP)

Procedure to ensure sanitary conditions usually related to the entire processing facility or an area, not limited to a specific processing step of CCP to prevent adulteration due to unsanitary conditions.

25. Verification

The application of methods, procedures, tests and other evaluations, in addition to monitoring to determine compliance with the documented procedures.

26. Process hygiene criteria

Criteria indicating the acceptable functioning of the process. Such a criteria is not applicable to the products placed on the market or finished goods. It sets an indicative contamination value above which corrective actions are required in order to maintain hygiene of the process in compliance with food legislation.

27. Food safety criteria

Criteria defining the acceptability of product or a batch of food product, applicable to products placed on the market (finished goods).

28. Cleaning

Removal of soil, dirt, grease, oil, food residue or other objectionable matter.

29. Zoning

Demarcation of an area within an establishment where specific operating, hygiene or other practices may be applied to minimize the potential for microbiological cross contamination.

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